Enterprise Data Warehouse
Business Requirements Assessment
Final Presentation of Results
Enterprise Data Warehouse Initiative Planning Phase:
- Needs and Requirements Assessment
- Data Assessment
- Alternative Analysis and Cost-Benefit Analysis

Business Requirements Assessment – Project Phases:
- Discovery & Planning
- Opportunity Identification and Targeting
- Requirements Packaging and Evaluation
- Business Usage Scenario Preparation

Collaboration with other business initiatives such as MITA Roadmap, HIE, and Health Care Reform
## Enterprise Data Warehouse/Business Requirements Assessment

### Opportunity Benefits Overview

<table>
<thead>
<tr>
<th>Wk</th>
<th>Starting</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>01/04/10</td>
<td>Assessment Part 1</td>
<td>Source Identification</td>
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<td>Embedded Capability</td>
<td>Initiation</td>
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<td>2</td>
<td>01/11/10</td>
<td>Situational Assessment Part 2</td>
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<td>Embedded Capability/Data Propagation</td>
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<td>3</td>
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<td>Project Plan Development</td>
<td>Team Review</td>
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<td>Management Presentation</td>
<td>Plan Delivery</td>
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<td>4</td>
<td>01/25/10</td>
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<td></td>
<td>Phase 1 Wrap-up - Phase 2 Preparation</td>
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<td>5</td>
<td>02/01/10</td>
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<td>Subject Workshops (Client, Utilization, Outcome)</td>
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<td>02/08/10</td>
<td>Workshops (ER Utilization, HIE/EHR)</td>
<td>Topics and Sources</td>
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<td>Phase 2 Groups</td>
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<td>7</td>
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<td>Workshop (Provider Metrics)</td>
<td>Topics and Sources</td>
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<td>EIT Briefing</td>
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<td>8</td>
<td>02/22/10</td>
<td>Drill-Down Workshops (Client Visibility, Episodes of Care, Client Life History)</td>
<td>Opportunity Detail</td>
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<td>Assimilation</td>
<td>Preview Preparation</td>
<td>Preview Delivered</td>
<td>Workshops (High Risk, Authorization)</td>
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<td>Opportunity Targeting (Summary Documentation)</td>
<td>Management Presentation</td>
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<td>Mid-Course Review</td>
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<td>03/15/10</td>
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<td></td>
<td>Phase 2 Wrap-up - Phase 3 Preparation</td>
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</table>

Enhancing Accountability  ♦  Improving Services  ♦  Increasing Efficiencies
<table>
<thead>
<tr>
<th>Wk</th>
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<td>Participant Survey</td>
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<td>Champion Preparation</td>
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<td>Client Visibility</td>
<td>Champion Review</td>
<td>Episodes of Care</td>
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<td>Drug Utilization</td>
<td>Champion Review</td>
<td>Client Life History+</td>
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<td>Participant Reviews</td>
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<td>Valuation Research</td>
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<td>05/03/10</td>
<td>Opportunity Packaging</td>
<td>Management Preview</td>
<td>Revisions</td>
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<td>19</td>
<td>05/10/10</td>
<td>Opportunity Packaging &amp; Validation</td>
<td>Management Presentation</td>
<td>Publication</td>
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<td>Phase 3 Wrap-up - Phase 4 Preparation</td>
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<td>Documentation Finalization and Presentation Development</td>
<td>Revisions</td>
<td>Final Results Presentation</td>
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</table>
Enterprise Data Warehouse/Business Requirements Assessment

Subject Area Model for Business Opportunities

Enhancing Accountability
Improving Services
Increasing Efficiencies

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### Enterprise Data Warehouse/Business Requirements Assessment

