POPULATION HEALTH
WHAT IT REALLY MEANS TO AN ACADEMIC RADIOLOGY DEPARTMENT

2017 Midwest Chair Meeting
Manuel Brown, MD, FACR
The Health Care Landscape

Keywords:
- Consumerism
- Affordable
- Medicare
- Partnerships
- Precision medicine
- High reliability
- Population health
- Health equity
- Social determinants
- ACA
- Risk
- Virtual care
- Technology
- Medicaid
- Exchanges
- Globalization
- Value-based care
- M & A
- Transformation
- Safety & quality outcomes
- Academic excellence
- Research & Innovation
- Predictive analytics
- Community engagement
Becoming Difficult to Sort Through the Noise

- Health Coach Wellness & Prevention
- Patient-Centered
- Medical Home Care Coordination
- Risk Stratification Care Plan Seamless
- Population Health Care Management
- Chronic Care Outcomes Top-of-License
- Community Partnerships Continuum of Care
- Handoffs Medication Reconciliation Outreach Follow-up

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Source: Imaging Performance Partnership interviews and analysis.
What Is Population Health Management?

Bigger Than Just Hospital Care

“Population health has been defined as: ‘the art and science of preventing disease, prolonging life, and promoting health through organized efforts and informed choices of society, organizations (public and private) communities and individuals.’”

*Dartmouth-Hitchcock Medical Center*

“Population health resides at the intersection of three distinct health care mechanisms: increased prevalence of evidence-based preventive services and behaviors; improved care quality and patient satisfaction; advanced care coordination across the health care continuum.”

*American Hospital Association*
Rethinking Radiology’s Value Proposition Under Population Health

**PRESENT**

**VOLUME x PRICE**

**Fee-For-Service**
- Success measured by maximizing volumes and revenues
- Focus on individual scans and reads

**FUTURE**

**Value-Based**
- Success measured by population health outcomes and total costs of care
- Multidisciplinary collaboration across care settings

1. Identify improvement opportunities across the continuum of care
2. Engage radiologists in consultative roles
3. Prioritize the right patients for the right clinical interventions
POPULATION HEALTH
WHAT IT REALLY MEANS
POPULATION HEALTH
WHAT IT REALLY MEANS

• A Buzz Word
• A Philosophy
• A Process
• A Financing Method
• PATIENT-CENTRIC HEALTHCARE
• PERSONALIZED MEDICINE
• PRECISION MEDICINE
• POPULATION HEALTH MANAGEMENT
• ACA
• NARROW NETWORKS
• ICC
WHAT IS PERSONALIZED HEALTH CARE

• Personalized health care is a broad term for interventions that are targeted to individuals based on their risk, in order to provide a more coherent and focused approach to health care.

• It includes preventive, diagnostic, and therapeutic interventions, with risk defined through genetics as well as clinical and family histories.

Kathryn Phillips UCSF
A shift from “personalized medicine” to “precision medicine” allows us to imagine a future practice of medicine and public health in which large-scale biologic, personal, environmental and social information can be analyzed with new computational tools to identify determinants of health and disease, and to develop both individualized and population-level interventions to treat and prevent human disease and improve health equity.
POPULATION HEALTH
WHAT IT REALLY MEANS

• A Buzz Word
• A Philosophy
• A Process
• A Financing Method
Population Health Definitions
(Institute for Healthcare Improvement, 2014)

Population Health:
• The health outcomes of a group of individuals, including the distribution of such outcomes within the group.
  – Groups can be defined by geography, employer, ethnicity, existing disease or condition, etc.
  – Evaluated through measures such as mortality rates, health and functional status, and disease burden (the incidence, prevalence, and/or control of chronic disease)

Value-based Care
• A system of care in which providers’ payments are based on the value of care delivered (ratio of quality outcomes to cost)
**Population Health Definitions**

(Institute for Healthcare Improvement, 2014)

**Population Health Management:**

- The design, delivery, coordination, and payment of high-quality health care services to manage the **Triple Aim** for a population using the best resources we have available to us within the health care system.
  - Accountable Care Organizations, patient registries, and team-based care models are all examples of population health management.
  - Requires new partnerships among providers and payers, integrated data support, redesigned IT structures, care extenders, and a shift from fee-for-service delivery to bearing financial risk for the populations served.
POPULATION HEALTH

WHAT IT REALLY MEANS

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What is Population Health?

