The Rise of the Machine: The Role of Data & Analytics in New Healthcare Delivery Models

American Bar Association
Washington Health Law Summit
December 7, 2015
Washington, DC
NEW HEALTHCARE DELIVERY MODELS
MACRA, MIPS, APMs – Oh My!

- Medicare Access & CHIP Reauthorization Act of 2015 (MACRA)
  - Ends SGR
  - Facilitates MIPS & APMs

- Merit-Based Incentive Program Systems (MIPS)
  - PQRS
  - VBPM
  - EHR Incentive Program

- Alternative Payment Models (APMs)
  - Accountable Care Organizations
  - Patient Centered Medical Homes
  - Bundled Payments
  - Medicare Shared Savings Program
CMS MACRA Timeline

**Timeline**

<table>
<thead>
<tr>
<th>Year</th>
<th>MIPS Payment Adjustment</th>
<th>Qualifying APM Participant</th>
<th>Certain APMs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015 and earlier</td>
<td>0.75</td>
<td>4%</td>
<td>Medicare Payment Threshold Excluded from MIPS</td>
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<tr>
<td>2016</td>
<td>0.75</td>
<td>5%</td>
<td>Excluded from MIPS</td>
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<tr>
<td>2017</td>
<td>0.75</td>
<td>7%</td>
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<tr>
<td>2018</td>
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<td>2026</td>
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<tr>
<td>2027 and later</td>
<td>0.25</td>
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Qualifying APM conversion factor
Non-qualifying APM conversion factor
MIPS Components

- Quality (30%)
- Resource use (30%)
- Clinical practice improvement (15%)
- Meaningful use of certified EHR technology (25%)
The new incentives would range from a 4% maximum penalty or bonus in 2019 to a 9% maximum penalty or bonus in 2022 and beyond.

All three programs would end in 2019
“Eligible APM entities” participate in eligible APMs that:

- Require the use of certified EHR technology
- Provide for payment for covered professional services based on quality measures comparable to measures under the MIPS performance category, and
- Bear financial risk for monetary losses under the APM that are in excess of a nominal amount or are medical homes expanded under 1115A(c)
APM entities

- ACOs
- Medical Homes
- Medicare Shared Savings Program
- Demonstration under Health Care Quality Demonstration Program (See https://innovation.cms.gov/initiatives/Medicare-Health-Care-Quality/)
- Demonstration required by federal law
Alternative Payment Models

Fee for Service

Accountable Care Organizations

Bundled Payment

Patient Centered Medical Homes

The Merkin Initiative on Clinical Leadership and Payment Reform at Brookings
2019 to 2024, providers qualifying for the APM track will receive a 5% annual lump-sum bonus on MPFS payments.

Providers must meet increasing thresholds for the percentage of their revenue they receive through eligible APMs:

- **2019-2020:** 25% of Medicare revenue must be received through eligible APMs.
- **2021-2022:** 50% of Medicare revenue or 50% of all-payer revenue along with 25% of Medicare revenue must be received through eligible APMs.
- **2023 and beyond:** 75% of Medicare revenue or 75% of all-payer revenue along with 25% of Medicare revenue must be received through eligible APMs.
Transition to Data Analytics

- Data is king
- EHR is necessary to collect the data
- How do we reconcile all the data sources?
- How do we move past “data repository” concept to make meaningful?
- Beyond that, with measures, protocols, etc. are we innovating as we go?
DATA AND ANALYTICS
Examples of Data Sources

- **DATA.gov** - (United States Government) - Provides access to datasets generated by the Federal Government and includes descriptions of the datasets (metadata), information about how to access the datasets, and tools that leverage government datasets.

- **Health Equity State Snapshots** - (Association of State and Territorial Health Officials (ASTHO)) - Summaries of data collected through ASTHO's Health Equity-Minority Health Survey to assess health equity efforts in the U.S. states and territories.


- **Healthcare Cost and Utilization Project (HCUP)** - (Agency for Healthcare Research and Quality (AHRQ)) - The largest collection of longitudinal hospital care data in the United States.

- **HIMSS State HIT Dashboard** - (Healthcare Information Management Systems Society (HIMSS) USA) - This interactive map displays information on current healthcare IT information and initiatives.

