



**Harmonized Use Case
for
Consumer Empowerment
(Registration and Medication History)**

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Office of the National Coordinator for Health Information Technology (ONC)

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**American Health Information Community
Consumer Empowerment Harmonized Use Case Area**

December 12, 2005

Background:

Consumer empowerment is the active involvement of consumers in managing their health care and gaining the benefits of having their health information in an easily accessible format to them. This includes having a personal health record to track family history, medications, and other special conditions a consumer may have.

As part of a personal health record, a medication history provides the consumer with an updated list of all medications in an easily accessible format. Most individuals do not know the specific medications and exact dosages that have been prescribed to them, and often do not know their allergies. In addition, clinicians do not always have consistent prescription information about the same individual. Too often, this results in errors or unnecessary treatments. A medication history would have all the current data in one location, available to the individual and to each authorized healthcare provider. The need for medication history was highlighted by the high interest in the KatrinaHealth.org web tool. Having a complete electronic medication list would also prevent drug-to-drug interactions when subsequent prescriptions are written.

A vital part of a personal health record is registration information. Going to the doctor or hospital often requires filling out multiple forms. These forms collect information such as name, address, insurance, medications, allergies, etc. Then, when an individual requires lab work or other testing, the same information has to be collected again. A single electronic health registration will make it easier for individuals to give their information and for clinicians to use it. Additionally, the consumer could update the information once and share it with all providers immediately as needed.

Broad Area:

Gain wide adoption of a personal health record that is easy-to-use, portable, longitudinal, affordable, and consumer-centered.

Specific Use Case Area:

Deploy to targeted populations a pre-populated, consumer-directed and secure electronic registration summary. Deploy a widely available pre-populated medication history linked to the registration summary.

1. Introduction to Consumer Empowerment (Registration and Medication History) Harmonized Use Case

In order to advance the Administration's goal of expanded adoption of health information technology (HIT), the Department of Health and Human Services (HHS) released a series of contracts in the fall of 2005 to support critical processes in the areas of standard harmonization, certification of HIT, and the development of a Nationwide Health Information Network.

A key step to ensure coordination of these processes was the identification and development of use cases. The use cases provide a common focus for the different activities and help lead to specific requirements, architecture, standards and policy discussions. Analysts typically develop use cases to convey specific business processes and indicate ways that systems should interact with users and with other systems to achieve specific goals. These harmonized use cases do not define policies and strive to not define technical approaches any more than is necessary. The harmonized use cases are intended to help structure subsequent work in these areas.

The American Health Information Community helped frame these use cases by defining "breakthrough areas" in which specific, near term value to the health care consumer could be realized. Based on this guidance, the Office of the National Coordinator for Health Information Technology (ONC) directed its portfolio of contractors to develop and submit for review use case areas in: (1) biosurveillance, (2) consumer empowerment, and (3) electronic health records.

Following the submission of the contractor's use cases on January 18, 2006, ONC launched a process to integrate the individual contributions into "harmonized" use cases. With the assistance of health information technology experts from across the federal government and guidance from the American Health Information Community and its Workgroups, ONC has completed the harmonization of the three use cases. While leaving flexibility for different implementation models, the harmonized use cases provide detailed guidance on the functions needed to advance critical efforts for the accelerated adoption of health information technology.

From the American Health Information Community's perspective, the harmonized use cases will yield valuable insights into the Community's continuing efforts to identify and remove barriers to adoption of health information technology.

For the nationwide health information network consortia, the harmonized use cases provide a foundation for the identification of critical architecture elements and establish the expectations of their prototype architectures.

For the Health Information Technology Standards Panel, the harmonized use cases scope its efforts to develop named standards and implementation level guidance necessary for interoperable solutions.

For the Certification Commission for Health Information Technology, the harmonized use cases provide insight into criteria for the certification of electronic health records and other aspects of the health IT landscape.

Harmonized Use Case for Consumer Empowerment (Registration and Medication History)

2. Description of Consumer Empowerment (Registration and Medication History) Harmonized Use Case

In July 2004, the Department of Health and Human Services released a Strategic Framework report entitled *The Decade of Health Information Technology: Delivering Consumer-centric and Information-rich Health Care*. The framework outlines four major goals to be pursued by public and private health sectors in order to shape a vision to utilize information technology in health. Simply, these four goals are as follows: (1) inform clinical practice, (2) interconnect clinicians, (3) personalize care, and (4) improve population health.

A critical element of the goal to personalize care is the active involvement of consumers in managing their health care and gaining the benefits of having their health information in a format that is easily accessible. This includes having personal health record (PHR) functionality with registration summaries that can be used to reduce consumer's burden of having to complete multiple forms and medication histories that can help to reduce errors, eliminate unnecessary treatments, and improve the diagnosis, treatment, and management of illnesses.

