Health Information Sharing Maturity Model

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The MITRE Corporation operates the Centers for Medicare & Medicaid Services (CMS) Alliance to Modernize Healthcare (CAMH), a federally funded research and development center (FFRDC) dedicated to strengthening the nation’s health care system. MITRE operates CAMH in partnership with CMS and the Department of Health and Human Services.
What is Health Information Sharing (HIS)

The sharing of health and healthcare information (HIS) **Electronically** across key participants and stakeholders to **Improve** health and healthcare practices

- Ensures health information is available at the **right place at the right time for the right person**
- **Lowers burden** on healthcare providers and patients
- **Improves efficiency** of healthcare system and **lowers costs**
- Best of all, **IMPROVES HEALTH OUTCOMES!**
Enabling Health Information Sharing: The HIS Maturity Model (HISMM)

- A maturity model will enable Health Information Sharing by:
  - Providing states with a mechanism to assess the maturity of health information exchange within a state’s healthcare Enterprise.
  - Ensuring the most effective use of scarce resources, leveraging common efforts, both public and private
  - Ensuring that best practices and lessons learned, such as increased modularity, are incorporated
  - Improving reuse of solutions across states

- HIS Maturity Model benefits
  - Helps prioritize areas that may require technology supports/enhancements
    ▪ Reveals the mitigations and workarounds needed to support a program
  - Helps you understand gaps, where you may need to make more Health Information Technology (HIT) investments
    ▪ Demonstrates how to mature a capability based on cost/benefit analysis and resource
  - Helps with overall HIT planning
    ▪ Helps identify gaps and determine steps to incrementally improve the capability
    ▪ Provides the steps to use in building the roadmap to improve the capability

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Why Do We Care About Maturity Levels

**Low Maturity**

HIS capabilities that:
- share **inaccurate** information
- require **manual** entry
- have **inefficient** workflows

**Results in:**
- medical **errors**
- provider **burden**
- need for **additional** staffing

**High Maturity**

HIS capabilities that:
- share **accurate** information
- enable **automation**
- have **efficient** workflows

**Results in:**
- **better care** coordination for patients
- **less burden** on providers
- **reductions** in admin staff and contractors

Overall, a capability with a **high maturity** can achieve delivery system reform goals
Proposed HIS Capabilities to Include in Maturity Model

- Admission, Discharge and Transfer (ADT) Events/Encounter Alerting
- Advanced Directives
- Analytics Reporting
- Care Plans
- Claims Information Sharing/All-Payer Claims Databases
- Death Reporting
- Disease and Public Health Registry Information
- Electronic Prescribing
- Eligibility and Benefits Information
- EMS Integration
- Financial Information
- Health Record
- Image Sharing
- Immunization Registry
- Lab Orders
- Lab Results
- Patient Consent
- Patient Education
- Patient-Generated Data
- Patient Identifier
- Patient Portal Information
- Patient Record Locator
- Population Health Information
- Prescription Monitoring
- Provider Attribution
- Provider Directory
- Quality Reporting
- Referral Management
- Risk Assessment
- Social Determinants of Health

Only select the ones that support your program goals
HIS Maturity Model Components

- Programs: The Why (Goal)
  - Provides understanding of what capabilities are **needed** to achieve a State Medicaid Agency **goal**
    - Example: Behavioral Health Integration

- Capabilities: The What
  - The **functionality** you are exploring
    - Example: Provider Directory

- Dimensions: The How
  - The **tool/mechanism** that supports a specific functionality
    - Example: Measure the level of **Usability**
HIS Maturity Model Components: Program Sheets

**Purpose:** To layout what is needed to attain program goals.

- **Used to Identify**
  - Main objectives
  - Outcomes
  - Stakeholders
  - Relevant capabilities

- **How to use:**
  - To review capabilities and identify priorities
  - Refer to relevant Capability sheet to help estimate maturity level and target level
  - To identify additional stakeholders and outcomes
  - As a communication tool to socialize needs with stakeholders

**Example:** Behavioral Health Integration Program
HIS Maturity Model Components: Capability Sheets

**Purpose:** Provides a capability definition and example of maturity levels to help communication/understanding

- **Identify**
  - Programs
  - Stakeholders
  - Low, medium, high, maturity level summary

