Thanks for joining us - the webinar will begin shortly!
**Program Updates**

1. **November 10th Knowledge Building Session**
   - Waterfront Hotel – Jack London Square – Oakland, CA
   - 8:30 – 9:00 Registration and Breakfast, 4:30 Conclusion

2. **Peer Sharing – Breakout Sessions**
   - 6 Questions for Reflection, 6-7 PowerPoint Slides
   - Sharing in Small Groups, 15 minutes each
   - Due November 3rd by 5:00 p.m. (CCI will make posters for you)

3. **Check In Appointments**
   - Sign up link available later today
   - Roadmap updates will be postponed until December

4. **Upcoming Learning Sessions**
   - **October 27th 12:00 p.m. – 1:00 p.m.** (Tuesday) – Case Study: The Build Option, Lifelong Medical Care
     - Dr. Ben Mansalis, Associate Medical Director – Lifelong Medical Care
Agenda

• Analytic frameworks for the brain
  • Closed Loop Analytics
  • Healthcare Analytics Adoption Model
  • Patient/Consumer Engagement Model
  • Population Health Data Management

• Strategic analytics options and vendors

• Related, random advice
## Healthcare Analytics Adoption Model

<table>
<thead>
<tr>
<th>Level 8</th>
<th>Personalized Medicine &amp; Prescriptive Analytics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tailoring patient care based on population outcomes and genetic data. Fee-for-quality rewards health maintenance.</td>
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<tr>
<td>Level 7</td>
<td>Clinical Risk Intervention &amp; Predictive Analytics</td>
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<td>Organizational processes for intervention are supported with predictive risk models. Fee-for-quality includes fixed per capita payment.</td>
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<tr>
<td>Level 6</td>
<td>Population Health Management &amp; Suggestive Analytics</td>
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<td>Tailoring patient care based upon population metrics. Fee-for-quality includes bundled per case payment.</td>
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<tr>
<td>Level 5</td>
<td>Waste &amp; Care Variability Reduction</td>
</tr>
<tr>
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<td>Reducing variability in care processes. Focusing on internal optimization and waste reduction.</td>
</tr>
<tr>
<td>Level 4</td>
<td>Automated External Reporting</td>
</tr>
<tr>
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<td>Efficient, consistent production of reports &amp; adaptability to changing requirements.</td>
</tr>
<tr>
<td>Level 3</td>
<td>Automated Internal Reporting</td>
</tr>
<tr>
<td></td>
<td>Efficient, consistent production of reports &amp; widespread availability in the organization.</td>
</tr>
<tr>
<td>Level 2</td>
<td>Standardized Vocabulary &amp; Patient Registries</td>
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<tr>
<td></td>
<td>Relating and organizing the core data content.</td>
</tr>
<tr>
<td>Level 1</td>
<td>Enterprise Data Warehouse</td>
</tr>
<tr>
<td></td>
<td>Collecting and integrating the core data content.</td>
</tr>
<tr>
<td>Level 0</td>
<td>Fragmented Point Solutions</td>
</tr>
<tr>
<td></td>
<td>Inefficient, inconsistent versions of the truth. Cumbersome internal and external reporting.</td>
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</table>
SI PATIENT/CONSUMER ENGAGEMENT ADOPTION MODEL™
STRATEGIC OUTLINE FOR HEALTH SYSTEM EXECUTIVES

Level 5
Community Engagement
- Engagement strategies are integrated into the communities we serve.
- Population analytics and outreach for screening, disease management and care
- Community health resources and data integrated into care model
- Community partnerships for education, wellness, healthy choices
- Patients, consumers, community representatives included in care design

Level 4
Organizational Engagement
- Core organization processes have adapted to prioritize personal engagement in health.
- Using care management based on at-risk environment, HRA, and socio-economics
- Economic incentives for healthy lifestyle
- Actively refer patients to community and other resources
- Implemented alternatives to face-to-face appointments for targeted populations

Level 3
Return on Engagement
- Outcomes, costs or satisfaction have improved as a result of engaging people in care.
- Results achieved from use of health coaches, other personalized follow up
- Data showing correlation of engagement with outcomes and cost
- Demonstrated results from health risk assessment or disease management compliance
- Successful results from using personal health data

Level 2
Engagement in Health
- People actively participate in their health or care as a result of engagement offerings.
- Demonstrated use of self-service tools, remote monitoring, or wearables
- Use of data on predicted efficacy, costs, and patient preferences in the care model
- Patients contribute to MD notes and/or portal data
- Targeted populations are self-monitoring at home, and reporting data

Level 1
Engagement Services Offered
- We offer tools and services to help engage people in their care and health.
- Executive accountability for patient engagement
- Wellness, fitness, and health literacy education & tracking
- Strategic plan includes engagement for at-risk, or all patients
- Portal data & other communication options
Population Health Management
The Ordered Checklist for a 3-5 Year Journey

1. **Registries**: Evidence-based definitions of patients to include in the PHM registries

2. **Attribution & Assignment**: Clinician-patient attribution algorithms

3. **Precise Numerators**: Discrete, evidence-based methods for flagging patients in the registries that are difficult to manage in the protocol, or should be excluded from the registry, altogether

4. **Clinical & Cost Metrics**: Monitoring clinical effectiveness and total cost of care (to the system and the patient)

5. **Basic Protocols**: Evidence-based triage and clinical protocols for single disease states

6. **Risk Outreach**: Stratified work queues that feed care management teams and processes for outreach to patients
Population Health Management
The Ordered Checklist for a 3-5 Year Journey