- Population Health has been defined as "the health outcomes of a group of individuals, including the distribution of such outcomes within the group". Kindig and Stoddart

- A “population” could be defined by
  - Geographic location
  - Insurance type or attributed group of patients
  - Medical condition (e.g. asthma, diabetes, etc.)
  - Other differentiator
CO·NUN·DRUM \kə-ˈnəndrəm\ NOUN.

A confusing and difficult problem or question. A question asked for amusement, typically one with a pun in its answer; a riddle.

- The Oxford Pocket Dictionary of Current English
A CONUNDRUM?

PATIENT-CENTRIC HEALTHCARE

PERSONALIZED MEDICINE

PRECISION MEDICINE

\[
f(x) = a_0 + \sum_{n=1}^{\infty} \left( a_n \cos \frac{n\pi x}{L} + b_n \sin \frac{n\pi x}{L} \right)
\]

POPULATION HEALTH MANAGEMENT
A CONUNDRUM?

- PATIENT-CENTRIC HEALTHCARE
- PERSONALIZED MEDICINE
- PRECISION MEDICINE
- POPULATION HEALTH MANAGEMENT
A CONUNDRUM?

- PATIENT-CENTRIC HEALTHCARE
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A CONUNDRUM?

- PATIENT-CENTRIC HEALTHCARE
- PERSONALIZED MEDICINE
- PRECISION MEDICINE
- POPULATION HEALTH MANAGEMENT
PRECISION MEDICINE?

Every day, millions of people are taking medications that will not help them.

The top ten highest-grossing drugs in the United States help between 1 in 25 and 1 in 4 of the people who take them.
MOLECULAR PROFILING 101

Same diagnosis, different responses to treatment. Molecular profiling is used to determine the appropriate therapy.

Traditional Therapy  
Targeted Therapy  
Alternative Therapy or Dose
A CONUNDRUM?

• PATIENT-CENTRIC HEALTHCARE
• PERSONALIZED MEDICINE
• PRECISION MEDICINE
• POPULATION HEALTH MANAGEMENT
Population Health Management Maybe Not A Conundrum

• PHM can be translated into a one-on-one relationship.

• A patient who needs a relationship with a physician who doesn’t know the patient even exists PHM enables a way to identify that patient, contact and bring him or her into a one-on-one relationship with a physician.

• Simply put, PHM is not just managing a population. It’s a way to identify “invisible” patients who need one-on-one care — those who are not on physicians’ radar screens
Resolving the Tension Between Population Health and Individual Health Care

Must the Population Health Approach Compromise the Needs of the Individual to Benefit the Community?

It will take several generations to realize the full benefit of investments in disease prevention. In the short run, these investments may draw resources away from tests and treatment for some sick people. In the long run, disease prevention and better low-cost technology could reduce the outlay for treatment. In the interim, skillful clinical decision making can make the most of limited resources.

Harold C. Sox, MD Dartmouth Institute for Health Policy and Clinical Practice
JAMA November 13, 2013 Volume 310, Number 18 pg 1933-4
Resolving the Tension Between Population Health and Individual Health Care

Are the Needs of the Individual and the Population Reconcilable?

As health systems strive for high-value care, resource allocation and modeling to inform it will become increasingly important in health care. Nonetheless, the main challenge of day-to-day patient care is dealing with the idiosyncratic needs of individual patients. Coping with these needs requires skillful improvisation coupled with mastery of a few decision-making principles. Much of medical practice has changed but not the basics of patient-centered care.