In November 2005, the American Health Information Community established the widespread adoption of a PHR that is easy-to-use, portable, longitudinal, affordable, and consumer-centered as one of four breakthrough areas. Currently there is no universally accepted definition of a PHR, and the entities that offer PHRs vary widely in their functionality and features. In light of this variation, the American Health Information Community and other organizations continue to develop and discuss principles related to accountability, disclosure, functionality, access, and use of personal health information as well as descriptions of what would constitute a minimal set of required information for registration summaries and medication histories.¹

For the purposes of the Consumer Empowerment Harmonized Use Case, a PHR is a set of consumer health related information used by the consumer and any other care or service providers as appropriate. This may include information generated by care or service provider systems (e.g., pharmacy information systems, physicians' and hospitals' electronic health record systems, etc.) as well as patient generated information. Entities that offer these types of services may include self-described PHR vendors, health plans, health care provider organizations, employers, regional health information exchanges with interfaces for consumers, hub-like entities, etc. Supporting the principle of allowing consumers to select a provider of PHR services based on the features and functionality they want, the Consumer Empowerment Harmonized Use Case does not identify an entity as the preferred provider of PHR services.

The American Health Information Community further refined this breakthrough area by calling for the deployment of a pre-populated, consumer-directed and secure electronic registration summary and medication history linked to the registration summary.

¹ A copy of the Proposed Principles for Consumer Empowerment Breakthrough that were discussed at the American Health Information Community Consumer Empowerment Workgroup meeting on February 21, 2006 are available online at http://www.hhs.gov/healthit/ahic/ce_archive.html.

3. Scope of Consumer Empowerment (Registration and Medication History) Harmonized Use Case

The Consumer Empowerment Harmonized Use Case identifies the principle stakeholders and flow of events for the authorized and secure exchange of consumers' registration summaries and medication histories. The use case is not intended to define all system features; it identifies and describes interactions between key systems and stakeholders and serves as a guide that leads to further development of functional requirements and other products. The Consumer Empowerment Harmonized Use Case includes:

1. enabling consumers to establish permissions and access rights for viewing their data;
2. authenticating consumers, designated caregivers, and health professionals;
3. querying other organizations for data and matching to the consumer;
4. accepting "batch" data from other organizations and matching to the appropriate consumers;
5. accessing, viewing, and sharing registration summaries and medication histories; and
6. recording of interactions to enable access and viewing tracking and generation of system logs.

Based on the charge from the American Health Information Community, the Consumer Empowerment Harmonized Use Case presumes some level of linkage between consumer's registration summary and their medication history. This linkage is an important consideration for identifying and locating individual consumers and their available medication information across network systems. For the purposes of this use case, the linking of a consumer's registration summary to the medication history includes: (1) identity matching, (2) linkages between the data, (3) and the ability to incorporate both types of data simultaneously into a system (although they may come from different systems themselves).

In addition, the use case does not specifically define what data constitute a registration summary or a medication history. The Health Information Technology Standards Panel and the Nationwide Health Information Network architecture process will assist with the identification of a minimum data set. For the Consumer Empowerment Harmonized Use Case, the registration summary will be restricted to the information consumers generally need to provide when visiting a physician, hospital, or pharmacy, such as:

1. demographic information sufficient to help identify the consumer;
2. financial information sufficient for insurance eligibility checking and claims processing; and
3. basic clinical information including allergies.

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Other levels of registration data, including the clinical summary and specialist or hospital intake forms are out of scope of this use case.

With respect to medication history, the Consumer Empowerment Harmonized Use Case presumes the utilization of sufficient information about consumers' medications to enable the following activities:

1. create medication history,
2. update medication history,
3. view medication history,
4. physician's review of medication history with consumer, and
5. differentiate current medications from relevant past medications

Other types of historical medication information, especially those needed to analyze medication compliance and deliver patient education, are important, but are out of scope of this use case.

4. Stakeholders for Consumer Empowerment (Registration and Medication History) Harmonized Use Case

The following list of stakeholders and their definitions are for discussion purposes within the context of the use case.

Stakeholders	Working Definition
Consumer/Patient	The individual who receives healthcare services and selects a provider of PHR services to maintain their personal health record consisting of registration data and medication history. This individual shall determine which stakeholders are authorized to review, access, and update their personal health record.
Health care providers	Health Care Providers include those individuals with direct patient interface in the delivery of care, including physicians, first responders, nurses, nurse practitioners, clinical supervisors, and healthcare delivery organizations. In this use case, clinicians also include administrative staff who engage in a common set of functions including planning, staffing, data collection, registration, etc.
Authorized family member/caregiver	A person or person(s) who have been granted authority to act on a consumer's behalf regarding actions taken with the consumer's personal health record system.
Data providers	Medical laboratories, radiology departments, etc. either in a hospital or ambulatory environment, which may participate as a data or network system.
Pharmacies	The organization that dispenses pharmaceuticals to consumers, utilizes data to check for contraindications and allergies, may participate as an intermediary or subnetwork provider of data on dispensed medications, or even as a provider of PHR services.
Payers	The organization that pays for healthcare claims, may participate as a data or network system of claimed medications, and can act as a provider of PHR services.
Pharmacy Benefit Managers	The organization that has delegated authority from the payer to process pharmaceutical claims, intermediary or subnetwork to provide data for medication history, and can act as a provider of PHR services.
Public Health Agencies (Federal, State, Local)	Federal, state, local organizations and personnel that exist to help protect and improve the health of their respective constituents.
Employers	The organizations that employ the consumer, provide insurance coverage for pharmaceuticals, and can act as a provider of PHR services.
Schools	The organizations that can act as a provider of PHR services for its students.
PHR vendors	The entities that maintain and possibly aggregate registration data and the medication history for the consumer in a secure environment.
Regional network infrastructure provider	An organization that supports secure and reliable network transmission between health delivery agencies involved in the management of health information and provides indexing of patient identifiers and metadata on clinical information sources.

