Guidance for
Developing Initial AHIC Use Cases

Version 2
December 11, 2005
Overview of Breakthroughs and Use Cases

As part of the Department of Health and Human Services’ health IT strategy, the American Health Information Community (the Community) was created to advise the Secretary of Department of Health and Human Services (HHS) and recommend specific actions to achieve a common interoperability framework for health IT; and serve as a forum for participation from a broad range of stakeholders to provide input on achieving interoperability of health IT.

A key initial task of the Community is the definition of “breakthroughs” that will help guide the work of key HHS activities. Breakthroughs are defined as the use of health information technology that produces a tangible and specific value to the health care consumer and that can be realized within a 2-3 year period.

During their first meeting on October 7, 2005, the Community members identified five breakthrough areas as priorities: (1) chronic disease monitoring, (2) biosurveillance, (3) consumer empowerment, (4) e-prescribing, and (5) quality measurement.

At the second Community meeting held November 29, the Community members continued to discuss and refine the five breakthrough areas. To help focus both the efforts of the NHIN Architecture Prototypes, the Certification Commission for Health Information Technology, and the Health Information Technology Standards Panel, and other efforts, the Office of the National Coordinator for Health Information Technology (ONC) has identified three initial use case areas from the AHIC work (see attached documents):

(1) Biosurveillance: Providing Emergency Room and Lab Result Data
(2) Consumer Empowerment: Drug Record and Registration
(3) Electronic Health Record: Accessing Lab Results

While breakthroughs provide a framework for achieving a general objective using health IT, more detail is needed in order to achieve the goals of the breakthroughs. Accordingly, the breakthroughs need to be translated into what are typically referred to as “use cases.” The preparation of use cases is a technique for identifying potential requirements of an area for information systems and other processes to support. Analysts typically utilize use cases to define scenarios that convey how the system should interact with the end users or other systems to achieve a specific goal. The use cases will help the health IT stakeholders to frame and focus their efforts in support of advances toward the breakthroughs.

Using this document, ONC expects each of the health IT stakeholders to refine the three identified breakthroughs into use cases and deliver an electronic versions of all three use cases to ONC by January 18, 2006 by 5:00 PM EST.
ONC will advance a process to work with representatives from the public and private sectors to take each set of use cases and merge them into three, “harmonized” use cases. Each harmonized use case will be reviewed by the AHIC. They will also be exchangeable among the other involved parties, will facilitate the identification of common actions and activities for coordination, and will be used to drive subsequent activities. ONC will publish the three harmonized use cases in early February, 2006.

**Translating Breakthroughs into Use Cases**

This document contains guidelines to help prepare and document each of the three assigned use cases. The guidelines and templates have been developed in collaboration with representatives from across the public and private health IT community. By utilizing a common format and nomenclature, ONC will strive to converge the details of these use cases.

1. **Use Case Revision History Table.** The revision history table will help the authors and reviewers of the use case presentations track changes and modifications.

2. **Description of Use Case.** This section should include a description of the use case in enough details to provide context for the entire overview section. This is not meant to be a technical description; it should describe the process. Keep in mind that the primary audience for this section is the health care professional.

3. **Scope of Use Case.** This section should describe the scope of the use case. Scope should be address in two terms – what is to be included and what is to be excluded from this use case. Initial efforts to detail these use cases should strive for inclusiveness. The Community or other processes may refine the scope of the use case.

4. **Stakeholders of Use Case.** This section should list all primary actors involved in the use case and individuals and entities outside of the use case that will also be affected by the processes in the use case.

5. **Preconditions for Use Case.** This section should list all things that must be in place before the start of the use case. This can include, but is not limited to, the state of an actor, data that must be available somewhere or an action that must have occurred. This section should also include triggers for the initiation of the use case and discussions of important assumptions made about the use case during its development. These preconditions are intended to be an initial listing of criteria that will be expanded and refined by the Community and other groups.

