The registry of the future: Leveraging EHR and patient data to drive better outcomes

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Jason Colquitt, VP, IT, Head of RWLPR IT, Global Bus Solutions Operation, Quintiles
Your Presenters

**Brian J. Kelly, M.D**
President, Payer and Provider Solutions, Quintiles

Dr. Brian Kelly joined Quintiles in 2012 to lead the company’s Payer and Provider Solutions businesses. In this global role, Dr. Kelly is responsible for leading the development and execution of Quintiles’ business strategy for these market segments.

Prior to joining Quintiles, Dr. Kelly was the Head of Informatics and Strategic Alignment at Aetna, leading its efforts to measure the quality and affordability of healthcare. Dr. Kelly joined Aetna in 2008 as the National Medical Director for Aetna’s large commercial clients.

**Jason Colquitt**
Global Business Solutions Operation, Quintiles

Jason Colquitt joined Quintiles in 2014 to lead the company’s Global IT strategy around Real-World & Late Phase Research and Registry Solutions. Mr. Colquitt is responsible for leading and delivering the various platforms and strategies in this emerging space at Quintiles.

Prior to joining Quintiles, Mr. Colquitt held an executive role as chief product strategist at Greenway Health, an ambulatory health IT vendor, where he was focused on driving vision, strategy, and partnerships.
Agenda

Registry of the Future

What stakeholders want

What is the Registry of the Future

Key capabilities for execution

Q&A
Today’s Webinar Audience

- Academia: 27%
- Biostatistician: 4%
- Clinical Operations: 9%
- Epidemiology: 6%
- Health Economics/Health Outcomes: 37%
- Market Access: 6%
- Medical Affairs: 6%
- Other: 1%
- Risk Management: 7%
Polling Questions

A small number of polling questions have been added to today’s webinar to make the session more interactive.
The Registry of the Future

• What stakeholders want
• What is the Registry of the Future
• Phased approach to building capabilities
  › Horizon 1. Moving to a common data model and advanced reporting and analytics
  › Horizon 2. Integrating EHR and other data sources
  › Horizon 3. Leveraging the Internet of Things
• Key capabilities for execution
What stakeholders want….

| Payers Providers | • demonstrate their quality of care  
|                  | • improve the clinical outcomes of patients  
|                  | • enable personalized medicine  
| Payers           | evaluate quality and cost of care for increasingly narrow subsets of patients  
| Pharmaceutical and Medical Device Companies | • demonstrate value of products and services  
|                  | • bring new products to the market more quickly with a higher likelihood of clinical and economic success  

Do everything more easily and less expensively
Registries are platforms that help to define value, both clinically and economically for one or many stakeholders.

The Registry of the Future is a Real World Evidence Hub that is a platform that can bring together a community of patients, providers, and payers with pharma to provide real world evidence insights from clinical, economic and observational data to support both clinical care optimization as well as drug development.

- **Payers**
  - Economic data
- **Patients**
- **Providers**
  - Clinical data
- **Pharma/Providers/Payers**
- **Real World Evidence hub**
- **Insight and information**
Registry Blueprint for the Future

**Horizon 1**

Next Generation Registry Platform

Registry 1  Registry 2  Registry 3  Registry 4  Registry 5

Horizon 1 Bolstering and harmonization of current systems and databases

Time to realized value

Enterprise value

Business intelligence Reporting

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Data factory

Data integration is key to unlocking the productivity puzzle

- Electronic Health Records
- Trial and Payer Data
- Patient Communities and Direct-to-Patient Research
- Real World Data
- Research and Financial Data
- Patient Data

Analytics
Data transformation using industry-leading tools and scale

Aggregate

Transform/Standardize

Business Intelligence

Registry #1

Registry #2

Registry #3

Registry #4

Registry #5

TBD 1 to n

Staging Area

Cube

Tables

Models

Analytics

Structured Reports

Ad Hoc

EMR

Biostats
Registry reporting platform
The journey from dashboards to value

Optimization: What should I do?  
Decision support, alerts

Predictive: What will happen?  
Modeling, simulation, mathematical models

Diagnostic: Why? What if?  
Statistical models, forecasting, query

Descriptive: What happened?  
Reports, dashboards, drill down

1. Data acquisition
2. Data transformation
3. Creating value through joint analytics
It Takes a Village

Joint Analytics

- From manual... to automated
- From reactive… to proactive
- From isolated… to integrated
- From assumptive… to informed
Registry Blueprint for the Future

Horizon 2

- Increase external integration and interoperability
- Enable governance/workflow management
- Establish robust machine learning/business intelligence

Horizon 1 Bolstering and harmonization of current systems and databases
Registry Blueprint for the Future

*Horizon 2 - External integration, interoperability, governance, & workflow management*

<table>
<thead>
<tr>
<th>Sources</th>
<th>Settings</th>
<th>Processing/ Warehousing</th>
<th>Registry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cerner health records</td>
<td>Community based care</td>
<td>Standards based EHR adapter</td>
<td>Registry 1</td>
</tr>
<tr>
<td>Epic health records</td>
<td>Acute care</td>
<td>DIRECT</td>
<td>Registry 2</td>
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<tr>
<td>MEDITECH health records</td>
<td>Port-acute care</td>
<td>CCDA</td>
<td>Registry 3</td>
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<td>Other health records</td>
<td>Ambulatory surgery center</td>
<td>SMART</td>
<td>Registry 4</td>
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</table>

- **Standards based EHR adapter**
  - DIRECT
  - CCDA
  - SMART
  - FHIR
  - i2b2

- **Warehouse**
- **Cleansing/ Translating**
- **NLP**

- Pre-populate forms with patient data
Getting the data right

**End User eMeasure Specification Editing Tool**
Allows analysts to leverage the eMeasures knowledge base to edit and add. Provides simple way to define complex rules for calculating measures using the built-in rule editor. Drives presentation in CoreIQ.