**Dimensional Model – All The Data in One Chart**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>SUB-TYPE</th>
<th>Dimension</th>
<th>Topics</th>
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</thead>
<tbody>
<tr>
<td>Noun</td>
<td>Context</td>
<td>Program</td>
<td>Benefits, Rules, Rates</td>
</tr>
<tr>
<td>Noun</td>
<td>Actor</td>
<td>Client</td>
<td>Eligibility, Enrollment, Authorization, Relations, Demographic</td>
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<tr>
<td>Noun</td>
<td>Actor</td>
<td>Provider</td>
<td>Enrollment, Services, Ownership, Taxonomy, Quality</td>
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<tr>
<td>Verb</td>
<td>Labor</td>
<td>Service</td>
<td>Evaluate, Diagnose, Treat, Monitor</td>
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<tr>
<td>Noun</td>
<td>Consumable</td>
<td>Product</td>
<td>Drugs, Exam/Test, Supplies</td>
</tr>
<tr>
<td>Noun</td>
<td>Reusable</td>
<td>Equipment</td>
<td>Dispense, Exam/Test, DME, Monitor</td>
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<tr>
<td>Noun</td>
<td>Facility</td>
<td>Place of Service</td>
<td>Building, Legal, Ownership, Function</td>
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<table>
<thead>
<tr>
<th>Adjective</th>
<th>Geographic</th>
<th>Location</th>
<th>Geo-Code, Postal, Regions, Political</th>
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<tbody>
<tr>
<td>Adjective</td>
<td>Structural</td>
<td>Organization</td>
<td>Role, Unit, Relation, Association</td>
</tr>
<tr>
<td>Adjective</td>
<td>Temporal</td>
<td>Time</td>
<td>Specific, Interval, Periodic, Calendar, Fiscal</td>
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</table>

Enhancing Accountability  
Improving Services  
Increasing Efficiencies
## Enterprise Data Warehouse/Business Requirements Assessment

### Champions

<table>
<thead>
<tr>
<th>Primary Opportunity</th>
<th>Primary Champion</th>
<th>Alt Champion</th>
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</thead>
<tbody>
<tr>
<td>Client Visibility Across Programs</td>
<td>DADS Gordon Taylor, Jim Gamblin</td>
<td>HHSC Rick Allgeyer, Xiao-Ling Huang</td>
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<tr>
<td>Service Delivery - Episodes of Care</td>
<td>HHSC Joe Vesowate, E Andrews, A Sicher</td>
<td>DADS Terri Richards</td>
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<tr>
<td>Drug Integration with Episodes of Care</td>
<td>HHSC Kay Ghahremani, Tania Colon</td>
<td>DADS</td>
</tr>
<tr>
<td>Client Life History</td>
<td>HHSC Dr. Gonzalez, James Cooley</td>
<td>DADS Gary Jessee Cathryn Horton</td>
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</tbody>
</table>
Enterprise Data Warehouse/Business Requirements Assessment

Client Visibility Across Programs

Consolidated Unduplicated View of Client
Identity, Eligibility, Authorization, and Personal Data

Medicare

MEDICAID

Emergency

Acute

Managed

Long Term

CHIP

DARS

DSHS

DFPS

Non-Medicaid Clients

Enhancing Accountability

Improving Services

Increasing Efficiencies
Enterprise Data Warehouse/Business Requirements Assessment

Service Delivery - Episodes of Care

Consolidate Episode of Care Information to Analyze Service Delivery

- Examine
- Diagnose
- Treat
- Monitor

Mine Encounters and Claims for Services Along With Costs.
Aligning Drug Utilization with Episodes of Care

Diagram:
- **Episode of Care**
- **Drug Delivery**
- **Drug Reference**
- **Drug Categories**
- **Drug Utilization Mapping**

Enhancing Accountability  Improving Services  Increasing Efficiencies
- Concatenate Episodes of Care by Client Over Time.
- Align a Diagnosis with a Sequence of Related Service Delivery Over Time.
- Identify and Segregate Different Courses of Treatment.
Enterprise Data Warehouse/Business Requirements Assessment