5. Preconditions for Consumer Empowerment (Registration and Medication History) Harmonized Use Case

Pre-conditions are the conditions that must be in place before the start of the use case. This includes, but is not limited to, the state of a stakeholder, data that must be available somewhere, or an action that must have occurred. This section also includes triggers for the initiation of the use case and discussions of important assumptions made about the use case during its development.

1. Network infrastructures enable secure, appropriate, and accurate information exchange across data sources and systems to view the data. This includes, but is not limited to:
 - a. methods to identify and authenticate users;
 - b. methods to identify and determine providers of care;
 - c. methods to enforce data access authorization policies;
 - d. methods to ensure the veracity of data; and
 - a. methods to correctly match patients across systems.
2. Ability to identify and request corrections to errors is available.
3. Ability to apply notes, corrections and comments on original entries is available.
4. Appropriate standards are developed, approved, and widely adopted supporting data content and structure, allowing universal access by compliant systems.
5. Core datasets are defined and adhered to.

6. Obstacles to Implementation of Consumer Empowerment (Registration and Medication History) Harmonized Use Case

In general, the absence of the prerequisites described in the previous section presents obstacles to implementation of the use case. Additional obstacles from various perspectives are provided below.

From the consumer's perspective:

1. Lack of access to Web-enabled technology.
2. Use of PHRs may be considered inconvenient, difficult, or costly.
3. Concerns about loss of privacy, employment or insurance discrimination, or commercial exploitation if information is shared inappropriately.
4. Lack of an understanding by all stakeholders of their rights and responsibilities.

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From health care provider's perspective:

1. Lack of adoption by clinicians stemming from several concerns including: patient care and medical practice preferences, legal and liability issues, and economic and reimbursement issues.
2. Maintenance of multiple workflow processes: health care providers will likely need to have multiple procedures to accommodate the variation in functionality and features offered by consumers' PHR systems.
3. Changes in workflow including checking (or failing to check) information that may be in a networked medication history or personal health record and the receipt of inaccurate information.

From a system-level perspective:

1. The absence of universally agreed upon definitions of what constitutes a PHR.
2. The degree of deployment of authentication and authorization technologies.
3. Lack of standard protocols to handle differences between consistent/accurate information and up to date information.
4. Difference in state laws and practices related to data management, privacy and confidentiality issues.

7. Post-conditions for Consumer Empowerment (Registration and Medication History) Harmonized Use Case

Post-conditions are the conditions that will be a result or output of the use case. This includes, but is not limited to, the state a stakeholder upon conclusion of the use case, data that was created or now available, and identification of actions that may serve as pre-conditions for other use cases.

1. Consumers and providers have information needed to identify, reconcile, and use these health care data.
2. Consumers know who has access to their data and can view who accessed or updated their registration or medication history.
3. With the consumer's consent, authorized health care providers are able to locate and retrieve registration summary and medication histories to facilitate care.

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8. Detail of Consumer Empowerment Harmonized Use Case Perspectives and Scenarios

The following entity-driven perspectives will be part of the use case:

1. **Consumer** includes patients and may include other authorized caregivers designated by patients to serve as their proxies.
2. **Provider of PHR Services** are entities that process requests for registration summary and medication history, manage Consumer's accounts, etc. Entities that offer these types of services can include self-described PHR vendors, health plans, health care provider organizations, employers, regional health information exchanges with interfaces for consumers, hub-like entities, etc.
3. **Health Care Provider** includes physicians, hospitals, other clinicians, nurses, front desk, and other support staff. Includes EHR used in health care delivery.
4. **Data or Network System** is a system or network that manages health data (information, eligibility laboratory results, medication information, etc.) or associated patient information (e.g., maintains master patient index).

The tables and visualizations are abstract representations of various perspectives as they interact to accomplish data exchange. In many cases, individual "stakeholders" may assume multiple perspectives. For example, an individual consumer may serve as the "Provider of PHR Services" if the consumer chooses to maintain their registration and medication data on their own computer system. In addition, an integrated delivery network can simultaneously be a "Health Care Provider," "Provider of PHR Services," and "Data or Network System." The use case does not attempt to prescribe a preferred methodology for hosting the consumers' registration summaries and medication history and presumes that consumers will be free to choose from a wide range of entities for the provision of this information.