Harold C. Sox, MD Dartmouth Institute for Health Policy and Clinical Practice
JAMA November 13, 2013 Volume 310, Number 18 pg 1933-4
Specific payment models

- Fee for service
- Pay for performance
- Episodes of care (Bundled Payments)
- Population health (accountable 1st dollar capitation)
Fee for Service
The Value Equation and the Triple Aim

Value = \left( \frac{\text{Outcome}}{\text{Cost}} \right) \times \text{Satisfaction}

\[ V = \frac{Q + S}{\left(\frac{\text{QUALITY}}{\text{SERVICE}}\right)} \times \text{Satisfaction} \]

Outcomes x Satisfaction

\[ \frac{\text{Outcome}}{\text{Cost}} \times \text{Satisfaction} \]

\[ \text{VALUE} \]

Improve the experience of care

Improve the health of populations

Reduce the per capita costs of health care

\[ \text{TRIPLE AIM} \]
Value = \frac{\text{Quality} + \text{Service}}{\text{Cost}} \times \text{Satisfaction} = \text{VALUE}

Outcomes \times \text{Satisfaction} \quad = \quad \text{VALUE}

Cost

\text{Improve the experience of care}

\text{Improve the health of populations}

\text{Reduce the per capita costs of health care}

\text{TRIPLE AIM}
FROM HERE TO ETERNITY

Trend: Value-Based Payments

From FFS to Capitation

- Capitation
- Shared risks
- Shared savings
- Bundled payments
- Fee-for-service
POPULATION HEALTH
WHAT IT REALLY MEANS

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Payments Under Population Health Models

- Fee for service
  - Emergency department visits
- Bundled episodic
  - Elective arthroplasty
- Capitation
  - Primary care
- Pay for performance stacking
EVOLVING PAYMENT PARADIGMS

Specific payment models

- Fee for service
- Pay for performance
- Episodes of care (Bundled Payments)
- Population health (ACOs, ICCs)
PAY FOR PERFORMANCE

Pay Only for Results

Performance Management

NO EXCUSES!

GIMME SOME GREAT PERFORMANCE!
PAY FOR PERFORMANCE

WHAT PAY-FOR-PERFORMANCE PROGRAMS MEASURE

HMOs incentive programs cover clinical areas and information technology.

For hospitals

<table>
<thead>
<tr>
<th>Measure</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICU staffing</td>
<td>35%</td>
</tr>
<tr>
<td>Computerized physician order entry</td>
<td>29%</td>
</tr>
<tr>
<td>Volume measures</td>
<td>23%</td>
</tr>
<tr>
<td>Other measures of quality</td>
<td>73%</td>
</tr>
</tbody>
</table>

For physicians

<table>
<thead>
<tr>
<th>Measure</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood pressure control</td>
<td>71%</td>
</tr>
<tr>
<td>Asthma medication</td>
<td>87%</td>
</tr>
<tr>
<td>Antidepressant medication management</td>
<td>37%</td>
</tr>
<tr>
<td>Mammography</td>
<td>75%</td>
</tr>
<tr>
<td>Cholesterol management</td>
<td>62%</td>
</tr>
</tbody>
</table>

HOW PLANS PAY

Most health plans offer incentives for meeting certain targets.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rewards only to top performers</td>
<td>31.9%</td>
</tr>
<tr>
<td>Based on attainment of predetermined performance threshold</td>
<td>61.9%</td>
</tr>
<tr>
<td>Based on improvement</td>
<td>20.4%</td>
</tr>
</tbody>
</table>

Source: New England Journal of Medicine, 2006
Specific payment models

- Fee for service
- Pay for performance
- Episodes of care (Bundled Payments)
- Population health (ACOs, ICCs)
The bundles are coming!!
The bundles are coming!!
"There's no easy way I can tell you this, so I'm sending you to someone who can."
ACA Bundled Payment Initiative

- Bundling payment for services patients receive across a single episode of care (e.g., CABG or THR) could encourage physicians, hospitals and other health care providers to work together.

- Opportunity to better coordinate care for patients both in the hospital and after they are discharged.

- CMS is partnering with providers to develop models of bundling payments through the Bundled Payments Initiative.

