Health Care Advisory Board

State of the Union 2018

Embracing CV Market Disruption

Prepared for Cox Health

November 9th, 2018

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Prepared for: Cox Health
11.09.2018

Stuart Clark
Managing Director
clarks@advisory.com

The best practices are the ones that work for you.℠

ROAD MAP

1. The New Era of Outmigration
2. CV Market Update
3. The Emerging Logic of Competition

A Royal Pricing Problem

$2,700

Average price of labor and vaginal delivery in **NHS hospital**, 2015

NHS England

$8,900

Estimated price of delivering a **royal baby** in a private room at St. Mary's Hospital in London

WIKIMEDIA

$10,800

Average price of labor and vaginal delivery in a **U.S. hospital**, 2015

WIKIMEDIA

???

Price to rent a private floor at Manhattan hospital for birth of **Beyoncé and Jay-Z's first child**

WIKIMEDIA

Source: The Economist, "A Typical American Birth Costs as Much as Delivering a Royal Baby," April 23, 2018; Health Care Advisory Board interviews and analysis.

Price Scrutiny Back With a Vengeance

Two Areas of Health Care Spending Occupying Most of the Spotlight

1 DRUG PRICES

npr

"As Drug Costs Soar, People Delay Or Skip Cancer Treatments"

The New York Times

"Drug Goes From $13.50 a Tablet to $750, Overnight"

$329B

Total prescription drug expenditures, 2016

≈21%

Percentage of industry EBITDA[1] in pharma and biotech, 2016

2 HOSPITAL PRICES

Vox

"She didn't get treated at the ER. But she got a $5,751 bill anyway"

STAT

"An outrageous hospital charge: I paid $710 for an hour of babysitting"

$1.1T

Total hospital expenditures, 2016

≈22%

Percentage of industry EBITDA in inpatient acute care, 2016

1) Earnings before interest, taxes, depreciation, and amortization.

Source: Szabo L, "As Drug Costs Soar, People Delay or Skip Cancer Treatments," *NPR*, March 15, 2017; Pollack A, "Drug Goes from $13.50 a Tablet to $750, Overnight," *The New York Times*, September 20, 2015; Kliff S, "She Didn't Get Treated at the ER. But She Got a $5,751 Bill Anyway," *Vox*, May 1, 2018; Cortes A, "An Outrageous Hospital Charge: I Paid $710 For an Hour of Babysitting," *STAT*, April 12, 2017; CMS, National Health Expenditure Data; Singhal S, Latko B, and Martin C, "The Future of Healthcare: Finding the Opportunities That Lie Beneath the Uncertainty," *McKinsey&Company*, January 2018; Health Care Advisory Board interviews and analysis.

Sheer Size of Health Spending Drawing New Interest

Silicon Valley Tries Its Hand at Health Care

- "Health Records" feature allows iPhone users to manage their own medical records
- Launching employee onsite clinics focused on population health

Alphabet

- Subsidiary Cityblock Health will provide home care to low-income, urban patients
- Subsidiary Verily exploring Medicaid managed care partnerships

Lyft

- Offering non-emergency medical transportation
- Providers can book and reimburse rides for patients to and from appointments within applications

amazon

"Hard as it might be, **reducing healthcare's burden on the economy** while improving outcomes for employees and their families would be worth the effort. Success is going to require talented experts, a beginner's mind, and a long-term orientation."

Jeff Bezos, CEO, Amazon

The New York Times

"Hearing Amazon's Footsteps, the Health Care Industry Shudders"

Forbes

"Be Afraid: Health Care Feels the Amazon Effect"

Source: Business Wire, "Amazon, Berkshire Hathaway and JPMorgan Chase & Co. to partner on U.S. employee healthcare," January 30, 2018; Bennett J, "Be Afraid: Healthcare Feels the Amazon Effect," *Forbes*, January 30, 2018; The New York Times, "Hearing Amazon's Footsteps, the Health Care Industry Shudders," October 27,2017; The Economist, "Apple and Amazon's Moves in Health Signal a Coming Transformation," February 3, 2018; Scott D, "Why Apple, Amazon, and Google Are Making Big Health Care Moves," *Vox*, March 6, 2018; Health Care Advisory Board interviews and analysis.

Five Visions of Amazon Health Care in Five Years

Near-Term Bet → *Long-Term Potential*

	Employer Aggregator	Next-Generation Retail Pharmacy	Global Health Care Logistics Specialist	Consumer-Focused Technology Platform	Primary Care Operator
Potential Strategies	• Improving wellness programs • Telemedicine	• PillPack growth, expansion • "Basic Care"[1] expansion	• Supply chain platform operator • Wholesale medical supply, device distributor	• "Alexa" patient engagement platform • EHR; consumer-driven data sharing • Insurance broker	• Onsite clinics for employees • Whole Foods retail clinics • Telemedicine
Problems Addressed	• Price variation	• PBM[2] cost inflation • High OOP[3] drug costs	• Inconsistent clinical product • Distributor cost inflation	• Fragmentation of care • Sub-par financial experience	• Unnecessary hospital utilization • Inconsistent clinical experience
Industry Impact	Low	Medium	Medium	High	High

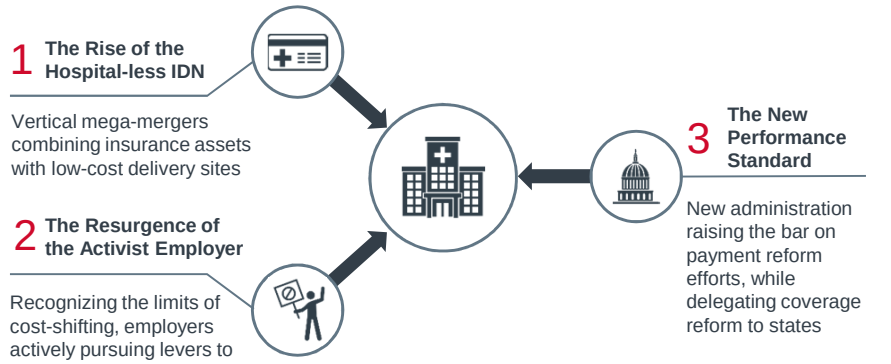
1) Amazon's over-the-counter drug product line.
2) Pharmacy benefit manager.
3) Out-of-pocket.