7. **External Data**: Access to test results and medication compliance data outside the core healthcare delivery organization

8. **Communication**: Patient engagement and communication system about their care

9. **Education**: Patient education material and a distribution system, tailored to their status and protocol

10. **Complex Protocols**: Evidence based triage and clinical protocols for comorbid patients

11. **Coordination**: Inter-physician/clinician communication system about overlapping patients

12. **Outcomes**: Patient reported outcomes measurement system, tailored to their status and protocol
# Healthcare Analytics Market Categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Vendor</th>
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</table>
| Healthcare EDW Platform Solutions (including tools & apps for ACO analytics) | Caradigm Intelligence Platform  
|                                                    | Health Catalyst  
|                                                    | IBM Healthcare Data Model  
|                                                    | Oracle Healthcare Data Model  
|                                                    | Recombinant (Deloitte) |
| Healthcare Analytics as a Service                  | Birst (not healthcare specific)  
|                                                    | GoodData (not healthcare specific)  
|                                                    | Explorys  
|                                                    | Humedica  
|                                                    | Lumeris  
|                                                    | Premier Alliance  
|                                                    | Truven Analytics Suite |
| Domain Specific Healthcare Analytics (Point Solutions) | AltaSoft  
|                                                    | Crimson Suite  
|                                                    | EPSI  
|                                                    | Lawson  
|                                                    | MedeAnalytics  
|                                                    | Medventive  
|                                                    | Midas  
|                                                    | Omincell |
| Healthcare EHR-Centric                             | Allscripts Sunrise  
|                                                    | Cerner PowerInsight/Health eIntent  
|                                                    | Epic Clarity, Cogito & Healthe Planet  
|                                                    | McKesson Horizon  
|                                                    | Meditech Data Repository  
|                                                    | Siemens Decision Support |

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<thead>
<tr>
<th>Category</th>
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</table>
| Cross-Industry Development Platform                | Dimensional Insights  
|                                                    | IBM Smarter Analytics  
|                                                    | Information Builders  
|                                                    | Microsoft BI Platform  
|                                                    | Microstrategy  
|                                                    | Oracle OBIEE  
|                                                    | SAP  
|                                                    | Sybase IQ  
|                                                    | Teradata |
| Cross Industry Visualization & Exploration Tools   | BusinessObjects  
|                                                    | Cognos  
|                                                    | QlikView  
|                                                    | SAS  
|                                                    | SPSS  
|                                                    | Tableau |
| Big Data, Hadoop, Cross Industry Development Platforms | Cassandra  
|                                                    | Cloudera  
|                                                    | CouchDB  
|                                                    | GNS  
|                                                    | HBase  
|                                                    | MongoDB  
|                                                    | Riak |

Vendors listed are noteworthy in their category but the list of vendors is not exhaustive.
# Strategic Analytic Options in Healthcare

<table>
<thead>
<tr>
<th>Category</th>
<th>Pros &amp; Cons</th>
<th>Example Vendors</th>
</tr>
</thead>
</table>
| Buy & Build from an Analytics Platform Vendor | • Highest degree of analytic flexibility and adaptability  
• Requires a data driven culture with high aspirations and views analytics as a clear business differentiator  
• Best suited for a culture with a higher degree of data literacy and data management skills  
• Slow initial time-to-value plagues some vendors  
• Inconsistent ROI track record, but when ROI occurs, it's big | • Caradigm Intelligence Platform  
• Health Catalyst  
• IBM Healthcare Data Model  
• Oracle Healthcare Data Model  
• Recombinant (Deloitte) |
| Buy from an Analytics Service Provider        | • Best suited for cultures that want to avoid the details of analytics and data management, but aspire to improve basic internal and external reporting  
• Inter-organizational benchmarking and comparative analytics is a natural part of the business model and service  
• Limited analytic flexibility and adaptability  
• Substantive ROI is not well-documented nor widely acknowledged | • Explorys  
• Lumeris  
• Optum/Humedica  
• Premier Alliance  
• Truven Analytics Suite |
| Buy “Best of Breed” Point Solutions           | • Leverages expertise and very specific analytics applications in business and clinical areas that are not always available in other options  
• Does not facilitate data integration; i.e., does not provide a single analytic perspective on patient care and costs  
• Costly and complicated to maintain | • AltaSoft  
• Crimson Suite  
• EPSI  
• MedeAnalytics  
• Medventive  
• Midas  
• Omincell |
| Buy from your EHR Vendor                     | • Offers the possibility of “closed loop analytics” driving analytics back to the point of care, in the EHR and clinical workflow  
• No proven track record with analytics to date from the EHR vendors  
• Tend to be very focused on analytics that are specific to the EHR vendor’s data  
• Less flexible and adaptable to new sources of data and analytic use cases, especially complex ones | • Allscripts Sunrise  
• Cerner Health elintent  
• Epic Cogito & Healthe Planet  
• McKesson Horizon  
• Meditech Data Repository  
• Siemens Decision Support |
Random, Related Advice

1. Pooling data, pooling analytics resources, budgeting
2. Sharing a Chief Data Officer or Chief Analytics Officer
3. Data governance in shared environments
4. Local data governance: data quality, data literacy, data exploitation
5. Trusting the cloud and hosted solutions
6. Population Health = Public Health
7. Care Management & patient engagement
8. HIEs are overrated... beware
9. Pros and cons of EHR vendors in the analytics space
10. Pros and cons of specialty vendors in the analytics space
Ask me anything 😊