BUNDLED CARE

• The first year of CMS' voluntary Bundled Payments for Care Improvement (BPCI) initiative has yielded a mixed bag of results, according to the program's 2016 evaluation report.

• The major finding of the study is that while spending decreased in both the intervention and control populations, the decrease was significantly greater for health care organizations in the BPCI.

• Almost all of the reduction in spending was from reduced use of institutional post-acute care.
EVOLVING PAYMENT PARADIGMS

Specific payment models

- Fee for service
- Pay for performance
- Episodes of care (Bundled Payments)
- Population health (ACOs, ICCs)
Challenges With Today's Care

• Healthcare Costs Growing; Burden To Business

• Overuse; Volume “Treadmill”

• Inconsistent Care; Fragmentation

• Lack Of Coordination

• Payment Model at Odds With Countering Rising Costs

• Data Issues
The Majority Of Costs Are From Chronic Conditions

Figure 8. National Health Expenditures (NHEs) by Patient Group, 2011

<table>
<thead>
<tr>
<th>Patient Group</th>
<th>Population, in Millions (%)</th>
<th>National Health Expenditures, $, in Billions (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well(^a)</td>
<td>85 (27)</td>
<td>20 (1)</td>
</tr>
<tr>
<td>Acute self-limited conditions(^b)</td>
<td>82 (26)</td>
<td>412 (15)</td>
</tr>
<tr>
<td>Chronic conditions</td>
<td>144 (46)</td>
<td>2269 (84)</td>
</tr>
<tr>
<td>Total</td>
<td>311</td>
<td>2701</td>
</tr>
</tbody>
</table>
What is an ACO?

• Accountable Care Organizations (ACOs) are groups of doctors, hospitals, and other health care providers, who come together voluntarily to give coordinated high quality care to their Medicare patients.

• The goal of coordinated care is to ensure that patients, especially the chronically ill, get the right care at the right time, while avoiding unnecessary duplication of services and preventing medical errors.

• When an ACO succeeds both in delivering high-quality care and spending health care dollars more wisely, it will share in the savings it achieves for the Medicare program.
ACOs focus on:

• Aligning financial incentives
• Eliminating low value care (waste)
• Improving quality performance
• Improving care for high risk/high acuity patients
• Reducing variation
What is an ICC?

Integrated Care and Coverage

• Health Plan
• Hospital
• Medical Group.
  – Primary Care,
  – Specialty Care,
  – Outpatient Care
  – Inpatient Care
KAISER ICC

Members – Individuals and employer groups

Contractual Agreement $ Dues, Medicare, and other Revenues

(KFHP) Kaiser Foundation Health Plan (Not For Profit)

Contractual Agreement $

Kaiser Foundation Hospitals – owns and operates hospitals (Not for Profit)

Arrows Display Direction Of Financial Risk

Medical Groups (SCPMG and TPMG) - provide medical services (For Profit)

Health Services
WHAT IS POPULATION HEALTH MANAGEMENT

• **Definition:**
The coordination of care delivery across a population* to improve outcomes through disease management, care management, and the demand management.

• **Goal:**
To improve outcomes and reduce utilization by patient populations* with clinical and financial risk.

*Populations are identified through community need assessments and clinical risk registries

• **IHI Triple Aim**
  – Population Health
  – Experience of Care
  – Per Capita Cost
CARILION CLINIC’S INITIAL AREAS OF FOCUS

• Population Health
  – Care coordination for high-risk and high-frequency patients
  – Wellness, Prevention, Choosing Wisely
  – Transformation Work

• Payment Reform
• Provider Engagement
• Health IT/Data
System PHM Initiatives

Program Focus Areas

Area 1: Disease-Focused Ambulatory Case Management
Patient engagement, care coordination, Extensivists, transitions of care protocols

Area 2: High Utilization Management
Patient engagement, Extensivists, palliative care, transitions of care protocols

Area 3: Ambulatory Quality / Pay for Performance (P4P)
Cancer screening, BP, lipid, A1c, etc.; various patient engagement and contact components