Source: Health Care Advisory Board interviews and analysis.

More Immediate Disruption Coming From Within

Three Major Trends Challenging the Health System Business Model

Private Sector *Public Sector*



1 The Rise of the Hospital-less IDN

Vertical mega-mergers combining insurance assets with low-cost delivery sites

2 The Resurgence of the Activist Employer

Recognizing the limits of cost-shifting, employers actively pursuing levers to inflect health care prices

3 The New Performance Standard

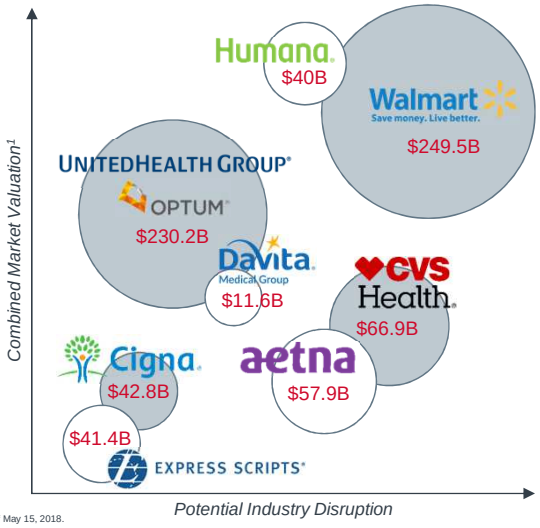
New administration raising the bar on payment reform efforts, while delegating coverage reform to states

Source: Health Care Advisory Board interviews and analysis.

An Industry in Flux

As Disruption Looms, Incumbents Race to Lock up the Market

Unprecedented Mega-Mergers Claiming the Spotlight



Drivers of Deal Activity

Tax reform brings for-profit companies an influx of cash

Shifting administrative priorities changes sources of projected growth

Margin pressure intensifies capital needs in certain sectors

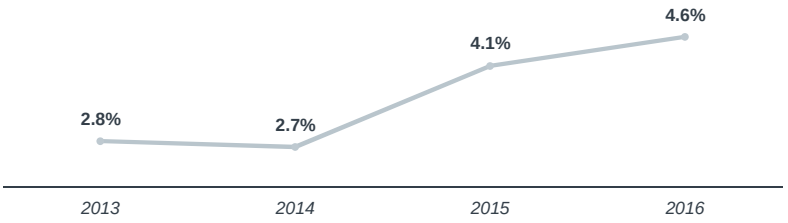
1) As of May 15, 2018.

Source: Google Finance; Health Care Advisory Board interviews and analysis.

Employer Health Spending Continues to Grow

Bracing for Accelerations in Spending in 2018

Employer Health Care Spending Continues to Rise
Percent Change in Annual Spending Per Person, Relative to Previous Year



Exact Projections Vary, But Wide Expectations of Accelerated Spending Growth in 2018

Willis Towers Watson

"U.S. employers expect their health care costs to increase by 5.5 percent in 2018, up from a 4.6 percent increase in 2017"

pwc

"PwC's Health Research Institute (HRI) anticipates a 6.5 percent growth rate for calendar year 2018, half a percentage point higher than in 2017"

MERCER

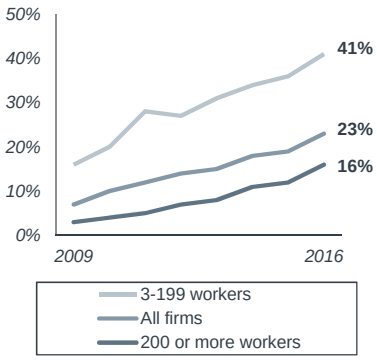
"Average per-employee health benefit cost is predicted to rise by 4.3 percent in 2018, the highest since 2011"

Source: HCCI, "2016 Health Care Cost and Utilization Report," January 2018; Willis Towers Watson, "Best Practices in Health Care Employer Survey Report," January 31, 2018; PwC, "Medical cost trend: Behind the numbers 2018," June 2017; Mercer, "Mercer Survey Shows Employers Face a 4.3% Increase in 2018 US Health Benefit Cost, Highest Since 2011, But Trend Stable," September 18, 2017; Health Care Advisory Board interviews and analysis.

Reaching the Limits of Cost-Shifting?

Here to Stay—But Not Sufficient

Percentage of Workers by Annual Deductible of $2,000 or More
By Firm Size, 2009-2016



Not Quite the Silver Bullet Employers Were Hoping For

The New York Times

"The Big Problem with High Health Care Deductibles"

Modern Healthcare

"Why consumerism is no panacea for our healthcare problems"

Two Commonly Cited Shortfalls

1. Decreases utilization, but insufficient to drive price shopping
2. Window of impact above HSA/HRA[1] and below deductible too limited

1) Health savings account or health reimbursement account.

Source: Gaba C, "Healthcare Coverage Breakout for the Entire U.S. Population in 1 Chart," *ACASingups.net*, March 28, 2016; Katz-Sangor M, "The Big Problem with High Health Care Deductibles," *The New York Times*, February 5, 2016; Meyer H, "Blog: Why Consumerism is No Panacea for Our Healthcare Problems," *Modern Healthcare*, March 8, 2016; Health Care Advisory Board interviews and analysis.