- **Medicare Provider Utilization and Payment Data: Physician and Other Supplier** - (Centers for Medicare & Medicaid Services (CMS)) - This public data set contains information about services and procedures provided to Medicare beneficiaries by physicians and other healthcare professionals, with information about utilization, payment, and submitted charges organized by National Provider Identifier (NPI), Healthcare Common Procedure Coding System (HCPCS) code, and place of service. *This data may not be representative of a physician’s entire practice as it only includes information on Medicare fee-for-service beneficiaries. In addition, the data are not intended to indicate the quality of care provided and are not risk-adjusted to account for differences in underlying severity of disease of patient populations.*
“By definition, big data in healthcare refers to electronic health datasets so large and complex that they are difficult (or impossible) to manage with traditional software and/or hardware; nor can they be easily managed with traditional or common data management tools and methods. Big data is overwhelming not only because of its volume but also because of the diversity of data types and the speed at which it must be managed. The totality of data related to patient healthcare and well-being make up “big data” in the healthcare industry.”

- Raghupathi, Big Data Analytics in Healthcare: Promise and Potential.
At its simplest: data-driven decision-making

Generally: Process of examining collected data to uncover hidden patterns, correlations, & other useful information to predict outcomes, steer strategic decision-making, & improve core business processes.

Healthcare: Process of applying complex analytical techniques to the ‘big data’ already collected by healthcare providers to draw actionable & meaningful insights into how their patient care & associated processes can be improved to generate better care outcomes, cost savings & new profit opportunities.

- Healthcare analytics, unlike most industries, processes “big data.”
- Experts define “big data” as a collection of datasets so vast and complex that they are difficult, if not impossible, to manage through traditional hardware/software and can only be analyzed by highly complex analytical systems and statistical techniques.
What is Big Data?

“Reports say data from the U.S. healthcare system alone reached, in 2011, **150 exabytes**. At this rate of growth, big data for U.S. healthcare will soon reach the **zettabyte** (10\(^{21}\) gigabytes) scale, and not long after, the **yottabyte** (10\(^{24}\) gigabytes).” *Id.*

**Putting it in Perspective: 150 exabytes**

- 1 Exabyte =
  - 1,000,000 Gigabytes (1 Gigabyte = 1 pickup truck filled with paper)
  - 1,000 Terabytes (1 Terabyte = 1 Library, 10 floors high, filled wall to wall with books)
- 5 Exabytes = All words ever spoken by a human being

**Estimate:** Each patient to add **4 megabytes** in text data, **76 megabytes** in imaging data to EMR per year

- 1 megabyte = 1 novel

**Data Storage Costs:** 34-89 cents per gigabyte
Drivers to Monetizing Big Data Through Analytics (Why Pursue Analytics?)

- Exponential Growth of Datasets & Associated Costs
- New Availability of Data
  - Rapid digitization of masses of patient data (EHRs, mHealth, insurance claims)
  - Regulatory mandates to collect & report data
- Changing Reimbursement Models (principal driver)
  - HHS’s announced goal to shift 50% of Medicare’s payments from fee-for-service to bundled-payment arrangements & to tie 90% to quality or value measures by 2018
  - Quality associated reimbursement penalties
- Recover Sunk Costs/Tech Expenditures (ICD-10, PQRS, MU)
- ACOs/Population Health Planning
- Successes in Other Industries
Big Data Analytics: Prevalence

Active Analytics Users:
- 16% of hospitals with 201-500 beds
- 19% of hospitals with 501-1000 beds

- 1 in 5 hospitals already reaping rewards of a big data analytics program.
- Majority of other hospitals taking actions to make big data analytics possible.
Uses For Big Data Analytics

- Hospitals & health systems can monetize their already-collected data to offset the costs of data collection, maintenance, & storage:
  
  1. **ANALYZE** data to discover opportunities for internal process improvements
  
  2. **SELL** de-identified data to others to generate new revenue streams
  
  3. Harness data to **DEVELOP** new products & innovations for resale to others
Data Analytics: Legal Issues

- Obtaining/breaching others’ proprietary rights to data
- HIPAA & state privacy law compliance (de-identification of data)
- Accuracy of data imported into Clinical Decision Support Systems ("CDSS") & care protocols
- CDSS & care protocols intruding on physician’s medical decision-making
  - Who should face malpractice liability if CDSS or protocol inaccurate or is based on false data?)
WHERE'S MY PATIENT?!
ABA Health Summit
The Role of Data and Interoperability in New Healthcare Delivery Models

Kelly Cronin
Director, Office of Care Transformation
ONC/HHS

December 7, 2015
"Improving the way providers are incentivized, the way care is delivered, and the way information is distributed will help provide better care at lower cost across the health care system..."