Patient Risk Levels

Sickest and/or highest-utilizing 5-10%
Advanced
CHF, COPD, IHD, DM, asthma, cancer, psychosocial problems

Rising-risk 40-50%
Patients with less severe chronic illnesses or behaviors that significantly elevate morbidity or mortality risks;
HTN, DM, hyperlipidemia, tobacco use, obesity

Low risk 45-55%
Patients without medical problems; focus on prevention, wellness, and connectivity to health system

Behavioral Health / Psycho-social

Kaiser - A True ICC (1)

• Kaiser Permanente (KP) is a pre-paid integrated system consisting of three distinctly separate, but related entities: a health plan that bears insurance risk, medical groups of physicians, and a hospital system.

• All three entities share in the goal, reflected in the organization’s capitated payment system, of keeping patients healthy* while optimizing utilization. This alignment is crucial in KP’s effort to maintain affordability for their purchasers and members.

*patients stay in the plan an average of 10+ years
Kaiser - A True ICC (2)

• The aligned structure and underlying contractual relationship between entities is the backbone that has led to the design of an efficient acute care delivery system that addresses a patient's needs across the continuum of care and maximizes population health.

• The financial incentive is to provide high quality, affordable care and manage population health rather than generating high volume of compensable services.
Kaiser - A True ICC (3)

• KP has developed a number of acute and emergency clinical pathways and protocols and provide the tools and infrastructure to shift non-emergent care to more appropriate and cost-effective settings.

• KP has developed ambulatory “transitional care” programs for some common high intensity chronic medical conditions that help manage patients before they need to seek ED care and upon hospital discharge.
Population Health Management: Tools and Interventions

• Analytic tools, predictive modeling
• Care coordination and care management
• Population specific registries (e.g. diabetes registry or Medicare Advantage registry)
• Clinical practice guidelines
• Patient-physician attribution
• Patient education and engagement strategies
• Cost, quality and outcome metrics
Where Will Radiology Fit In?
Healthcare Cost Reduction Opportunities

- Improved Inpatient Care Efficiency
- Use of Lower-Cost Treatments
- Reduction in Adverse Events
- Reduction in Preventable Readmissions
- Improved Management of Complex Patients
- Use of Lower-Cost Settings & Providers

- Improved Prevention & Early Diagnosis
- Improved Practice Efficiency
- Reduction in Unnecessary Testing & Referrals
- Reduction in Preventable ER Visits & Admissions

Lower Total Healthcare Cost
FOR CERTAIN
THEREFORE
Less Money per Faculty
Fewer Faculty
Major Areas of Focus for Radiologists in ACOs

1) The radiologist should be involved in the front end of care using decision support systems (CPOE) and the radiologist as a consultant on what the patient needs to get it right the first time around.

2) Much of this effort would be evidence-based. Radiology needs to demonstrate that they provide services that are value-added.
Major Areas of Focus for Radiologists in ACOs

3) Radiologists should be more involved in the governance structure (i.e. volunteering to be on hospital boards, team leaders for ACOs).

4) Radiologists should more actively manage all radiology services and services lines to help with more efficient and effective patient care.

5) Advocate for quality measures that act as an incentive for radiologists to want to improve care.
POPULATION HEALTH
WHAT IT REALLY MEANS TO AN ACADEMIC RADIOLOGY DEPARTMENT

• Maybe NOTHING
  – Depends on the University’s Mission
  – Depends on the Provider/Payer Mission

• Maybe OPPORTUNITIES
  – Advanced Screening
  – Academics of Population Metrics
  – Referral from ACOs and ICCs for Advanced Treatment
POPULATION HEALTH
WHAT IT REALLY MEANS TO AN ACADEMIC RADIOLOGY DEPARTMENT

• Maybe BAD
  – Squeezed out of large ACOs
  – Squeezed out of large ICCs

• Most likely MIXED
  – More Screening
  – Advance Treatments
  – Bundled Payment Products
  – Reduced Payments (to get to value)
  – Reduced volume