Encouraging PCPs to Make Cost-Conscious Referrals

Customized Network Dashboard Highlights Cost Differentials

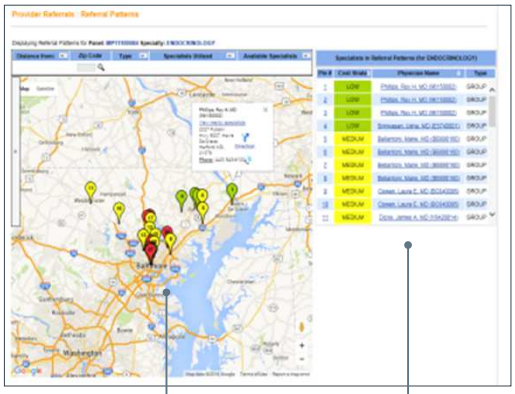
Illustrative Favorites List

★ **Campbell[1] Medical Group's Favorites List**

Name	NPI	Type
Dr. Steven Hawking	#	Neurology
Dr. Marie Curie	#	Radiology
Dr. Charles Darwin	#	Dermatology
Dr. Albert Einstein	#	Psychology
Dr. Francis Crick	#	Cardiology
Dr. James Watson	#	Internal Med.
Dr. Niels Bohr	#	Nuclear Med.
Dr. Jane Goodall	#	Behavioral
Dr. Rosalind Franklin	#	Gynecology
Dr. Ada Lovelace	#	Hematology
Dr. Gregor Mendel	#	Genetics
Dr. Jennifer Doudna	#	Orthopedics
Dr. Maria Mitchell	#	Pulmonology
Dr. Lise Meitner	#	Internal

PCMH[2] PCPs asked to submit list of preferred specialists

CareFirst's Red-Yellow-Green PCMH Referral Guide



CAREFIRST BLUECROSS BLUESHIELD.

CareFirst generates referral guide using favorites list

Specialists color-coded and ranked according to cost

1) Pseudonym.
2) Patient-Centered Medical Home.

Source: "CareFirst PCMH Program Background, History and Results (2011-2016)," CareFirst BlueCross BlueShield, Q2 2017; Health Care Advisory Board interviews and analysis.

Focus on Improved Referrals Gives Clear Results

Substantial Earnings Accrued by Both Parties

CareFirst's PCMH[1] Performance Results

#1
Focus area that most influences cost and quality is the cost effectiveness of referral patterns

$153M
Net savings produced by CareFirst's PCMH model, 2016

60%
Panels receiving Outcome Incentive Award, 2016

49%
Average incentive award as percent of increased fee schedules, 2016

"If [a payer] were to place risk on [these physicians], they typically seek cover by joining a big hospital system. Our program helps them stay independent, and **we have found that independence has led to greater freedom in judgment about when and where to refer**, and that in turn drives [down] a lot of healthcare costs."

Chet Burrell
CEO, CareFirst

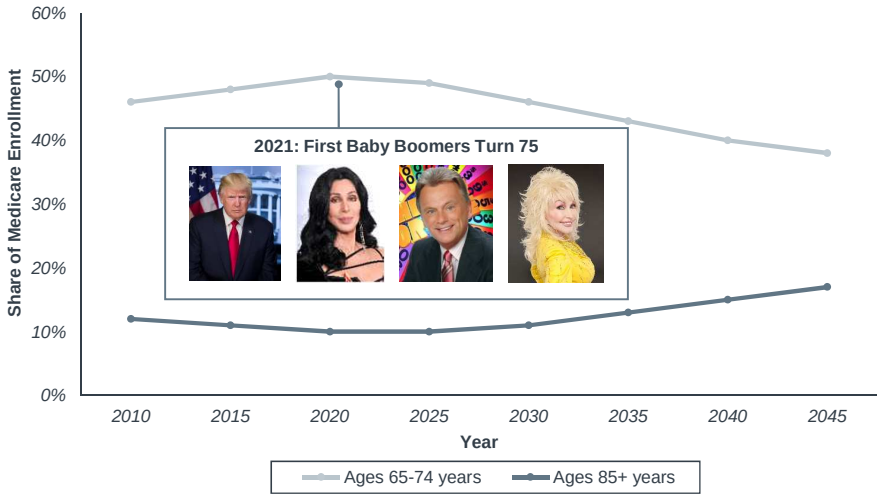
1) Patient-Centered Medical Home.

Source: "CareFirst PCMH Program Background, History and Results (2011-2016)," CareFirst BlueCross BlueShield, Q2 2017; Health Care Advisory Board interviews and analysis.

Focus on Medicare Not Fading Anytime Soon

Medicare's "Benjamin Button" Decade Coming to a Close

Age Distribution of Medicare Population, Historic and Projected, 2010-2045

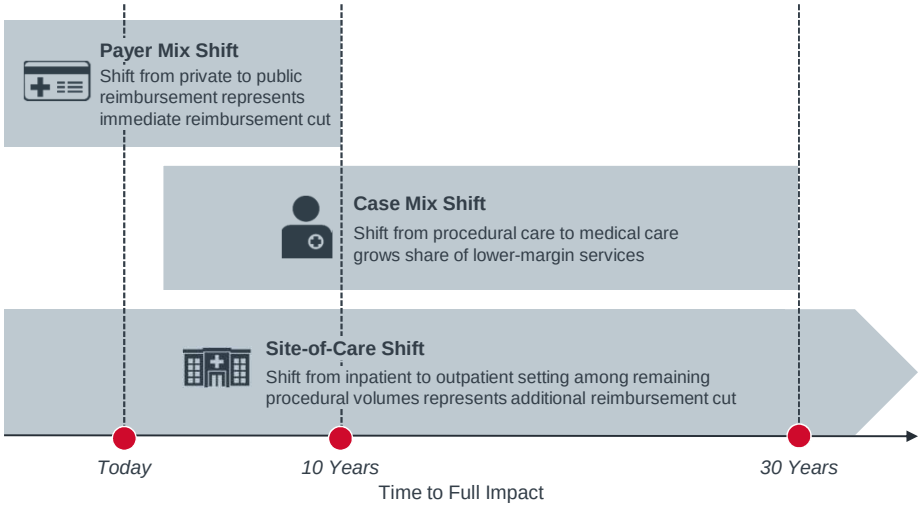


Source: MedPAC, "Report to the Congress: Medicare Payment Policy," March 2018; Health Care Advisory Board interviews and analysis.

Facing a Series of Structural Threats to the Business

But Change Won't Happen Overnight

Three Primary Challenges to Health System Revenue Model



Source: Health Care Advisory Board interviews and analysis.

A New Era for Medicare and Medicaid

Current Administration Setting a Higher Performance Bar

Alex Azar and Seema Verma Lay Out Four-Pronged Regulatory Agenda

- Reduce burdensome regulations
- Promote patient control of health data (0101 1100 1111)
- Encourage greater transparency
- Advance value-based models

Key Observations

Coverage expansion and coverage reform no longer a top federal priority, increasingly delegated to state governments

The administration is taking an unsentimental, performance-focused approach to **delivery system reform via payment reform**

Source: Azar A, "Remarks on Value-Based Transformation to the Federation of American Hospitals," *HHS*, March 5, 2018; Health Care Advisory Board interviews and analysis.