**Delivery System Reform Focus Areas**

- **Pay Providers**
  - Promote value-based payment systems
    - Test new alternative payment models
    - Increase linkage of Medicaid, Medicare FFS, and other payments to value
  - Bring proven payment models to scale

- **Deliver Care**
  - Encourage the integration and coordination of clinical care services
  - Improve population health
  - Promote patient engagement through shared decision making

- **Distribute Information**
  - Create transparency on cost and quality information
  - Bring electronic health information to the point of care for meaningful use

Source: Burwell SM. Setting Value-Based Payment Goals ─ HHS Efforts to Improve U.S. Health Care. NEJM 2015 Jan 26; published online first.
Clinicians who receive a substantial portion of their revenues (at least 25% of Medicare revenue in 2018-2019 but threshold will increase over time) from eligible alternative payment entities will not be subject to MIPS.

MACRA outlines criteria for Alternative Payment Models which includes but is not limited to:

### Alternative Payment Model (APM)

- **Quality Measures**
  - Use of certified EHR technology

### Merit-Based Incentive Payment System (MIPS)

Adjustments based on the **composite performance score** of each eligible physician or other health professional on a 0-100 point scale based on the following performance measures. CMS has some flexibility to vary the weighting of these categories in the initial program years. Additional positive adjustment is available for exceptional performance.

- **Quality** (30%)
- **Clinical Practice Improvement Activities** (15%)
- **Resource Use** (30%)
- **Meaningful Use of certified HER** (25%)
Through MACRA HHS aims to:

• Offer **multiple pathways** with varying levels of risk and reward for providers to tie more of their payments to value.

• Over time, **expand the opportunities** for a broad range of providers to participate in APMs.

• **Minimize additional reporting burdens** for APM participants.

• **Promote understanding** of each physician’s or practitioner’s status with respect to MIPS and/or APMs.

• Support **multi-payer initiatives** and the development of APMs in Medicaid, Medicare Advantage, and other payer arrangements.

• Advance use of **interoperable health IT** to enable providers to succeed in value based payment arrangements.
How MACRA gets us closer to meeting HHS payment reform goals

The Merit-based Incentive Payment System helps to link fee-for-service payments to quality and value.

The law also provides incentives for participation in Alternative Payment Models via the bonus payment for Qualifying APM Participants (QPs).

All Medicare fee-for-service (FFS) payments (Categories 1-4)
Medicare FFS payments linked to quality and value (Categories 2-4)
Medicare payments linked to quality and value via APMs (Categories 3-4)
Medicare payments to physicians/clinicians (QPs) in eligible APMs under MACRA
MACRA Merit-Based Incentive Payment System

- **MIPS- Clinical Practice Improvement Activities:** Secretary shall solicit suggestions from stakeholders to identify activities. Sec. retains discretion.

<table>
<thead>
<tr>
<th>Expanded Practice Access</th>
<th>Population Management</th>
<th>Care Coordination</th>
<th>Beneficiary Engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Same day appointments for urgent needs</td>
<td>• Monitoring health conditions &amp; providing timely intervention • Participation in a qualified clinical data registry</td>
<td>• Timely communication of test results • Timely exchange of clinical information with patients AND providers • Use of remote monitoring • Use of telehealth</td>
<td>• Establishing care plans for complex patients • Beneficiary self-management assessment &amp; training • Employing shared decision making</td>
</tr>
<tr>
<td>• After hours clinician advice</td>
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Eligible APMs under MACRA

Eligible APMs are a subset of APMs that meet the following criteria according to the MACRA law:

- **Base payment on quality** measures comparable to those in MIPS
- **Require use of certified EHR technology**
- Either (1) bear more than nominal **financial risk** for monetary losses **OR** (2) be a **medical home model expanded** under CMMI authority
## HIT Framework for Accountable Care