- Provides a common mechanism for communication

- **How to use:**
  - Review capability description
  - Identify additional stakeholders
  - Review maturity level descriptions – to estimate as is and target maturity state

**Health Information Sharing Capabilities**

**Admission, Discharge and Transfer (ADT) Events**

Admission, Discharge and Transfer (ADT) are a key mechanism to alert providers that a patient circumstance may have changed or the a patient encounter has taken place. They communicate events about a patient to different clinical systems within and external to a hospital. There are 13 ADT messages, with 3 most commonly used. The messages contain vital data about the patient, such as demographic data and the reason for the message. Messages can be sent via email in pdf format or be merged into the EHR. ADT messages are among the highest volume of all message feeds.

- **Programs:**
  - ADT events are foundational for any programs that require notifications for better care coordination during transitions of care are likely to need ADT event notifications.

<table>
<thead>
<tr>
<th>Program</th>
<th>Capability Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTPAC Integration</td>
<td>LTPAC patients who have chronic conditions and co-morbidities that require them to frequently transition between multiple care providers. The ADT message notifies providers of changes.</td>
</tr>
<tr>
<td>Behavioral Health Integration</td>
<td>Patients are likely to undergo many transitions of care, between substance use treatment centers and primary care. The ADT events notify providers that patients may require follow up after seeing a provider in a different care venue.</td>
</tr>
<tr>
<td>Advanced Primary Care Models</td>
<td>To ensure that care is coordinated, efficiently ADT messages provide way to ensure care and treatment is tracked across institutions.</td>
</tr>
<tr>
<td>Home Health Integration</td>
<td>ADT can notify providers that home health care is being provided or if patient is transitioned to a new home health care provider. These messages also ensure care coordination when transitioning of care from hospital to home.</td>
</tr>
<tr>
<td>Patient-Centered Medical Home</td>
<td>To ensure that care is coordinated, efficiently ADT messages provide way to ensure care and treatment is tracked across institutions.</td>
</tr>
</tbody>
</table>

**Capability Example:** ADT Events
## HIS Maturity Model Dimensions: Criteria for Assessment

<table>
<thead>
<tr>
<th>Technical Dimensions</th>
<th>People &amp; Process Dimensions</th>
<th>Governance Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Quality</td>
<td>Is the data being shared, timely, usable, high quality, complete and relevant?</td>
<td>How mature are the processes to govern data involved in exchanges?</td>
</tr>
<tr>
<td>Transport</td>
<td>What is the maturity of the data transport mechanisms used? Push/Pull</td>
<td>How mature is the organizational structure and associated processes to govern exchanges for this capability?</td>
</tr>
<tr>
<td>Security</td>
<td>What mechanisms are in place to ensure data is shared securely?</td>
<td>Stakeholder Governance</td>
</tr>
<tr>
<td>Transaction/Query</td>
<td>What is the level of adoption of the Application Programming Interface (API) used?</td>
<td>Consent/Privacy</td>
</tr>
<tr>
<td>Usability/Workflow</td>
<td>How easy is the information to consume? Is the information incorporated into the workflow?</td>
<td>Can patients control (provide consent) who has access to data about them to a granularity appropriate to the capability?</td>
</tr>
<tr>
<td>Alignment/Duplication</td>
<td>How many different mechanisms are available?</td>
<td>Data Governance</td>
</tr>
<tr>
<td>Participation</td>
<td>Can all possible participant types (providers, patients, payers, ...) for the capability, participate, and how many are actually participating?</td>
<td>How mature are the processes to govern data involved in exchanges?</td>
</tr>
<tr>
<td>Consent/Privacy</td>
<td>Can patients control (provide consent) who has access to data about them to a granularity appropriate to the capability?</td>
<td>Stakeholder Governance</td>
</tr>
<tr>
<td>Data Governance</td>
<td>How mature are the processes to govern data involved in exchanges?</td>
<td>Consent/Privacy</td>
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<tr>
<td>Stakeholder Governance</td>
<td>How mature is the organizational structure and associated processes to govern exchanges for this capability?</td>
<td>Data Governance</td>
</tr>
<tr>
<td>Sustainability</td>
<td>What are the resources available to sustain efforts for any capability; people, funds, skills, leadership?</td>
<td>Usability/Workflow</td>
</tr>
</tbody>
</table>

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HIS Maturity Model Assessment Steps

1. **Identify Program**
   Identify the State program goal that will drive the needed Information Technology (IT) capabilities.