Client Life History – Coverage Gaps

- Concatenate Episodes of Care by Client Over Time
- Identify Coverage / Treatment Visibility Gaps
- Supplement with HHSC and Federal and Exchange Episode of Care Data
- Fill Remaining Gaps with Commercial Data Sources
- Supports Disease Management and Longitudinal Studies

Birth

MCD

GAP

CHIP

Medicaid-Disabled

GAP

Private Insurance

GAP

Medicare

Long Term Care

Death
Enterprise Data Warehouse/Business Requirements Assessment
Building Towards Efficiency, Effectiveness, and Wellbeing

- CofT
- Service Gaps
- CLH Timeline
- Client Life History
- Drug Integration
- Service Delivery
- Client Visibility

- Drug Delivery
- Encounters
- Claims
- Medicaid Client
- Non-MCD Client

Enhancing Accountability  Improving Services  Increasing Efficiencies
## Enterprise Data Warehouse/Business Requirements Assessment

### The Hierarchy of Value

<table>
<thead>
<tr>
<th>MODALITY</th>
<th>SCOPE</th>
<th>OBJECTIVE</th>
<th>ATTRIBUTION</th>
<th>IMPACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELUSIVE</td>
<td>&quot;Everything&quot;</td>
<td><em>Better, Faster, Cheaper</em> Generic improvement throughput or turnaround or efficiency or efficacy. <em>Improve specific aspects of an analytic process.</em> Reduce complexity or redundancy in the information supply chain.</td>
<td>NONE</td>
<td>None</td>
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<tr>
<td>ANALYTIC</td>
<td>Data</td>
<td><em>Create business metrics</em> for a given process.</td>
<td>INDIRECT</td>
<td>Quaternary</td>
</tr>
<tr>
<td>TACTICAL</td>
<td>Process</td>
<td><em>Improve business actions</em> via enhanced decisions.</td>
<td>INDIRECT</td>
<td>Tertiary</td>
</tr>
<tr>
<td>FUNCTIONAL</td>
<td>Department</td>
<td><em>Support enterprise goals and mandates.</em></td>
<td>DIRECT</td>
<td>Secondary</td>
</tr>
<tr>
<td>STRATEGIC</td>
<td>Enterprise</td>
<td>Synergy or Integration Increase cross-functional synergy and/or organizational integration</td>
<td>CHAMPIONED</td>
<td>Primary</td>
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<tr>
<td></td>
<td>Enterprise</td>
<td>Systemic Change Organization change or business process or automation redesign</td>
<td>INCORPORATED</td>
<td>Expansive</td>
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<tr>
<td>OPPORTUNISTIC</td>
<td>Enterprise</td>
<td>New Market or Environment Design new process for new markets or business environments</td>
<td>INCORPORATED</td>
<td>Expansive</td>
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<tr>
<td></td>
<td>Extraprise</td>
<td></td>
<td></td>
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<td>Global</td>
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**Increasing Value Top to Bottom**

- Enhancing Accountability
- Improving Services
- Increasing Efficiencies
### Valuation Categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Cost Reduction</strong></td>
<td>Directly attributed dollar impact</td>
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<tr>
<td></td>
<td>Labor reduction is a false metric</td>
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<tr>
<td><strong>Efficiency Increase</strong></td>
<td>Do more per unit of time</td>
</tr>
<tr>
<td></td>
<td>Faster and/or Cheaper [quality variable]</td>
</tr>
<tr>
<td><strong>Cost Avoidance</strong></td>
<td>Predicted future cost containment</td>
</tr>
<tr>
<td></td>
<td>May lead to effectiveness increase</td>
</tr>
<tr>
<td><strong>Effectiveness Increase</strong></td>
<td>Do better per unit of time</td>
</tr>
<tr>
<td></td>
<td>Better and/or Faster [cost variable]</td>
</tr>
<tr>
<td><strong>Quality of Care Improvement</strong></td>
<td>Directly attributed wellbeing impact</td>
</tr>
<tr>
<td></td>
<td>Expected cost avoidance or Effectiveness Increase</td>
</tr>
</tbody>
</table>
### Enterprise Data Warehouse/Business Requirements Assessment