Responding to a Clear Pattern

Physician Groups Lead the Pack in ACO Performance

2016 MSSP Results, by Entity Type

Type of ACO	Number of ACOs	Spending below target, savings	Spending below target, no savings	Spending above target
Physician-Only	134	45%	22%	33%
Hospital	226	23%	26%	52%
FQHC	58	31%	28%	42%
PAC Facility	8	38%	13%	51%
All	**432**	**31%**	**25%**	**44%**

Source: CMS, Shared Savings Program: Program Data, 2016; Health Care Advisory Board interviews and analysis.

ROAD MAP

1 The New Era of Outmigration

2 CV Market Update

3 The Emerging Logic of Competition

CV Programs Ready to Meet the Challenge

Programs Preparing Themselves for Disruptive Market Changes

Evolution of CV Program Priorities

2014-2016 Turnaround
Develop strategies to match the demands of ACA policies and the evolution to risk

2016-2018 Stabilize
Refine operational approach and service offerings to ensure survival under conditions of rapid change

2018-2020 Disrupt
Seize competitive advantage by pursuing market differentiators and redesigning care delivery

Yesterday's Strategic Questions

- What is the future of risk under the new administration?
- How do I stay afloat with shrinking inpatient volumes?
- How should I streamline CV operations to control costs?

Today's Strategic Questions

- How do I distinguish my CV program from competitors?
- How can my program thrive while taking on more risk?
- How can I be the partner of choice for at-risk entities?

Source: Cardiovascular Roundtable research and analysis.

Embracing CV Market Disruption

Key Insights Guiding Cardiovascular Programs

Purchasers Disrupting the CV Payment Paradigm

- CMS' transition to risk is now a foregone conclusion.
- The private sector is now leading the charge on payment transformation.

CV Clinical Care at a Crossroads

- Appropriateness has become a mandated element of your CV program.
- Long-term cost avoidance is now essential to CV program survival.

Care Delivery Network in Transformation

- Service investments must be based on program identity rather than national trends.
- CV programs must proactively confront the ambulatory shift.

Source: Cardiovascular Roundtable research and analysis.

Something's Gotta Give

Margin Pressures Increasingly Impacting Program Sustainability

2017 a Low for Not-For-Profit Hospital Margins

2.7% Industry-Wide Operating Margin in 2016

1.6% Industry-Wide Operating Margin in 2017

60% Percent of hospitals projected to have negative margins by 2025

> **Our existing cost structure is not sustainable**…We believe the transformation required to solve this problem will take months, if not years. **Failing to take steps now will turn a financial challenge into a financial crisis**—something none of us wants."
>
> Jim Skogsbergh, CEO
>
> ADVOCATE HEALTH CARE

Source: CBO, "Budgetary and Economic Effects of Repealing the Affordable Care Act," June 2015; CBO, "Letter to the Honorable John Boehner Providing an Estimate for H.R. 6079, The Repeal of Obamacare Act," July 24, 2012; CBO, "Cost Estimate and Supplemental Analyses for H.R. 2, the Medicare Access and CHIP Reauthorization Act of 2015; Budget of the United States Government (Proposed) FY 2016; Modern Healthcare, "Advocate Health Care plans $200 million in cuts," May 4, 2017; Cardiovascular Roundtable research and analysis.

Pressure on Margins Coming from All Directions

Policy and Market Factors at Work in Moving Programs from Black to Red

Direct Pricing Threats

- Medicare Productivity Adjustments
- Commercial denials
- Site-neutral payments
- High-deductible health plans fueling bad debt

Payer & Case Mix Shifts

- Increase in publicly insured cases
- Growth in lower-margin services
- Uncompensated care in states without Medicaid expansion

CV Volume Dynamics

- Outmigration of CV procedures
- Lower procedural demand
- Growing emphasis on prevention
- Aging, chronic patients

New Payment Models

- Pay-for-performance models
- Bundled payments
- Growth in downside-risk ACOs
- MACRA

Source: Cardiovascular Roundtable research and analysis.

Risk No Longer Leading Edge of Payment Reform

Payments Now Tied to Episodic Performance Across CMS Programs

Pay-for-Performance

- AMI, HF **excess days** in acute care (IQR[1] 2018)
- **Hospital Readmissions Reduction Program** (CABG, AMI, HF)

MACRA

- **Cost category** 30% of MIPS[2] score by 2022
- 2019 proposed rule introduces **eight episodic cost measures**, including:
  - Elective outpatient PCI
  - STEMI with PCI
  - Revascularization for lower extremity chronic CLI

ACOs

- **Over 600** Medicare ACOs in 2018
- Providers interested in **downside-risk ACOs** that qualify as advanced APMs[3] under MACRA
- CMS proposals accelerate transition to **downside-risk models**

Access Advisory Board Resources to Learn More

MACRA Cheat Sheet

Proposed 2019 QPP Updates[4]

CMS's Proposed ACO Overhaul

1) Inpatient Quality Reporting.
2) Merit-Based Incentive Payment System.
3) Alternative payment models.
4) Quality Payment Program.

Source: CMS, FY 2019 PFS Proposed Rule; CMS, "Accountable Care Organizations--Pathways to Success," August 9, 2018; Cardiovascular Roundtable research and analysis.

All Eyes on BPCI Advanced

Voluntary Bundles Illustrate Provider Embrace of Risk-Based Models

Key Features of BPCI Advanced

1. Retrospective, **90-day** bundles; 9 inpatient, 2 outpatient CV episodes
2. Qualifies as an **Advanced APM** for MACRA; participants must meet payment/patient thresholds[1]
3. **Downside risk begins day 1:** unlike BPCI 1.0, there will not be a phase-in period for risk

Evaluating the First Round of Participants

1,547 Acute hospitals and physician group practices participating

Heart failure the second most selected episode in the program

Participants have an option to opt-out on March 1, 2019

Future Unknowns for BPCIA

- ? How many programs will drop out?
- ? How many programs will have volumes to qualify as APMs?
- ? How will programs adapt to new outpatient bundles?