**Consumer
Empowerment**

Consumer

2.1.1.0 Select Provider of PHR Services

2.1.1.1 Provide uniquely identifying info

2.1.2.0 Establish/Change permissions

2.1.2.1 Authenticate to system

2.1.2.2 Establish/Modify access permissions

2.1.3.0 Log on to System

2.1.3.1 Authenticate to system

2.1.4.0 View Reg/Med data

2.1.4.1 Authenticate to system

2.1.4.2 Request data

2.1.4.3 Receive data

2.1.5.0 Modify Reg/Med data

2.1.5.1 Authenticate to system

2.1.5.2 Request data

2.1.5.3 Receive data

2.1.5.4 Modify data

2.1.5.4a Annotate data

2.1.5.5 Transmit modified and/or annotated data

2.1.5.5a Transmit request to modify and/or correct data

2.1.6.0 Close account

2.1.6.1 Request to close PHR account

2.1.6.1a Request reg/med info sent to other Provider of PHR services

2.1.6.2 Receive confirmation of account closure

2.1.6.2a Receive confirmation of reg/med info transmission to other Provider of PHR services

**Consumer
Empowerment**

Provider of PHR Services

2.2.1.0 Create account

- | |
|---|
| 2.2.1.1 Confirm consumer's identity |
| 2.2.1.2 Create consumer's Account |
| 2.2.1.3 Maintain permissions for access and information sharing |

2.2.2.0 Gather reg/med data

- | |
|--|
| 2.2.2.1 Receive consumer request |
| 2.2.2.2 Confirm consumer identification |
| 2.2.2.3 Transmit request for reg/med info |
| 2.2.2.4 Receive reg/med info |
| 2.2.2.5 Acknowledge receipt of reg/med information |
| 2.2.2.6 Log interaction |

2.2.3.0 Process reg/med data

- | |
|--|
| 2.2.3.1 Receive and validate query |
| 2.2.3.2 Authenticate and verify the authorization of the requestor |
| 2.2.3.3 Transmit requested reg/med info to authorized system |
| 2.2.3.4 Log interaction |

2.2.4.0 Close account

- | |
|--|
| 2.2.4.1 Receive and validate query |
| 2.2.4.2 Authenticate and verify the authorization of the requestor |
| 2.2.4.3 Terminate account |
| 2.2.4.3a Transmit requested reg/med info to authorized system |
| 2.2.4.4 Transmit confirmation to consumer |
| 2.2.2.6 Log interaction |

**Consumer
Empowerment**

Health Care Provider

2.3.1.0 View Reg/Med data

2.3.1.1 Submit authentication information to provider of PHR services
2.3.1.2 Receive reg/med info

2.3.2.0 Integrate registration data into EHR system

2.3.2.1 Transmit request for registration info to provider of PHR services
2.3.2.2 Accept registration data into EHR system
2.3.2.3 Confirm registration data integrity
2.3.2.3a Produce exception list of errors
2.3.2.4 Parse and validate results content
2.3.2.5 Acknowledge receipt of registration data
2.3.2.6 Log interaction

2.3.3.0 Process requested data

2.3.3.1 Receive and validate query
2.3.3.2 Authenticate and verify the authorization of the requestor
2.3.3.3 Transmit request for reg/med info to authorized system
2.3.3.4 Log interaction

**Consumer
Empowerment**

**Data or Network
System**

2.4.1.0 Process request for reg/med data data

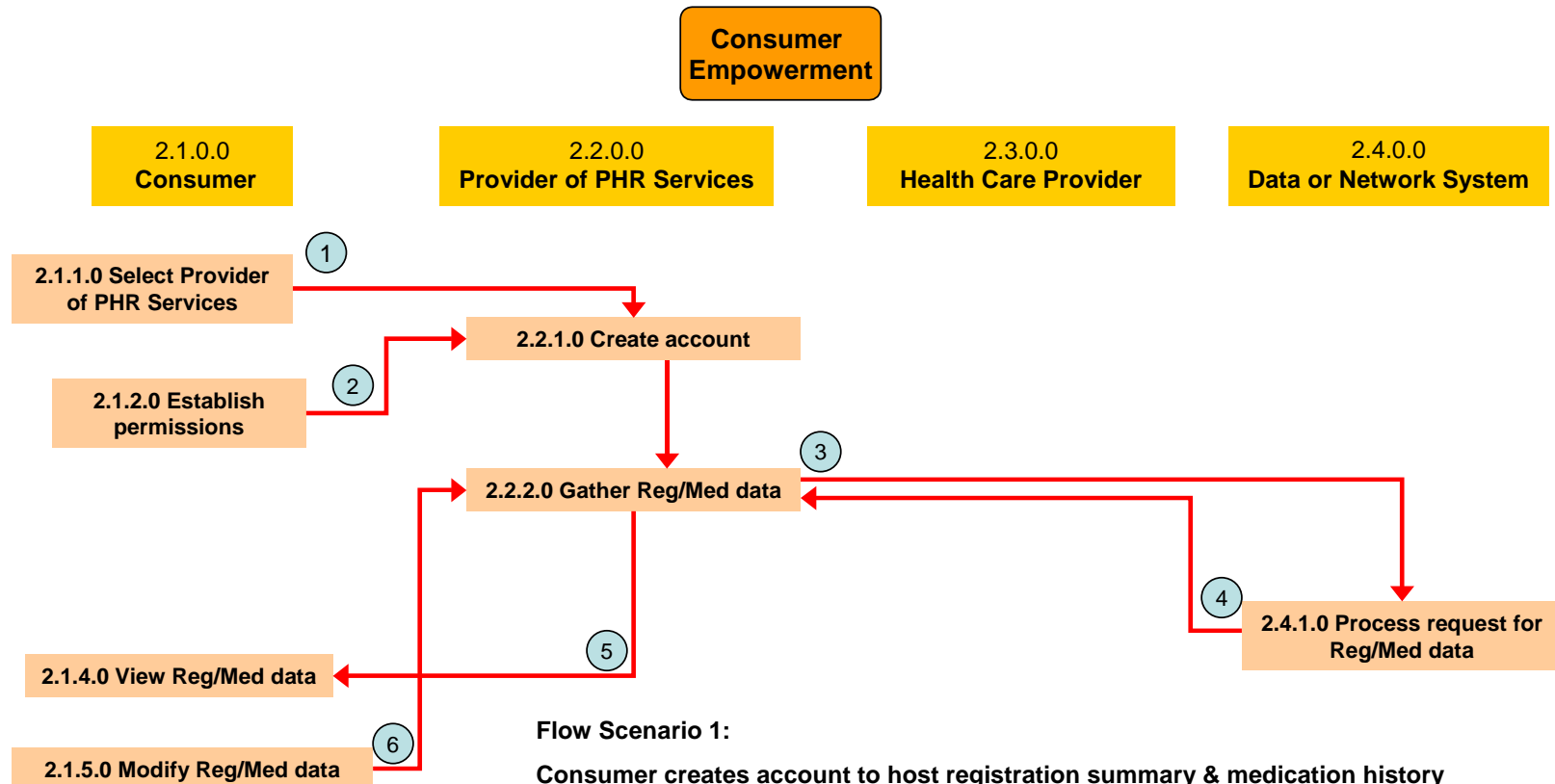
2.4.1.1 Receive and validate the query request