#### Valuation Types

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td><strong>External Reference</strong></td>
<td>(1) DW overall justification from external source.</td>
</tr>
<tr>
<td></td>
<td>(2) Specific benefit valuation from external source.</td>
</tr>
<tr>
<td><strong>Internal Projection</strong></td>
<td>External reference used with internal metrics to project internal population target.</td>
</tr>
<tr>
<td><strong>Internal Reference</strong></td>
<td>Internal valuation case providing population target without proration.</td>
</tr>
<tr>
<td><strong>Pro-Rata Direct Impact</strong></td>
<td>Quantitative projection of benefit impact. May be from one of the above source types.</td>
</tr>
<tr>
<td><strong>Qualitative</strong></td>
<td>Non-quantified benefits. Note whether data is not available given current capabilities.</td>
</tr>
</tbody>
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Enterprise Data Warehouse/Business Requirements Assessment

Opportunity Benefits Overview

Enhancing Accountability
- Full federal/state vision regarding comprehensive visibility
- Provide a consistent, timely, and historical view of eligibility, enrollment, and authorization.
- Provide comprehensive program information.
- Provide a single source of client information across all programs.
- Provide consolidated source for demographic and geographic data.
- Create consistent per capita program denominators.
- Provide visibility to eligibility and enrollment in selected non-Medicaid services and programs.
- Identify non-continuous Medicaid program eligibility.
- Eliminate overlapping eligibility barriers.
- Investigate client churn by program.
- Discover duplication of services based on enrollment.
- Improve wellness, quality of service and medical outcomes.
- Incorporate external data via Health Information Exchanges.
- Assess quality of service by provider.
- Monitor duration and continuity of usage.
- Monitor impact of migration between programs and services, both internal and external.
- Eliminate duplication across Texas healthcare services, not just Medicaid programs.
- Improve ability to predict and manage the impact of changes to programs and service delivery models.
- Design more proactive services and programs given wider view of healthcare delivery over time.

Improving Services
- Collected data by client from all encounters & claims.
- Classify all utilization within the episode cycle or stages of care: evaluate, diagnose, treat, monitor.
- Correlate episodes of care by both national and custom diagnostic and procedure groups.
- Consolidate provider data.
- Compile provider metrics.
- Monitor program/service utilization.
- Expose streams of care episodes that cross programs or departments or agencies.
- Measure health impact of non-continuous eligibility or utilization.
- Track cost of care across programs and providers.
- Compare within and across all agencies and healthcare service delivery models.
- Discover duplication of services based on utilization.
- Detect, delineate, and track potential fraud, waste, and inappropriate use.
- Integrate drug delivery and utilization with episodes of care.
- Provide Comprehensive Drug Reference.
- Analyze drug delivery by provider.
- Collect physician administered drug data.
- Monitor drug use by client, diagnosis, program, service, or provider.
- Provide integrated visibility of drug use by Medicaid/Medicare dual eligibles.
- Identify drug use outliers or aberrant users.
- Determine when to modify programs or design a new waiver.
- Detect, delineate, and track potential fraud, waste, or inappropriate use.

Increasing Efficiencies

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Selected Usage Scenarios

Strategic

1. Monitor and Improve Continuity of Care.
2. Implement More Targeted and Effective Programs.

Functional

4. Measure Health Impact of Drug Use by Client, Diagnosis and/or Program.
5. Detect and Track Waste and Inappropriate Use of DME, Supplies, and Drugs.
6. Improve Case Management and Manage Concurrent Services Effectively.