Access more information on BPCI Advanced on the CMMI website

1) 50% of Medicare fee-for-service payments or 35% of patients through Advanced APMs to qualify in performance year 2019.

Source: CMMI, "BPCI Advanced"; Cardiovascular Roundtable research and analysis.

A Sign of More to Come?

CMS Signals Even Greater Reliance on Risk in the Future

CMS Administrator Adds Urgency to Downside Risk Adoption

> "The majority of ACOs…**have yet to move to any downside risk**. And even more concerning, these ACOs are actually increasing Medicare spending… **Our system cannot afford to continue with models that are not producing results**."

Seema Verma, CMS Administrator

HHS Secretary Leaves Door Open on CMMI Mandatory Payment Pilots

> "[If], to test a hypothesis around changing our health care system, it needs to be **mandatory as opposed to voluntary** to get adequate data, then so be it."

Alex Azar, Secretary of HHS

Source: "Speech: Remarks by CMS Administrator Seema Verma at the American Hospital Association Annual Membership Meeting," May 7, 2018; ; The Daily Briefing, "HHS Sec nominee signals potential shift on mandatory payment models," January 9, 2018; Cardiovascular Roundtable research and analysis.

Cardiovascular Roundtable Insight

CMS' transition to risk is now a foregone conclusion.

Expect CMS to place the burden of cost control increasingly on your shoulders in future approaches to reimbursement, and use current CMS risk-centered initiatives as an opportunity to prepare your team for wholesale transition to payment for episodic performance.

Source: Cardiovascular Roundtable research and analysis.

Private Payers Flexing their Muscles

Commercial Sector Accelerating to Risk Faster than CMS

Medicare Advantage Increasingly a Testing Ground

40% Percentage of Medicare participants expected to be enrolled in MA[1] plans by 2025

CMS now allowing MA plans to use **step therapy** for some Part B drugs, where patients must try less expensive drugs before more costly options

CMS testing **MA Value-Based Insurance Design (VBID) Model** for enrollees in select states with select chronic conditions[1]

Mechanisms Available to Private Payers

Posting prices of services

Patient steerage

COE status and other designations

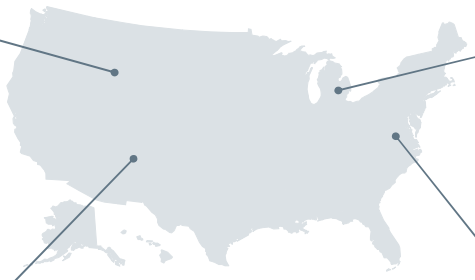
Direct contracting with providers

1) Medicare Advantage.

Source: CMS; CBO, "March 2015 Medicare Baseline," March 9, 2015, available at www.cbo.gov; Sachs, R. "Drug Pricing Policy: HHS Introduces Step Therapy In Medicare Advantage," Health Affairs, August 14, 2018, Cardiovascular Roundtable research and analysis.

Providers Beginning to Feel the Commercial Pressure

Private Payer Initiatives Taking Shape Across the Country



Regional business **partners with competitor hospital for CABG**, captures significant market share

Blue Cross Blue Shield of Michigan
Policyholders offered up to $550/year for exploring lower cost healthcare options

Local payer **pressuring AMC to publish all prices**, but not taking into account the role complex case mix plays in pricing

Horizon Blue Cross Blue Shield of New Jersey
Episodes of Care program includes HF and CABG episode payments

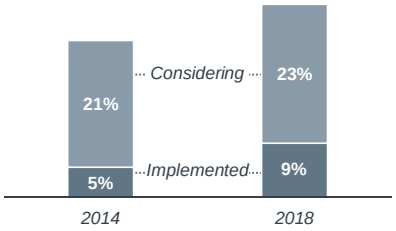
Source: Haener, M. "BCBS of Michigan to pay members up to $550 for healthcare shopping," *Becker's Hospital Review*, September 26, 2018; Cardiovascular Roundtable research and analysis.

Employer-Provider Partnerships 2.0

Persistence of Employer Efforts Reflect Growing Cost Pressures

Industry Interest on the Rise

Percent of Large Employers Pursuing Direct ACO Contracts



"Henry Ford Health System Launches 'Direct to Employer' Healthcare Contract With General Motors"

"Disney Contracts Directly with Orlando Health, Florida Hospital for new HMO Plans"

CV Leaders: Proceed With Caution

Administrative Complexity

66% of surveyed employers ranked **complexity among the top three barriers** to employer-provider contracts

Significant Revenue At Risk

Hospitals often asked to make **significant price cuts** in exchange for the market capture opportunity of a partnership

Poor Track Record

Failures of earlier partnerships serve as disincentive to risk-averse employers and providers seeking contracts

Source: CEB Survey of Employers on Future Health Benefits Changes 2015; PwC, "Medical Cost Trend: Behind the Numbers 2019," June 2018; Minemyer, P, Disney Contracts Directly with Orlando Health, Florida Hospital for new HMO Plans," Fierce Healthcare, February 6, 2018; Cardiovascular Roundtable research and analysis.

Cardiovascular Roundtable Insight

The private sector is now leading the charge on payment transformation.

Health plans, employers, and retailers are pursuing disruptive new strategies to control outsized healthcare costs. Maintaining competitive advantage will require CV programs to monitor private sector initiatives and selectively pursue opportunities for engagement.

Source: Cardiovascular Roundtable research and analysis.

Innovation, but to What End?

From an Apple a Day to an Apple Watch…

An EKG on Your Wrist

Apple Watch Series 4 model includes new medical features

- New watch has been FDA approved as a consumer device
- Apple promoting watch as an EKG consumers can use to monitor heart rhythm and detect disease signs

Potential Step Forward in CV Health…

Greater opportunities for prevention and early intervention

Increasing patient engagement in health through technology

… But Introducing New Challenges

ED

False positives may cause ED, specialist overutilization

Not targeting the most at-risk CV patient population

"I anticipate a lot of downstream testing- and the confirmation of a lot of a little bit of #AFib."