**Dashboard**
Offers Intelligence Query capabilities for end users to enable quality delivery and financial management for hospitals and physicians. Provides measure-centric content with a population-focused context.

**eMeasure Data Tool and Knowledge Base**
Guides EHR implementation and remediation to get the right data, standards, content, and workflow. Supports customized measures development.

**Value Set Management**
Includes lists of specific values (terms and their codes) derived from single or multiple standard vocabularies (SNOMED, ICD-10, ICD-9, RxNorm, LOINC, etc.) used to define clinical concepts (e.g., patients with diabetes, clinical visit, reportable diseases) in eMeasures and required for population analysis. Sourced from regulatory and standards organizations.

**Smart, Skinny Analytics Engine**
Performs in-situ data derivation and measure calculations. Employs the Measure Reference Model metadata from CoreGPS to derive intermediate and complex information from sourced data. Stores these derived elements and logical assertions alongside the detailed source evidence to enable detailed drill-downs, analysis, and reporting. Integrates measure results back into the Analytics Data Home to enable multi-level analysis and advanced ad-hoc reporting.
Risk Assessment Example – eCQMs

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<tr>
<th>Program</th>
<th>Version</th>
<th>Measure Category</th>
<th>Measure Name</th>
<th>Measure Description</th>
<th>Risk Priority Code</th>
<th>Risk Priority Sequence</th>
<th>Functionality / Certification</th>
<th>Workflow</th>
<th>Adoption</th>
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**Risk Assessment Score Report**

- **Functionality/Certification**
- **Content**
- **Workflow**
- **Data**
- **Adoption**
- **Reporting**
Poll Placeholder
Results Placeholder
Registry Blueprint for the Future

Horizon 3

- Increased efficiency in clinical trials
- Improved data quality and analysis
- Enhanced collaboration among stakeholders

Horizon 2

- Increase external integration and interoperability
- Enable governance/workflow management
- Establish robust machine learning/business intelligence

Horizon 1

- Bolstering and harmonization of current systems and databases
- Enhanced data storage and retrieval
- Improved decision-making process
New Technologies and Players Could Bring a Whole New Paradigm of Direct-to-Patient or Patient-Centric Research

- EHR
- Patient’s EHR Data
- Health Kit
- Patient’s Health and Sensor Data Data
- Research Kit
- Pt enrolls in trials and registries

Today

Tomorrow
Integrated Patient and Provider Experience

**Future State Systems and Processes**

**Drug Delivery**
IP or prescription delivered direct-to-patient connected to unique ID to maintain consent requirements.

**Engagement**
Reminder, education content and med risk rating prompt patient to take investigational/prescribed product linked to adherence support solution.

**Continuos Monitoring**
As IP metabolises, begin continuous monitoring.

**Home Lab**
Lab kit sent directly to patient and completed/returned to central lab.

**Day 1**
- **8:00 am**: Patient Dosing, Monitoring and Patient Engagement
- **10:05 am**: Day 1 - Patient Dosing, Monitoring and Patient Engagement
- **10:30 am**: Delivery and Compliance
- **1:00 pm**: Study Companion App Support and Compliance
- **3:00 pm**: BioSensor Worn by Patient
- **5:00 pm**: Continuos Monitoring
- **7:00 pm**: At Home Lab Kit

**Day 2**
- **3:00 pm**: Protocol and Consent
- **5:00 pm**: Patient Reported Data
- **7:00 pm**: Medical Record Data

**Day 3**
- **7:00 pm**: Study Companion App Support and Compliance

**Design**
Scientific rigor and patient experience-based design consents patient directly through informed process.

**ePRO**
Prompt patient via app to complete validated questionnaire and/or cognition spatial memory task.

**Physician Visit**
Data from the physician visit/lab inputted into eMR, routes to patient and study database.

**Feedback**
Patient provided with follow-up on their activities, progress chart, positive reinforcement and direct reimbursement for any time/effort.
Poll Placeholder
Results Placeholder
Thank you
Previous & Upcoming Events

Quintiles experts run regular webinars on Real-World & Late Phase services.

Topics include:

• OBSERVATIONAL RESEARCH & REGISTRIES
• SAFETY & RISK MANAGEMENT
• HTA & MARKET ACCESS
• MAXIMIZING VALUE AND QUALITY IN PHASE IV
• RARE DISEASE REGISTRIES
• COMPARATIVE EFFECTIVENESS RESEARCH
• CLINICAL OUTCOME ASSESSMENTS

Visit Quintiles to learn more at one of the following upcoming meetings:

• SCOPE SUMMIT
• MEDICAL AFFAIRS LEADERS FORUM
• ISPE MID-YEAR SYMPOSIUM
• WORLD ORPHAN DRUG CONGRESS
• EUROPEAN CONFERENCE ON RARE DISEASE & ORPHAN PRODUCTS
• CMSS 2016 REGISTRIES SUMMIT
• ISPOR – ANNUAL MEETING

To register or view previous webinars please go to http://www.quintiles.com/landing-pages/real-world-and-late-phase-research-webinars