2.4.1.2 Authenticate and verify authorization of requestor

2.4.1.3 Authorize release of reg/med info

2.4.1.4 Transmit reg/med info to an authorized system

2.4.1.5 Log interaction

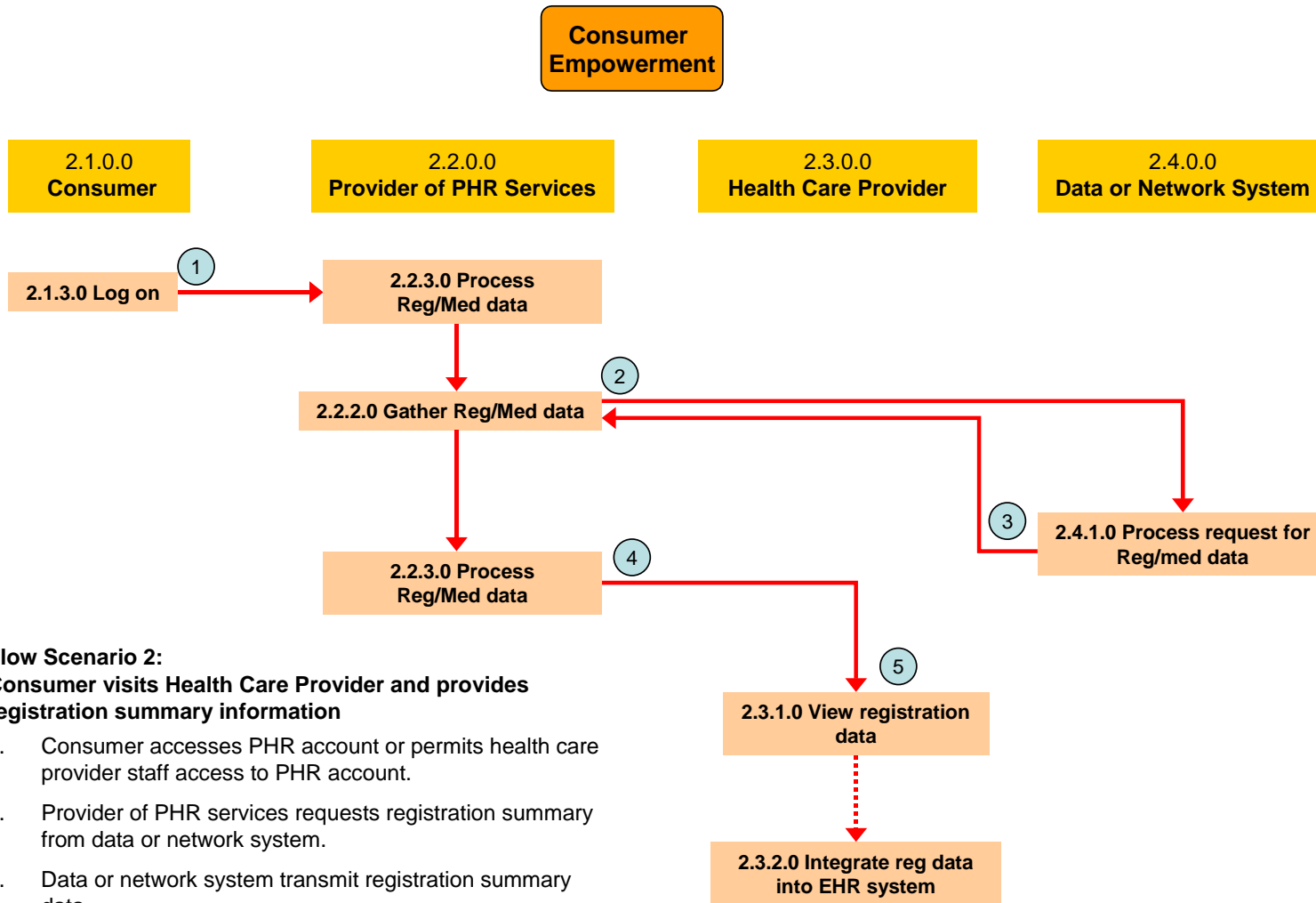


Flow Scenario 1:

