Session 7 PD, Population Health and Information Systems: Current State and Emerging Opportunities for Actuaries

Moderator:
John Sardelis, ASA, MAAA

Presenters:
Mark J. Jamilkowski, FSA, MAAA
Joseph Schulman, Executive Director, Northwell Care Solutions
Lawrence R. Smart, FSA, MAAA

SOA Antitrust Disclaimer
SOA Presentation Disclaimer
Population Health

Society of Actuaries Health Meeting
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“Population health” can be defined as the process by which the health information of a population within a service area is captured and analyzed, becoming additive information for the delivery of care to patients within that population as well as outreach programs and educational support to those insured members that do not incur claims.

Population health then involves the identification and capture of a wide range of data that is intended to promote health and wellness within the health population and augment and improve care management and case management within the care delivery process.

This has implications for:
- product design and pricing,
- risk management,
- provider contracting,
- analytic support to care management and disease management programs,
- patient engagement (e.g. higher clinical compliance, better outcomes, and greater satisfaction, resulting in higher retention) from an actuarial perspective.
The Panel

John Sardelis, Dr. PH, ASA, MAAA
John Sardelis is a Professor at St. Joseph’s College in Patchogue, NY. Mr. Sardelis is a Doctorate of Public Health, as well as an Associate of the Society of Actuaries. Mr. Sardelis has a background in public health, health care/insurance costs, Medicare, patient advocacy, and managed care and health care technologies. He teaches courses on topics such as health care finance and reimbursement, managed care and health care information systems. Prior to joining the St. Joseph’s College faculty, Dr. Sardelis was a management and technology consultant to insurance and healthcare clients.

Joseph Schulman
Mr. Schulman serves as executive director of Northwell Health Solutions, the health system’s care management organization. Health Solutions, established by Mr. Schulman and Dr. Kristofer Smith in late 2013, serves as the division of the health system responsible for the management, implementation and performance of the system’s value-based/population health portfolio. In his role Mr. Schulman oversees Northwell’s care management business strategy, scaling and capabilities. Mr. Schulman has been with Northwell for 15 years having most recently served as executive director of The Zucker Hillside Hospital, Northwell's nationally recognized behavioral health hospital.

Larry Smart, FSA, MAAA
Larry Smart is a Vice President and the Chief Actuary for WellCare Health Plans located in Tampa, Florida. He is a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries and has worked as a health care actuary for almost 20 years and in Medicaid and Medicare for 10 years. He has led teams for reserving, medical economics, PDP program design and rate development as well as his current Chief Actuary role.

Mark Jamilkowski, FSA, MAAA
Mark Jamilkowski is a Managing Director with KPMG, providing management consulting and health actuarial services to health plan and provider clients. Mark has worked in the industry in a variety of capacities for over 27 years, assisting clients with corporate strategy, process redesign, product and network strategy, financial risk management, management reporting, ERM / ORSA and audit (IBNR) analytic support. Mark has been a prior contributor to SOA meetings, discussing game theory, advanced analytics in provider contracting and care management strategies, and ORSA related topics.
A Few Words From The Moderator

Social Determinants
John Sardelis
Social Determinants and Behavior are More Important

*We are generally focused on only 40% of the issue*

- Social determinants and personal behavior drive 60% of the impact to health and wellness

- Thinking of population health, the conversation must shift to identifying, tracking, and managing this other 60%

- Emerging technologies and consumer interaction shifts hold the promise of providing this insight

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**Table of Economic Stability and Health Outcomes**

<table>
<thead>
<tr>
<th>Economic Stability</th>
<th>Neighborhood and Physical Environment</th>
<th>Education</th>
<th>Food</th>
<th>Community and Social Context</th>
<th>Health Care System</th>
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<tbody>
<tr>
<td>Employment</td>
<td>Housing</td>
<td>Literacy</td>
<td>Hunger</td>
<td>Social integration</td>
<td>Health coverage</td>
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<td>Income</td>
<td>Transportation</td>
<td>Language</td>
<td>Access to healthy options</td>
<td>Support systems</td>
<td>Provider availability</td>
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<td>Expenses</td>
<td>Safety</td>
<td>Early childhood education</td>
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<td>Debt</td>
<td>Parks</td>
<td>Vocational training</td>
<td>Support systems</td>
<td>Discrimination</td>
<td>Provider linguistic and cultural competency</td>
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<td>Medical bills</td>
<td>Playgrounds</td>
<td>Higher education</td>
<td>Community engagement</td>
<td>Quality of care</td>
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<td>Support</td>
<td>Walkability</td>
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**Health Outcomes**