Harlan Krumholz, MD (@hmkyale)
Yale-New Haven Hospital

Source: Krumholz, Harlan (hmkyale), 15 September 2018, 9:18 PM, Tweet; "Cardiovascular Roundtable research and analysis.

Iterative Advances in Core Procedural Technologies

Next-Generation Devices and Procedures Expanding Care Options

Recent Advances in CV Technology Driving Procedural Improvements

Safer, More Effective

- Reducing risk of complications
- Improving long-term patient outcomes, quality of life

Increased Durability

- Devices increasingly built to be failsafe, durable, and user-friendly
- Longer-lasting devices require less repeat procedures, replacements

Greater Patient Reach

- Patients previously considered inoperable now treatable
- Existing technologies finding applications in new patient populations
- Expanding access to higher-risk groups

For an overview of the state of CV technology, read our Cardiovascular Clinical Technology Compendium.

Source: Cardiovascular Roundtable research and analysis.

Expanded Pharmaceutical Options Facing Scrutiny

Clinical Promise of New Drugs Meeting Realities of Cost Control

Drug Management Facing Higher Scrutiny

Drug prices climbing with little sign of slowing

Inconclusive studies do **not prove necessity**

High utilization driving **appropriate use scrutiny**

Case in Point: PCSK9

A Promising New Treatment

PCSK9 has power to **slash cholesterol levels**, **reduce risk of heart attack** for patients with chronic heart disease

Cost of Drugs Limiting Access

$14.6K — Maximum list price of PCSK9 inhibitors

80% — Patients initially rejected for medication by insurers

Source: Kolata, G., "These Cholesterol-Reducers May Save Lives. So Why Aren't Heart Patients Getting Them?" *New York Times*, October 2, 2018; Sabatine, M. et al., Evolocumab and Clinical Outcomes in Patients with Cardiovascular Disease," NEJM 376 (2017): 1713-1722; Cardiovascular Roundtable research and analysis.

Trials Casting New Questions on Appropriate Use

ORBITA, CABANA Pose Potential Impact on Utilization

ORBITA[1]

Compared PCI vs. a sham procedure for patients with stable angina and severe stenosis

- PCI **may not increase exercise time** compared to placebo procedures
- PCI significantly **reduced ischemia** as assessed by FFR, iFR and stress echo

CABANA[2]

Compared catheter ablation vs. drug therapy for patients with new-onset or untreated AF

- No significant difference between **catheter ablation and drug therapy**
- Ablation did not do worse than drugs and is **a safe option for AF**

Impact of Trials on Clinical Practice Still Unclear

- ? Could **reduce volumes** of traditionally accepted procedures
- ? Could **increase scrutiny** from payers, regulators and providers
- ✓ Will require more physician-patient **shared decision making**

1) Objective Randomised Blinded Investigation With Optimal Medical Therapy of Angioplasty in Stable Angina.
2) Catheter Ablation vs Antiarrhythmic Drug Therapy in Afib Trial.

Source: Albuquerque, Luciano Cabral, "ORBITA Trial: Redefining the Role of Intervention in the Treatment of Stable Coronary Disease?" *Brazilian Journal of Cardiovascular Surgery* (Jan-Feb, 2018) 33(1): III-IV; Husten, Larry, "CABANA: No Outcomes Benefit In First Big Trial of AF Ablation," *Forbes*, May 10, 2018; Cardiovascular Roundtable research and analysis.

Pressure on Appropriateness Reaching Boiling Point

CMS to Take a Harder Line on Scrutiny, Reimbursements

High-profile Legal Rulings on Misuse of CV Procedures

- Hospitals fined millions of dollars for inappropriate PCI
- Cardiologists found guilty of Medicare fraud for PCI and PVI
- DOJ investigations of ICDs, PVI

New Imaging Clinical Decision Support Requirement

- Medicare AUC Program requires ordering physicians to consult AUC via electronic CDS for advanced imaging
- Reimbursement denials set to begin January 1, 2021

Shared Decision Making Requirements

- 2018 ICD NCD requires shared decision making for every patient receiving an ICD for primary prevention[1]
- NCD for Watchman requires a formal shared decision making interaction[2]

Learn more about CMS' Clinical Decision Support Program

1) With a physician or qualified non-physician provider.
2) With an independent non-interventional physician using an evidence-based decision tool on oral anticoagulation.

Source: Cardiovascular Roundtable research and analysis.

Cardiovascular Roundtable Insight

Appropriateness has become a mandated element of your CV program.

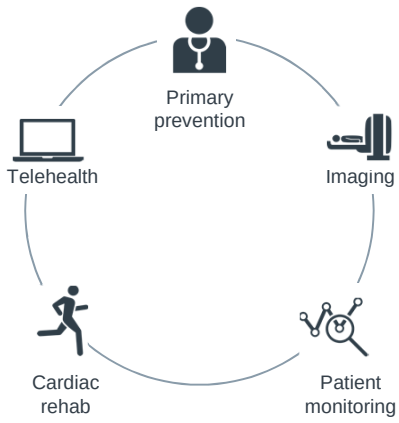
Appropriate CV care now requires an embedded process for evaluating care guidelines as well as patient preferences, priorities, and goals. It is no longer simply good practice, but a mandated and scrutinized element of any CV program that will impact your reimbursement.

Source: Cardiovascular Roundtable research and analysis.

Innovation Not Just Limited to Procedural Offerings

Disease Management the Next Frontier

The New Innovation: *Not* Doing a Procedure



Investing in Technologies to Support Appropriateness

Case in Point: FFR[1] Gaining Traction

- **Less invasive** approach to imaging than angiography
- Helps determine if PCI is the **appropriate** CV intervention
- **Reduces likelihood** of repeat or unnecessary PCI

1) Fractional Flow Reserve

Source: Cardiovascular Roundtable interviews and analysis.

Population Health Now Part Of Program Offerings

CV Programs Charting Strategic Expansion in Several Key Areas

Telehealth and RPM[1]

- New technologies **simplify delivery** of remote care
- CMS **expanding coverage** and reimbursement for telehealth and RPM options

CV Rehab Programs

- Cardiac rehab covered by CMS for **expanded CV conditions** (e.g., HFrEF[2])
- New CMS determination covers exercise therapy for **patients with PAD**[3]

Medical Management

- **Expanded drug options** prompting reevaluation of CV treatment strategies
- Growing emphasis on **cross-continuum care** prompting better integration of treatment, management

1) Remote patient monitoring.
2) Heart failure with reduced ejection fraction.
3) Peripheral artery disease.