Consumer creates account to host registration summary & medication history

1. Consumer selects organization to provide PHR services.
2. Consumer establishes permissions for access to account and rules for information sharing.
3. Provider of PHR services requests registration summary & medication history from data or network system.
4. Data or network system transmit registration summary & medication history data.
5. Registration summary & medication history transmitted to consumer for review.
6. Consumer modifies registration summary & medication history and transmits to provider of PHR services.

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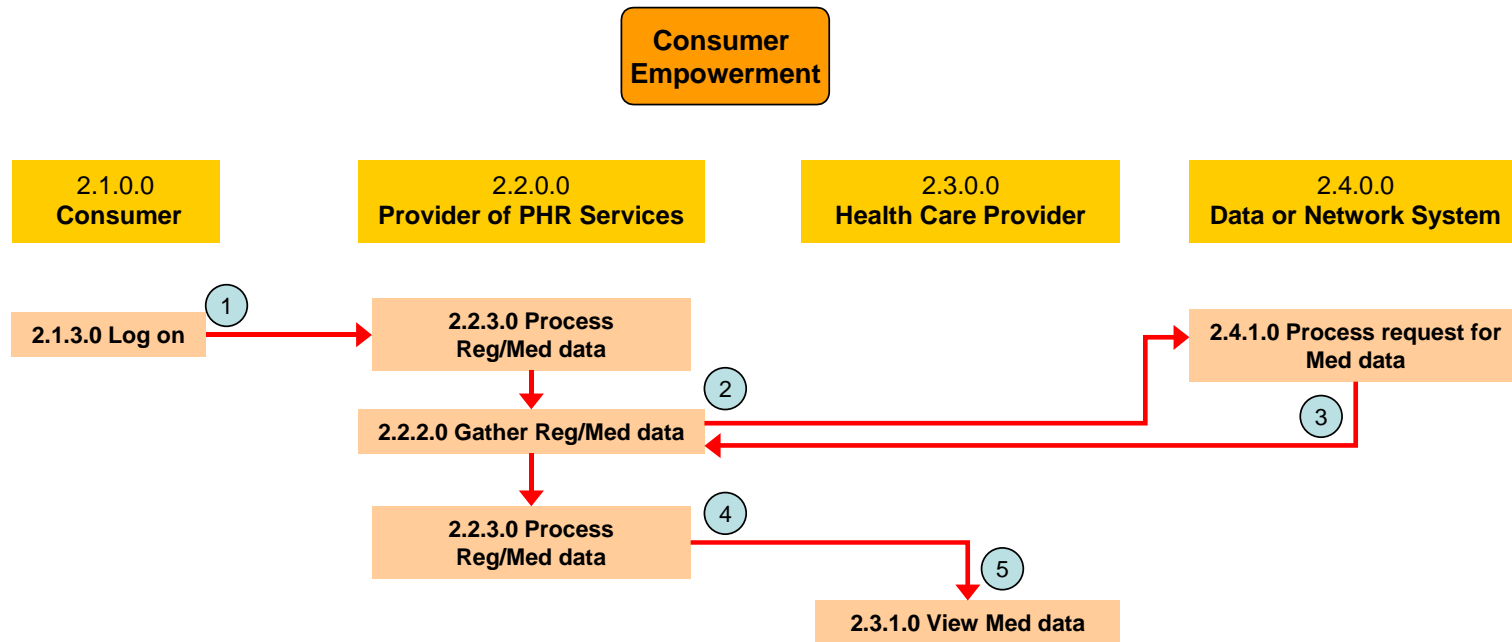


Flow Scenario 2:

Consumer visits Health Care Provider and provides registration summary information

1. Consumer accesses PHR account or permits health care provider staff access to PHR account.
2. Provider of PHR services requests registration summary from data or network system.
3. Data or network system transmit registration summary data.
4. Provider of PHR services transmits registration summary to health care provider.
5. Health care provider views registration summary (and/or integrates registration summary into EMR).

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**Flow Scenario 3:
Authorized Health Care Provider reviews medication history**

1. Consumer accesses PHR account or permits health care provider access to PHR account.
2. Provider of PHR services requests medication history from data or network system.
3. Data or network system transmit medication history data.
4. Provider of PHR services transmits medication history to health care provider based on consumer's preferences and/or relevant laws regarding disclosure of information.
5. Health care provider views medication history.