- Mortality, Morbidity, Life Expectancy, Health Care Expenditures, Health Status, Functional Limitations

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### Population Health and Driving to Outcomes

<table>
<thead>
<tr>
<th>Health Related Data</th>
<th>Genetic Information</th>
<th>Behavior based Data</th>
<th>Social Condition Data</th>
<th>Physical Environment Information</th>
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<tr>
<td>• Clinical</td>
<td>• Lab reports</td>
<td>• Risk assessment</td>
<td>• Sentiment tracking</td>
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<td>• EHR / EMR</td>
<td>• Testing in EMR</td>
<td>surveys</td>
<td>• Relationship mapping</td>
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<td>• Claims</td>
<td>• Predictive</td>
<td>• Monitoring</td>
<td>• Employment status</td>
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<td>hobbies</td>
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#### Outcomes

e.g. Health/Wellness, Mortality and Quality of life

#### Note disparities in outcomes determined by age, sex, race, income, etc

Adapted from [What are Population Health Determinants or Factors? – Improving Population Health](http://www.improvingpopulationhealth.org/blog/what-are-health-factorsdeterminants.html)

Univ. of Wisconsin, [http://www.improvingpopulationhealth.org/blog/what-are-health-factorsdeterminants.html](http://www.improvingpopulationhealth.org/blog/what-are-health-factorsdeterminants.html)
Northwell Health

Health Solutions and Value Based Care Delivery
Joseph Schulman
Northwell Health encompasses 21 hospitals, 4 nursing facilities, with over 60,000 employees.

Delivering Population Health, Community Health, Clinical Care delivery, Research and Insurance to a wide service area in NY, CT, and NJ.

Health Solutions mission – “Empower patients, families, and providers to improve patient-important outcomes through a focus on access, coordination, activation, integration and alignment.”

“Helping people who need it most”
Health Solutions – Keys to Success

- **Creation of a Central Care Management Organization**
  - Investment in care management programs that provide services ranging from low-touch telephonic to high-intensity hospital and home visits based on patient’s clinical needs
  - Central care management structure allows for standardized processes rooted in best practice to be deployed in the most efficient manner based on hospital, practice and community need

- **Partnership with Service Lines and Providers on Development of Clinical Programs**
  - Development of episode-based programs for Total Hip and Total Knee Replacement in partnership with Orthopedic Service Line and Post-Acute Care leadership
  - Creation of Emergency Department Joint Operating Committee to co-develop workflows

- **Centralized Infrastructure Connected to Local Expertise**
  - Partnership with each hospital’s leadership team to address local needs and trends, understand community and provider dynamics and create buy-in
Health Solutions – Products and Capabilities

- Accountable Care Analytics
- Gaps in care analysis
- Clinical call center
- Chronic Disease Education and management
- Transitional Care management
- Complex Care Management
- Advanced Illness Management
- Education and Training
In The Actuarial Trenches

Larry Smart
WellCare
Changes ....

- New business models, like ACO’s
- Health policy changes
- Bundled payments and other Value based contracting
- Expanding the definition of health services—partnering with social services
- Focus on quality
- Etc. … change seems to be the only constant

... Mean New Directions

- Change product design – Promote health and wellness
- Increased focus on predictive modeling and more progressive care management and case management
- More complex pricing
- More data sources and accuracy for risk scoring and risk management
- Complex, value based, provider contracting
- Analytic support to care management and disease management programs
- Targeting and enabling higher patient engagement, with retention implications
Data Needs are Changing

What type of data Health Actuaries getting today?
- Encounter data
- Health Risk Assessments
- Social service electronic health record
- Vendor data
- Lab result data – used for quality
- HCC coding
- State FFS Paid Claims for members if they have carved out services like pharmacy or if the members are new coming from FFS.
- Other MCO Paid Claims
- TPL/COB information sometimes through EOBs
- Member self reported health status – customer service group collects some of this information, they also collect some of those social determinants when members call
- Prior authorization data