Tactical

7. Integrate External Data via HIE$^1$ and HIE$^2$ Networks.
8. Integrate Provider Data and Prepare for Incentive-Based Provider Metrics.
Enterprise Data Warehouse/Business Requirements Assessment
Scenario by Phase (Opportunity Set)

### Phase
- **Continuity of Care**
- **Program Design**
- **Health Care Reform**
- **Drug Data Utilization**
- **Waste/Inappropriate Use**
- **Concurrent Services**

### Scenario
- **Client Visibility**
- **Service Delivery**
- **Drug Integration**
- **Client Life History**

<table>
<thead>
<tr>
<th>Client / Program</th>
<th>Service / Provider</th>
<th>Drugs / Supplies</th>
<th>External / History</th>
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</table>

- Enhancing Accountability
- Improving Services
- Increasing Efficiencies

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S1 - Monitor and Improve Continuity of Care

- Continuity of Eligibility and Enrollment
- Continuity of Service Utilization
- Continuity of Drug Delivery and Utilization
- Continuity of Coverage and Course of Treatment

Client/Program
Services
Drugs
History
S2 – Implement More Targeted and Effective Programs

- Program Innovation Required to Stay On Mission
- Innovation Requires Increased Information Integration and Availability
- Productivity Gains are Essential to Handle Growing Complexity
- Increased Data Preparation and Consistency Provides Productivity Gains
- Supports Planning, Implementation, and Monitoring of New Programs
  - Programs supporting new cohorts
  - More preventative care programs
  - More targeted waiver programs
  - More innovation in service delivery
S3 – Navigate Health Reform Impacts with Enhanced Precision

- Health Care Reform Legislation Targets “Universal Coverage”
- Medicaid “Coverage of Last Resort” Concept Extended
- Impacts on Texas Medicaid Only Just Now Beginning Analyzed
  - Elevation of income limits and other qualification criteria
  - New restrictions on eligibility constraints
  - Inclusion of adult non-disabled individuals (22-64 Cohort)
- Many New and Unfamiliar Risk Factors and Client Needs Arise

- All the Other Scenarios were Adjusted to Include Reform Aspects
S4 – Measure Health Impact of Drug Use by Client, Diagnosis or Program

- Significantly Extended Visibility to Drug Use in Context
- Track and Manage Maintenance Regimes As Never Possible Before
- Supports Preventative Care Programs and Case Management
- Enable Effective Cost Avoidance of Expensive Outcomes

- Results From Major Peer-Reviewed Study:
  “Medicaid claims and eligibility data, particularly when linked to other sources of patient-level and contextual information, represent a powerful and under-used resource for health services research on the use and outcomes of prescription drugs."
Enterprise Data Warehouse/Business Requirements Assessment

Scenario 5

S5 – Detect/Track Waste and Inappropriate Use of DME, Supplies, Drugs

- Enable New Methods of Managing Waste and/or Inappropriate Use
- Manage DME based on medical necessity and revised program protocols
- Manage Supplies based on practical need objectives and market prices
- Manage Drugs based on diagnostic and assessment appropriateness
- Monitor Service Utilization to reduce instances of waste and redundancy

- Provide a More Integrated Consistent Detailed Base of Data for OIG
S6 – Improve Case Management and Manage Concurrency Effectively

- Offers Detailed Time-Line of Client Utilization Comprehensively
- Provides Visibility to Concurrent and Consecutive Service Delivery
- Addresses Potential Concerns Regarding “Duplication” of Services
- Supports Enhanced Integration of Case Management Practices
Selected Usage Scenarios

**Strategic**

1. Monitor and Improve Continuity of Care.
2. Implement More Targeted and Effective Programs.

**Functional**

4. Measure Health Impact of Drug Use by Client, Diagnosis and/or Program.
5. Detect and Track Waste and Inappropriate Use of DME, Supplies, and Drugs.
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**Tactical**

7. Integrate External Data via HIE$^1$ and HIE$^2$ Networks.
8. Integrate Provider Data and Prepare for Incentive-Based Provider Metrics.
Questions and Answers