<table>
<thead>
<tr>
<th>Care Coordination</th>
<th>Cohort Management</th>
<th>Patient &amp; Caregiver Relationship Management</th>
<th>Clinician Engagement</th>
<th>Financial Management</th>
<th>Reporting</th>
<th>Knowledge Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access real time health insurance coverage information</td>
<td>Identify cohort from within entire patient population</td>
<td>Basic information services</td>
<td>User friendly, timely and actionable Clinical Decision Support (CDS)</td>
<td>Administrative simplification for operations</td>
<td>Retrieve Data specific to measures</td>
<td>User friendly, timely and actionable Clinical Decision Support (CDS)</td>
</tr>
<tr>
<td>Establish payer relationships</td>
<td>Monitor individual patients</td>
<td>Administrative simplification for patients</td>
<td>Normalized and integrated data</td>
<td>Store quality metric data</td>
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<td>Personalize patient specific information</td>
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<tr>
<td>Establish provider relationships</td>
<td>Clinical Decision Support</td>
<td>Patient educational services</td>
<td>Standard clinical assessment tools</td>
<td>Calculate quality measures</td>
<td></td>
<td>Create and share clinical knowledge</td>
</tr>
<tr>
<td>Share clinical data during transitions of care</td>
<td>Patient engagement within cohort</td>
<td>Well defined care teams</td>
<td>Health assessment of entire patient population</td>
<td>Report quality metrics for internal use</td>
<td></td>
<td>Create and share process improvement knowledge</td>
</tr>
<tr>
<td>Identify best setting for care</td>
<td>Engage preferred providers and clinicians in care teams</td>
<td>Patient communication</td>
<td>Patient attribution algorithms</td>
<td>Report measures to external designated entities</td>
<td></td>
<td>Support comparative effectiveness research</td>
</tr>
<tr>
<td>Identify social &amp; community supports</td>
<td>Shared care management plan</td>
<td>Patient engagement in care</td>
<td>Communication within organization</td>
<td>Report data required for syndromic surveillance</td>
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</tr>
<tr>
<td>Manage referrals</td>
<td>Interventions</td>
<td>Patient assumption of care responsibilities</td>
<td>Communication external to organization</td>
<td>Public Health reporting</td>
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</tr>
<tr>
<td>Patient-centric medication management</td>
<td>Follow up</td>
<td>Monitor patient goals and outcomes</td>
<td>Administrative simplification for providers</td>
<td>Registry reporting</td>
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</tr>
<tr>
<td>Clinical information reconciliation</td>
<td>Monitor cohort</td>
<td>Patient experience of care surveys</td>
<td>Usability of HIT</td>
<td>Report resource consumption for internal use</td>
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<td></td>
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<td>Comprehensive educational systems for clinicians</td>
<td>Report adverse events to Patient Safety Organization</td>
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</table>
Based on an extensive literature review, interviews, and input from Technical Expert Panel participants, the following health IT capabilities emerged as the most important for successful participation in APMs by 2019:

1. Enrolling patients in programs and empaneling them in care teams, particularly with non-billing, ancillary professionals;
2. Managing referrals across clinical and non-clinical settings;
3. Provision of patient risk stratification information across care team;
4. Documenting and sharing the care plan;
5. Applying clinical decision support;
6. Tracking patient use of services in a timely manner;
7. Access to and integration of patient’s claims data in a timely manner; and
8. Ability to organize quality measures at the practice and panel levels and aggregate scores across settings.
HIT Capabilities for APMs – where are the gaps?

• Based on an extensive literature review, interviews, and input from Technical Expert Panel participants, the following health IT capabilities emerged as gaps in the market not likely to be addressed through competition or innovation in the near term:
  – Up to date care plan in standardized format (within ACO) with patient goals and results accessible by providers & case managers
  – Receive and incorporate notifications of referral status, including if appointment is not kept.
  – Identify providers by specialty, commitment to care coordination, patient preference, patient’s health plan network
  – Ability to cross reference the organization’s preferred providers to provider networks identified by the patient, health plan, or provider system.
Published by ONC in January 2015 to guide the nation towards meeting the goal of sharing information more broadly across providers, consumers and others.

Defines how the government in collaboration with the private sector should approach sharing electronic health information and addresses the collaborative impact of all stakeholders in advancing interoperable health information.
• APMs offer a number of opportunities to reinforce the adoption of health information exchange capabilities and HIT tools that are instrumental to providers succeeding within these models.
• APMs can incentivize or require basic adoption of certified HIT, for instance, requiring a certain percentage of participating providers to have attested for meaningful use stage 1 (e.g., CMMI's Pioneer ACO program), or including use of certified HIT as a quality measure (e.g., the Medicare Shared Savings Program).
• Multi-payer alignment of incentives or requirements for interoperability will drive provider behavior and uniform adoption of standards through certification.
• State policies will also reinforce interoperability through Medicaid waivers, State Plan Amendments (e.g., health home requirements), Managed Care Contract requirements, Medicaid matching fund policies, and other state driven mandates or incentives
the Roadmap focuses on actions that will enable a majority of individuals and providers across the care continuum to send, receive, find and use a common set of electronic clinical information at the nationwide level by the end of 2017.

50% of Medicare payments are tied to quality or value through Alternative Payment Models by end of 2018.
Using all HHS Policy levers to Drive Interoperability and Across the Health Care System

Standards and Policy Levers

- Accreditation
- Medicare Payment
- CLIA
- Medicaid policies
- Patient assessments
- Grants
- Medicaid health homes
- ACA - Balancing Incentives

Hospitals
Physician Practices
Pharmacies
Labs
Advanced Imaging Facilities
Home Health
Nursing Homes
Public Health Agencies
Behavioral Health Providers
EMS
Schools

Patients and Caregivers
The shift to value-based payment and accountable care is creating a need for new longitudinal measures of quality and health outcomes across settings of care; this will require new health IT solutions beyond EHRs and intermediaries that will aggregate data, report measures and provide actionable feedback to providers in a rapid cycle fashion.