Are we getting the right information?
- Need more than claims data
  - Income levels
  - Housing situation – support at home
  - Transportation situation, etc.
- Claims data we are getting is incomplete
  - Missing data (e.g. people jumping in and out of Medicaid)
  - Uninsured data going through ER
  - EDS vs RAPS
    - CMS requires a standard encounter file for Medicare
    - Can this approach be leveraged for Medicaid, Commercial and others (e.g. uninsured)
How are we using the data

- Improve health, quality and costs of populations
  - Look for more patterns to help predictive modeling
  - Measure effectiveness of new initiatives
    - Levers to curb utilization
      - Transportation reduce ER?
      - Limits, copays, etc.
    - What CM programs are working?
    - Are we targeting the right patients
- Design effective programs and benefit designs
- Improve traditional actuarial work
  - Forecasting
  - Rate setting
  - Risk adjustment
Looking Forward

Mark Jamilkowski
KPMG
Where Population Health Initiatives Lead Us

- Identifying target populations, down to clinical co-morbidities
- Identifying impactful consumer engagement and alignment incentives
- Data analytics, predictive modeling and supporting infrastructure around care management
- Aligning provider incentives and tracking performance metrics
- Identifying alternative care delivery methods and care professional alignment needs
- Product design innovation based on consumer-driven data capture
There are numerous start-ups and other vendors serving the Clinical systems, services, and operations space. Market research is almost out of date the moment its done, but it is capturing a lot of venture capital interest and entrepreneurial effort.

Landscape research completed by KPMG, Fall 2016

Note that vendors selected and illustrated are merely for example and should not be taken as an endorsement, recommendation or affiliation.
Health related data is being captured at home, at work, and at every medical encounter. 81% of large businesses and 49% of small businesses offer employees programs to help them make healthy lifestyle changes. (1) Are the benefit plans and insurance products being designed and priced in line with these initiatives and new data sources?

(1) Source: CB Insights, Kaiser Family Foundation

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Sample Pop Health Vendor Scan

FitBit
FitBit creates digital health and fitness devices. The company is a developer of wireless-enabled wearable activity trackers enabling users to measure factors including the number of steps walked, heart rate, quality of sleep and the number of stairs climbed.

Sharecare
Sharecare is a provider of a health and wellness engagement platform. The company's digital connectivity and messaging platform provides consumers with personalized information, programs and resources to improve their health through comprehensive and personalized health profiles.

Sample of Data Captured
- Fitness intensity and duration
- Commute / Travel information
- Weight, pulse, etc
- Sleeping and diet habits
- Engagement levels
- Disease state concerns and management

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Limeade
Limeade is a corporate wellness technology company that strives to drive employee engagement to develop happier, healthier and more productive employees. The platform is meant to be a whole-person approach to well-being, building a culture within an organization around well-being through smart technology interfaces, like their “Stress Challenge App.”

Welltok
Welltok provides a wellness optimization platform that provides engagement, analytics and rewards services to businesses to empower their employees. Incentive programs are geared to improve Health Risk Assessment completion. Rewards for healthy behavior are expected to impact (lower) employer healthcare costs.

Tango
Tango Health provides healthcare benefit–focused web–based services to support consumer–directed health care. The mobile–friendly interface enables management of HSA balances, submission of receipts, and reimbursement, as well as provide email alerts and support consumers with HSA–related education.

Sample of Data Captured
- Fitness levels
- Spending habits
- Compliance metrics
- Engagement levels
- Disease state concerns

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Sample Pop Health Vendor Scan

ZeOmega
ZeOmega is a software technology for integrated care management, enabling integrated and shared care management through electronic health record–enabled care plans, point–of–care tools, decision support, user–configurable workflows and portal services. The platform is designed to enable data mining, aggregation and integration into a rules–based engine that provides analytics and other support to care management plans.

WellCentive

Phytel
PhyTel provides information technology services for physician communications and medical practice management. The company offers disease management and preventive care protocols that identify and notify non compliant patients of needed healthcare actions. Data elements include prescription, lab and clinical data for health and disease management.

Sample of Data Captured
- Care management plans
- Evidence Based Protocols
- Real time delivery decisions and quality tracking
- VBP metric tracking
- Medical and Drug data for risk scores

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Thank You