2.1 Consumer/Patient Perspective

Code	Description	Comment
2.1.1.0	Event: Select a provider of PHR services	Consumer selects a provider of PHR services that will link their registration and medication information and control user access based upon consumer authorization.
2.1.1.1	Action: Provide identification data	Information is provided to the provider of PHR services in order that the Provider can uniquely confirm the consumer's identity. Such information may include demographics and other individually identifiable information, or the elected participation is some type of controlled network as in the case of a payer provided PHR, whereby the payer can readily identify the individual.
2.1.2.0	Event: Establish/Change permissions	
2.1.2.1	Action: Authenticate to system	Establish consumer's identify and authorization. Authentication methods could include biometrics, card, token, or user ID and password, cryptographic techniques.
2.1.2.2	Action: Establish/Modify permissions for access to the system	Consumer authorizes or modifies caregivers' access. Caregivers may include health care providers, family members, and others designated by the consumer. Privacy policy for adolescents is complex and there are no fixed standards for when children gain access to their records and when they become the primary custodian and controller of who may use the record.
2.1.3.0	Event: Log on to system	
2.1.3.1	Action: Authenticate to system	Establish consumer's identify and authorization. Authentication methods could include biometrics, card, token, or user ID and password, cryptographic techniques.

Harmonized Use Case for Consumer Empowerment (Registration and Medication History)

Code	Description	Comment
2.1.4.0	Event: View registration and medication data	The consumer views their registration and medication data from Data or network systems.
2.1.4.1	Action: Authenticate to system	Establish consumer's identify and authorization. Authentication methods could include biometrics, card, token, or user ID and password, cryptographic techniques.
2.1.4.2	Action: Request data	The consumer sends a request to the provider of PHR services to populate registration and medication history for the purpose of reviewing the data. The provider of PHR services may seek approval from the consumer to request data from data or network systems.
2.1.4.3	Action: Receive data	The consumer receives data for review. This data may be obtained through various mechanisms to include a web portal, automatic fax service, hardware token, smart card, a print out from a URL, automated login software, etc.
2.1.5.0	Event: Modify registration and medication data	Consumers may have the following options for modifying, updating, and correcting various data elements: (1) some data fields will permit unrestricted modifications. (2) some data fields may not permit consumers to edit data, but could allow annotations to be made by the consumer. (3) some data fields will not permit changes and consumers would need to submit requests for modifications and corrections directly to the Providers of PHR Services and/or the Data Systems and Networks that are the original source of the data.
2.1.5.1	Action: Authenticate to system	Establish consumer's identity and authorization. Authentication methods could include biometrics, card, token, or user ID and password, cryptographic techniques.
2.1.5.2	Action: Request data	The consumer sends a request to the provider of PHR services to display the current registration and medication history for the purpose of obtaining the data.

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Code	Description	Comment
2.1.5.3	Action: Receive data	The consumer receives the current PHR so that modifications can be conducted.
2.1.5.4	Action: Modify data	
2.1.5.4a	Alternate Action: Annotate data	Providers of PHR services and/or data or network systems may place restrictions on modification of certain data. For fields that are not modifiable by the consumer, the consumer may be able to annotate the record
2.1.5.5	Action: Transmit modified and/or annotated data	The consumer sends the data changes to the provider of PHR services via the established means of secure data transmission. This action authorizes the provider of PHR services to import data into the PHR account. In such circumstances, the consumer may wish to review or restrict the transmission of data to the PHR.
2.1.5.5a	Alternate Action: Transmit request to modify and/or correct data	Providers of PHR services and/or data or network systems may place restrictions on modification of certain data. Consumers may need to contact the providers of PHR services and/or data or network systems to submit requests to change.
2.1.6.0	Event: Close account	Various circumstances may lead to an account closure request to include: consumer moves to a new geographical location; changes health care providers or payers; the provider of PHR services goes out of business or no longer provides this service; etc.
2.1.6.1	Action: Request to close PHR account	
2.1.6.1a	Alternate Action: Request registration and medication data sent to another provider of PHR services	The consumer may wish to change his/her designated provider of PHR services and may request that existing provider of PHR services provide registration and medication data to new provider of PHR services.
2.1.6.2	Action: Receive confirmation of account closure	
2.1.6.2a	Alternate Action: Receive confirmation of account transfer	Data may be transferred to the new provider of PHR services, but authentication and permission data must be re-established with the new provider of PHR services.

Harmonized Use Case for Consumer Empowerment (Registration and Medication History)

2.2 Provider of PHR Services Perspective

Code	Description	Comment
2.2.1.0	Event: Create account	
2.2.1.1	Action: Confirm consumer's identity	Establish consumer's identity and authorization. Many authentication methods could be used including biometrics, card, token, or user ID and password, cryptographic techniques, etc.
2.2.1.2	Action: Create consumer's account	The provider of PHR services establishes the private, secure account upon receiving consumer notification/request.
2.2.1.3	Action: Maintain consumer's permissions for system access	Consumer authorizes or modifies caregivers' access. Caregivers may include health care providers, family members, and others designated by the consumer.
2.2.2.0	Event: Gather registration and/or medication data	The collection of registration and medication data presumes the ability to locate the appropriate information. Depending on the relationship of the various perspectives, a locator service may be included in one of the perspectives or be provisioned by an entity with the ability to search across systems.
2.2.2.1	Action: Receive consumer request	
2.2.2.2	Action: Confirm consumer identity	
2.2.2.3	Action: Transmit request for registration/medication data to data or network system	The PHR Provide requests registration and medication data from Data or network systems in accordance with consumer's permissions for data access.
2.2.2.4	Action: Receive registration/medication data	The provider of PHR services will receive information via secure data transmission.
2.2.2.5	Action: Acknowledge receipt of registration/medication data	Send acknowledgment that integrity, authenticity and completeness of data are found.
2.2.2.6	Action: Log interaction	