2. **Identify Capabilities & Stakeholders**
   Use the program sheets to determine and prioritize the required capabilities and identify all stakeholders that will be involved in the assessment.

3. **Review Capability Sheets**
   Use capability sheets to determine expectations for the capability maturity level.

4. **Use Dimensions**
   Assess current maturity for each capability against each dimension.

5. **Target Maturity Level and Identify Gaps**
   Determine target maturity for each capability against each dimension. Use dimension sheet to identify gaps to achieve desired level.

6. **Identify Steps to Address**
   Identify incremental steps to address the gaps. Use these identified steps to inform a roadmap to improve capability.
HIS Maturity Model on Centers for Medicare & Medicaid Services (CMS) zONE

- HISMM available for review on zONE
- Maturity Model
  - Executive Summary
  - Presentation
  - Spreadsheet model
- Information/Capability sheets
  - Behavioral Health
  - ADT Events
  - Health Record Information
- Discussion Forum
  - Leave comments, ask questions!
- Instructions available for access
To learn more or provide feedback on the HIS Maturity Model, please contact Tom Novak (Thomas.Novak@hhs.gov).
Follow up

To download a copy of this presentation, visit:

https://health.mitre.org/himss18

Data Interoperability to Reduce Clinician Burden

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Reference Slides
How a Maturity Model is Used to Improve a Capability

- A maturity model shows how a capability can be improved “step by step”
- Each level lays out critical success factors for the capability
  - Expectations are made clear
- As objectives to improve the capability to get to the next level are clear this enables:
  - **Incremental Improvement**: Helps identify gaps and determine steps to incrementally improve the capability
  - **Roadmap Development**: Provides the steps one can use to build the roadmap for improving the capability
- **Identify realistic target**
  - Can determine which level is achievable for the capability based on cost/benefit analysis and resources
How a Maturity Model is Used to Improve a Capability (Continued)

<table>
<thead>
<tr>
<th>ADT Events</th>
<th>Current State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information...</td>
<td>3</td>
</tr>
<tr>
<td>Sustainability</td>
<td>2</td>
</tr>
<tr>
<td>Transport</td>
<td></td>
</tr>
<tr>
<td>Stakeholder...</td>
<td>1</td>
</tr>
<tr>
<td>Consent /...</td>
<td></td>
</tr>
<tr>
<td>Transaction/Q...</td>
<td></td>
</tr>
<tr>
<td>Participation</td>
<td>0</td>
</tr>
<tr>
<td>Usability/...</td>
<td></td>
</tr>
</tbody>
</table>

ADT Events: Information... Sustainability Transport Stakeholder... Consent /... Transaction/Q... Participation Usability/...
How a Maturity Model is Used to Improve a Capability (Concluded)

The HIT Modular Functions Stack identifies the foundational components, core infrastructure, and health IT functionality needed for multiple use cases required to enable Alternative Payment Models (APMs).

<table>
<thead>
<tr>
<th>Health IT functionalities that vary by prioritized activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core infrastructure for all health IT activities</td>
</tr>
<tr>
<td>Foundational components for participant trust &amp; value</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data Extraction</th>
<th>Data Transformation</th>
<th>Data Aggregation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reporting Services</td>
<td>Analytics Services</td>
<td>Consumer Tools</td>
</tr>
<tr>
<td></td>
<td>Notification Services</td>
<td>Provider Tools</td>
</tr>
<tr>
<td></td>
<td>Exchange Services</td>
<td>Patient Attribution</td>
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</tbody>
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<th>Data Quality &amp; Provenance</th>
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<tbody>
<tr>
<td>Identity Management</td>
</tr>
<tr>
<td>Security Mechanisms</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Accountable Oversight &amp; Rules of Engagement</th>
<th>Policy/Legal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financing</td>
<td></td>
</tr>
<tr>
<td>Business Operations</td>
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