6. **Obstacles to Implementing Use Case.** In this section, obstacles and risks to implementing this use case should be listed. These obstacles should be at a level of abstraction, such that they reflect obstacles to achieving the use case (i.e., limited physician access to computing device), as opposed to issues internal to the process that should represent an alternate flow (i.e., drug ordered has potential interaction with existing patient medication). These obstacles are intended to be an initial listing of criteria that will be expanded and refined by the Community and other groups.
7. **Postconditions for Use Case.** This section should list all things that will be a result or output of the use case. This can include, but is not limited to, the state an actor will be in upon conclusion of the use case, data that will be created or now available, and actions that will be required.

8. **Details of Use Case Scenarios and Perspectives.** This section will describe the use case from the variety of entity-driven perspectives and, if necessary, scenarios. Each scenario, if used, may have several perspectives. Each perspective will be further described by a sequence of events that consists of multiple actions, and represented in an enumerated table. In addition, your description of the scenarios, perspectives, events and supporting actions should include visual representations (e.g., Unified Modeling Language use case activity, model, or sequence diagrams) of the proposed interactions.

If desirable, each use case can contain one or more scenarios. All use cases will include one or more perspective which will describe the use case (or scenario) from the perspective of a single entity – either a person or an organization (e.g., provider, patient, administrative staff, pharmacy). Events may be solicited or unsolicited. Each perspective will consist of a “sequence of events” that describes a flow or the typical course of activities in that process.

Each event, in turn, will be further detailed by its component “actions.” “Actions” should equate to a fundamental system activity that, wherever possible, is generic enough to be used in multiple events, perspectives and scenarios. There may be many actions associated with an event. All relationships between different flows should be described and referenced in a comment field.

Each perspective may also contain: (1) a coding convention for alternate paths (i.e., variations on the main sequence of events), exceptions (i.e., what happens when things don’t go as planned), etc; and (2) detailed guidance on use of if … then … else like statements. Although there is no prescribed methodology for demonstrating interactions between perspectives and flows, alternative paths and exceptions should make use of the numbering of the basic course of events to show at which point they differ from the basic perspective, and if appropriate, where they rejoin. The intention is to avoid repeating information unnecessarily.

Where possible, relationships should be documented in a table according to the suggested structured coding scheme. We recognize that you may need to develop a unique approach to representing conditional links, cross-linking and inclusion of sub flows. It is our intent to implement a consistent approach during harmonization.

There will be a field for a brief description of the event and action, and a field to provide comments. The comment fields will be used primarily to call out relationships between actions and events and/or references to alternate or exceptional paths. The field may be used to discuss relevant decisions and/or notes (i.e., recorded validated assumptions, critical decisions and notes related to the Use Case and its development).
A visual representation of the relationship between the perspectives, events, and actions is provided below. If it is desirable to use more than one scenario, they would be inserted between the “Use Case” and the “Perspectives in this graphic.

A high-level taxonomy for a theoretical e-prescribing example is provided below.
**Glossary**

<table>
<thead>
<tr>
<th><strong>Term</strong></th>
<th><strong>Definition</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Action</td>
<td>Within the context of a use case, each “action” should be a fundamental and generic systems activity that can be use in more than one event, more then one perspective and event more than one use case if possible. There may be many actions associated with an event.</td>
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<tr>
<td>Alternate Path</td>
<td>Within the context of the use case, an “alternate” path describes variations on the main sequence of events.</td>
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<tr>
<td>Breakthrough</td>
<td>The use of health information technology that produces a tangible and specific value to the health care consumer and that can be realized within a 1-3 year period.</td>
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<tr>
<td>Event</td>
<td>Within the context of a use case, an “event” equates to a necessary step in the process involved in a perspective. Events may be solicited or unsolicited.</td>
</tr>
<tr>
<td>Exceptions</td>
<td>Within the context of the use case, “exceptions” describe what happens when things don’t go as planned.</td>
</tr>
<tr>
<td>Perspective</td>
<td>Within the context of a use case, a “perspective” represents the point of view of an actor or organization (e.g., health provider, patient, payer)</td>
</tr>
<tr>
<td>Scenario</td>
<td>If needed, each “scenario” represents a high level component of a use case. Each scenario, in turn, would have one or more than one perspective in it.</td>
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<tr>
<td>Use case</td>
<td>Refers to a technique for identifying potential requirements of a new information system. Typically used to define scenarios that convey how the system should interact with the end users or other systems to achieve a specific goal.</td>
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