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Code	Description	Comment
2.2.3.0	Event: Process request for registration and/or medication data	Data will be processed based on consumer's permissions for data access.
2.2.3.1	Action: Receive and validate the query request	
2.2.3.2	Action: Authenticate and verify the authorization of the requestor	Establish data requestor's identification and authorization.
2.2.3.3	Action: Transmit registration and medication data to an authorized system	The data are transmitted to the PHR under the consumer's authority/request.
2.2.3.4	Action: Log interaction	There is an audit trail or access log for each entity that sends data to the PHR.
2.2.4.0	Event: Close account	
2.2.4.1	Action: Receive and validate query	
2.2.4.2	Action: Authenticate and verify the authorization of the requestor	
2.2.4.3	Action: Terminate account	
2.2.4.3a	Alternate Action: Transmit registration and medication data to the new provider of PHR services	Establish consumer's identity and authorization and new provider of PHR services' authorization. One of many authentication methods could be used (biometrics, card, token, or user ID and password, cryptographic techniques).
2.2.4.4	Action: Transmit confirmation to consumer	
2.2.4.5	Action: Log interaction	

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2.3 Health Care Provider Perspective

Code	Description	Comment
2.3.1.0	Event: View registration and/or medication data	
2.3.1.1	Action: Submit authentication information to PHR	<p>Establish health care provider's identify and authorization. The PHR system will confirm the health care provider's rights to access the consumer's PHR account and their data.</p> <p>Authentication information may be controlled by numerous rule sets. For example, access parameters could be set to allow continuous access by the health care provider, access could be token or password based, or if the PHR is resident in a portable device in the possession of the consumer, accessing the device by a compatible system could allow access to the data.</p>
2.3.1.2	Action: Receive registration and medication data	Once the system verifies the health care provider's identity and authorization, data are transmitted to the health care provider.
2.3.2.0	Event: Integrate registration data into EHR or other care system	This event pertains only to health care providers with EHR systems. Health care providers may use imported consumer's PHR data to help complete other health IT transactions. Therefore, a mechanism is needed to import PHR data into their EHR. The incorporation of registration data are within scope of this use case, the incorporation of medication history is desirable but can be considered out of scope.
2.3.2.1	Action: Transmit request for registration/medication data to provider of PHR services	The EHR system opens and parses each electronic result. Individual records are checked for appropriate information, completeness, proper codes, and patient identifying information.
2.3.2.2	Action: Accept data into EHR system	As many health care providers may use PHR data for clinical or treatment decisions, the EHRs will need to be able to identify the source of the data. A mechanism for flagging data changes may include various forms of EHR system functionality.

Harmonized Use Case for Consumer Empowerment (Registration and Medication History)

Code	Description	Comment
2.3.2.3	Action: Confirm data integrity	Upon receiving the message set, the health care provider's system confirms that the message was received in a complete and unchanged format. Individual records are checked for properties such as required information, completeness, proper codes, and patient identification.
2.3.2.3a	Alternate Action: Produce exception list of errors	When inbound data cannot be unequivocally matched with the EHR, an exception list is produced to allow human resolution.
2.3.2.4	Action: Parse and validate results content	The EHR system opens and parses each electronic result. Individual records are checked for appropriate information, completeness, proper codes, and patient identifying information.
2.3.2.5	Action: Acknowledge receipt of registration and medication data	Send acknowledgment that integrity, authenticity and completeness of data are found.
2.3.2.6	Action: Log interaction	There is an audit trail or access log for each entity that accesses the PHR.
2.3.3.0	Event: Process requested data	Consumers may request that information from their health care providers be transmitted to their PHR accounts.
2.3.3.1	Action: Receive and validate the query request	
2.3.3.2	Action: Authenticate and verify the authorization of the requestor.	Establish data requestor's identify and authorization.
2.3.3.3	Action: Transmit registration and medication data to an authorized system	The data are transmitted to the PHR under the consumer's authority/request.
2.3.3.4	Action: Log interaction	There is an audit trail or access log for each entity that sends data to the PHR.

Harmonized Use Case for Consumer Empowerment (Registration and Medication History)

2.4 Data or Network System Perspective

Code	Description	Comment
2.4.1.0	Event: Process request for registration and/or medication data	Consumers may request that information from their health care providers be transmitted to their PHR accounts.
2.4.1.1	Action: Receive and validate the query request	
2.4.1.2	Action: Authenticate and verify the authorization of the requestor	Establish data requestor's identify and authorization.
2.4.1.3	Action: Authorize release of registration and medication data	
2.4.1.4	Action: Transmit registration and medication data to an authorized system	The data are transmitted to the PHR under the consumer's authority/request.
2.4.1.5	Action: Log interaction	There is an audit trail or access log for each entity that sends data to the PHR.