Source: Cardiovascular Roundtable research and analysis.

Investing in Future Savings

Program Survival May Require a New Approach to Return on Investment

Traditional Metrics Of Success	*Additional Metrics to Consider*
• **Procedural** outcomes	• **Episodic** outcomes
• Number of procedures **performed**	• Number of procedures **prevented**
• Reputation for **complex care delivery**	• Reputation for **value-driven care**
• Dollars **earned**	• Dollars **saved**

> "In the past, we've generally made the decision to invest in new services based on the revenue we expect to generate. Now, we're having to consider **investments that may show no immediate return on investment**, but will save money for the system in the long run."
>
> *CV Administrator*
> *Health System in the Midwest*

Local Markets May Vary

Considerations in Metric Selection

- Market competitiveness
- Patient demographics
- Payer mix and case mix
- Overall program strategy

Source: Cardiovascular Roundtable research and analysis.

Cardiovascular Roundtable Insight

Long-term cost avoidance is now essential to CV program survival.

Investment in CV services continues to be informed primarily by profitability considerations, with less regard to the importance of inflecting the cost curve. CV programs must begin to incorporate cost avoidance into strategic planning, and to develop metrics evaluating the effectiveness of cost control efforts.

Source: Cardiovascular Roundtable research and analysis.

Pigs in Space?

Remote PCI on Porcine Patient Charting Path to the Future

Operator Performs PCI from 100 Miles Away

EP physician navigated robotic equipment from Ludington, MI

Remote system connected EP physician to pig subject, bedside staff in Grand Rapids, MI

PCI performed successfully by EP physician using robot arm

Signaling a Sea Change in Access and Location of Care

Providing access to CV care **anytime, anywhere**

Shift of procedures to **outside the four walls** of the hospital

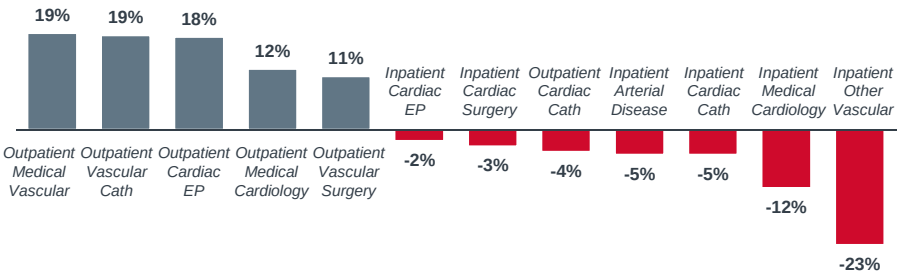
Source: Allar, Daniel, "Operator performs robot-assisted PCI from 100 miles away," *Cardiovascular Business*, July 19, 2018; Cardiovascular roundtable research and analysis.

Market Outlook Adds Urgency to Program Redesign

Procedural Outmigration to Outpatient and Ambulatory Settings Continue

CV Five-Year Growth Projections by Sub-Service Line

National, All-Payer, 2017-2022



Get Custom Market Forecasts

Access the CV Market Estimator for 5-year forecasts for CV services down to DRG, outpatient service level

Explore Local Market Dynamics

Access the CV Medicare Market Explorer to quickly see your program's share of the Medicare market by service

Source: Cardiovascular Roundtable research and analysis.

Changing Demand Creating Winners and Losers

Different Scenarios for CV Programs within a Given Market

Hospital A

Increasing demand across all subservice lines

- Capturing market share from competing hospitals
- Patients with complex care needs requiring longer inpatient stays
- Hub status within care network driving inpatient cases to program

Strategy: Enhance network strategy to triage lower-risk patients to community spoke sites

Hospital B

Decreasing demand across specific inpatient services

- Competitors offering similar CV services within market
- Declining demand for less complex inpatient program offerings
- Spoke status within care network driving inpatient cases to hub

Strategy: Reevaluate service offerings, allocate resources to areas of growth

Concentration of TAVR Volumes Illustrates CV Market Dynamics

Percent of surgical AVR performed at TAVR programs: 44% in 2013 ➡ 69% in 2015

Source: Cardiovascular Roundtable research and analysis.

Provider Shortage Complicates Program Expansion

Limited Specialist Availability Threatens Growth at Some Programs

Numerous Drivers of CV Specialist Shortage

- Declining reimbursement
- Regional workforce patterns
- Training requirements
- High specialist burnout

0% Growth in CV physician workforce from 2005 to 2013[1]

Case in Point: New TAVR NCD May Mandate Experienced Specialists

- New expert consensus document released in 2018 on TAVR operator, program requirements
- Will likely inform new NCD to be released in Summer 2019
- Adds a new requirement that a hospital must have an experienced TAVR operator to begin offering TAVR[3]
- This new requirement will result in greater competition between programs for experienced structural heart fellows

1) Based on the physician's self-designated primary area of practice.
2) Transfemoral TAVR.
3) At least 100 transfemoral TAVR, 50 as primary operator.

Source: Bavaria JE, et al., "Expert Consensus Systems of Care Document: Operator and Institutional Recommendations and Requirements for TAVR," JACC, July 2018; Narang, et. al., "The Supply and Demand of the Cardiovascular Workforce," American Journal of Cardiology, 68, 15 (2016): 1680-1689; Centers for Disease Control, "Health, United States, 2016," Hyattsville, MD. 2017: 304; Cardiovascular Roundtable research and analysis

Cardiovascular Roundtable Insight

Service investments must be based on program identity rather than national trends.

In setting investment and growth strategy, CV programs must first consider the local healthcare ecosystem and the role they play within it. CV programs will continue to diverge in the services they offer as they define their identity in the market.

Source: Cardiovascular Roundtable research and analysis.