ONC’s Vision includes:

- Timely, relevant, precise, valid and interoperable decision support for providers, patients, and consumers;
- Valid, reliable and accurate patient outcome measures that support risk-adjustment analysis and are comparable across settings and payers;
- Robust and real-time analytical tools for routine, practice level measurement.
- Interoperable and easy to use tools that leverage/collect the existing data for multiple QI reporting programs;
- Regional aggregators of claims and clinical data that will enable quality measurement, reporting to public and private payers as well as providing comprehensive and actionable feedback to providers;
The Rise of the Machine:
The Role of Data and Analytics in New Healthcare Delivery Models

Meaghan Quinn, MHSA
Program Manager, Project CORE
December 7, 2015
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CMMI Project Overview

- **COORDINATING OPTIMAL REFERRAL EXPERIENCES (CORE): IMPLEMENTING eCONSULTS AND ENHANCED REFERRALS**

- Three year, $7M project with funding from the Centers for Medicare and Medicaid Innovation (Round Two Health Care Innovation Awards); September 1, 2014 – August 31, 2017

- **AAMC Role:** awardee and facilitator convener, partnering with UCSF, five AMC implementation sites, and two data and analytic partners (UHC & Dobson | DaVanzo) to implement and evaluate the program

  - Implementing a model developed and piloted at UCSF (eConsults and eReferrals) that has improved the referral process

- **Target population:** ~500,000 primary care patients served by these AMCs; implementing across 15 medical and surgical specialties
Program Goals

Goal: Improve quality & efficiency of care at interface of primary care and specialty care

Achieved by:

• Right-sizing referral rates
• Reducing unwarranted variation in pre-referral evaluation
• Improving communication and coordination between primary care providers and specialists
Why is improving care at this interface important for AMCs and health systems today?

Did You Know?

1 in 3 patients is referred to a specialist each year

CORE Coordinating Optimal Referral Experiences: Implementing eConsults and Enhanced Referrals

Did You Know?
eConsults have been shown to reduce referrals by up to 30%
Key Program Elements

**EMR-Based Tools**

- EMR-based point of care decision support tools and enhanced clinical workflows that enable efficient, high quality exchanges between PCPs and Specialists
  - **eConsults** – timely input from specialists for lower complexity, data-oriented clinical questions
  - **Enhanced Referrals** – integrate decision support that improves the clinical content of referrals and advances PCP evaluation pre-referral

**Implementation Strategy**

- Establish a culture that breeds collegiality, shared values, and mutual respect between PCPs and specialists
- Incentives that align PCPs and specialists
Project CORE Case Study

Early Lessons Learned:

- Opportunities for leveraging technology and EMR-based tools to drive to value
- Role of data and analytics
- Provider engagement with new care models
- Bridge from volume to value
Leveraging Technology in New Models

The Opportunities…

• Clinical decision support/ point of care tools
• Integrates patient record and clinical data to enhance decision support
• Enhances coordination of care between providers
• Standardizes the clinical workflows to improve quality and efficiency across the system

Technology can yield improved quality, improved efficiency, decreased costs, and improved patient and provider satisfaction
Creating Efficiencies for Providers

Question to PCPs: In the absence of eConsult, what would have been your first step in / addressing this question?
Leveraging Technology in New Models

The Challenges…

• “Click” fatigue

• Workflow and impact on provider and staff effort

• Costs and competing organizational IT priorities

• Interoperability and the ability to open up these new models to providers outside of the system/ network

• Scalability and variations in EMR platforms
Role of Data & Analytics

• Key to leadership engagement with new models of care delivery, and to making the broader case to payers/other key stakeholders

• In Project CORE, evaluating the downstream impact of eConsults and enhanced referrals on utilization, access to care, patient satisfaction, and provider satisfaction

• **Opportunities:**
  • Building institutional capacity to leverage data for strategy
  • Targeting interventions to enhance quality and efficiency

• **Challenges:**
  • Quality of data and reporting
  • Tracking patient data/activity outside of your system/EMR
Provider Engagement

- Alignment with existing workflows and anticipating pain points/barriers to uptake
- Engaging in the development/implementation process
- Messaging and training
- Alignment of incentives
Bridge from Volume to Value
Questions/Discussion

For more information: www.aamc.org/core; econsults@aamc.org