Site-Neutral Payment Changes Adding Pressure

Policies Prompt Strategic Reassessment of Services Outside Hospital

Hospitals Meeting Three Criteria Subject to Payment Reduction

- ✓ Hospital-owned, designated as "off-campus, provider-based sites"
- ✓ Located more than 250 yards from hospital's campus
- ✓ Acquired, opened, or built after November 1, 2015

Reimbursed for all services on site specific MPFS[1] rate **set at 40% of HOPPS[2] payment**

Access our **cheat sheet on site neutral payments** on the online resource page

Implications for CV Programs

- **Lower revenue** for CV services with high growth potential
- Practice acquisition **no longer guarantees** higher reimbursement rate
- **Likely to expand payment levelling** to sites now grandfathered into HOPPS

Proposed 2019 Rule Expands the Impact

- New services would no longer be exempt from payment cut
- Payment for routine clinic visits would now be fully site neutral at all sites[3]

1) Medicare Physician Fee Schedule.
2) Hospital Outpatient Prospective Payment System.
3) GO463, hospital outpatient clinic visit for assessment and management of a patient.

Source: CMS, CY 2019 HOPPS Proposed Rule; Cardiovascular Roundtable research and analysis.

Ambulatory on the Rise

Rule Changes Further Incentivize Growth of Standalone Centers

CMS Expanding ASC-Eligible Services

CY 2019 ASC Proposed Rule adds **12 diagnostic cardiac cath** procedures to ASC Covered Procedure List

Additional Factors Driving Outmigration

- **Lower copays** make outpatient more attractive for patients
- More attractive to payers **steering patients** to lower-cost providers
- Community practice **more accessible** to patients, providers

Private Payers Also Pushing Ambulatory

Case in Point:

Anthem to Deny Some On-Campus Imaging Services

- Select Anthem insurance plans conducting level-of-care reviews for imaging exams
- Will deny authorizations for HOPD CT, MRI exams not requiring in-hospital testing
- Ordering provider will be given list of alternative freestanding imaging facilities

Is Echo Next?
For more information on Anthem's payment denials, read our blog

Source: "Imaging Program Expands to Include Level of Care Reviews: FAQ," Anthem Blue Cross Blue Shield, May 2017 Cardiovascular Roundtable research and analysis.

Cardiovascular Roundtable Insight

CV programs must proactively confront the ambulatory shift.

Growing competition, payment changes, and evolving rules on site-of-service are pushing CV programs further into the ambulatory arena than ever before. Programs must develop a strategy for meeting demand for ambulatory services, or risk competitive disadvantage that may threaten long-term sustainability.

Source: Cardiovascular Roundtable research and analysis.

Changing What it Means to be "Best in Class"

Excellence No Longer Defined By Your Program, But By Your Network

Reasons to Pursue Accreditation

- Programs seeking ways to differentiate themselves in competitive markets
- Eager to attract empowered patient consumers shopping for care
- Provides structure for entire program to collaborate in performance improvement
- But programs must balance value against cost, time investment of accreditation

Not Just About Advanced Procedures

"Excellence" Means Matching Your Market

- Seamless continuity of services across your network
- Support for population health and prevention initiatives
- Greater community outreach to address patient needs

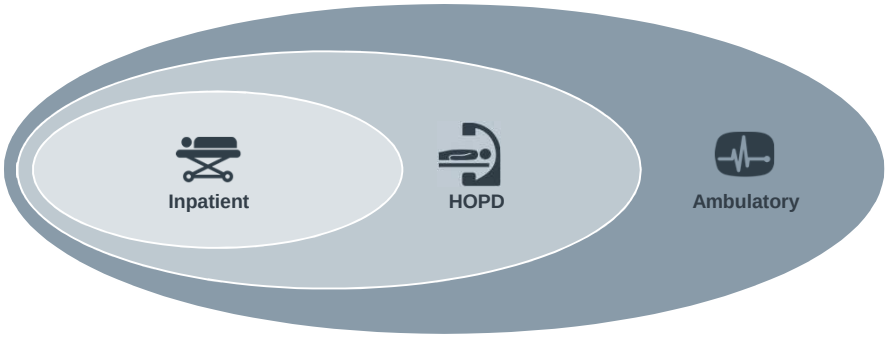
New Accreditations Available for Comprehensive CV Programs

- American Heart Association + Joint Commission
- American College of Cardiology

Source: Cardiovascular roundtable research and analysis.

Positioning CV Programs for Success

Rethinking Your Care Delivery Network to Match Today's Market Realities



Key Network Strategy Considerations

- Offer the right services in the most cost-effective, accessible location
- Enhance your ambulatory strategy to capture increasing demand
- Connect all elements in the care network to leverage quality and efficiency resources

Source: Cardiovascular Roundtable research and analysis.

Rethinking the "Value Equation" in CV Services

Targeting the Levers of Long-Term Patient and Program Health

Unpacking Value More Complicated Than at First Glance

Metrics of Success Will Vary by Program, Patient

$$\text{Value} = \frac{\text{Outcomes}}{\text{Cost}}$$

Outcomes:
- ✓ Procedural improvements
- ✓ Episodic improvements
- ✓ Procedures prevented
- ✓ Improved quality of life
- ✓ Improved patient satisfaction

Cost:
- ✓ Direct procedural costs
- ✓ Indirect costs
- ✓ Downstream costs
- ✓ Future costs avoided
- ✓ Opportunity cost

Source: Cardiovascular Roundtable research and analysis.

ROAD MAP

1 The New Era of Outmigration

2 CV Market Update

3 The Emerging Logic of Competition

Outmigration a Unifying Theme

Private and Public Sectors Converging on Common Solutions

Private Sector	**Key Themes From the New Era of Outmigration**	*Public Sector*
1 The Rise of the Hospital-less IDN Vertical mega-mergers focusing in on lower-cost delivery networks	Heightened focus on input costs	
	The primacy of the independent physician	**3 The New Performance Standard** New administration raising the bar on delivery system reform, while delegating coverage reform to states
2 The Resurgence of the Activist Employer Recognizing the limits of cost-shifting, employers actively pursuing levers to inflect health care prices	Data-driven utilization management	
	Active steerage over hands-off delegation	

Source: Health Care Advisory Board interviews and analysis.

Advisory Board

2445 M Street NW, Washington DC 20037
P 202.266.5600 | F 202.266.5700 | **advisory.com**