• **Integration Engine** – unidirectional and bidirectional interfaces, query-response interactions with eHealth Exchange and distribution of machine readable Alerts and Notifications are all handled by the Mirth Connect Integration Engine. This tool set also provides the capabilities to edit and transform data, to map data to national standard code sets, and to map data between differing formats.

• **Clinical Data Repository** – The Clinical Data Repository is a comprehensive database that houses all patient demographic and clinical information, all entity and individual user identity information, and maintains all individual data transactions received by The Network in their original format with their original content. Additionally, it provides the foundation for the Master Patient Index and the Provider/User Directory.

• **Provider Portal** – The Provider Portal serves as the viewer into the patient’s record which is a composite view of all information received by The Network from all participants. The web-based portal presents patient medical information with each category of information having its own grouping and format.

• **Payer Portal** – The Payer Portal serves as the viewer for the patient’s composite health record, specifically for use by payers. The web-based portal presents the patient’s clinical information as an episode of care with the ability to drill down and view the various categories of data individually.

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**Data Exchange Formats**

Data can be exchanged with The Network in one of three formats:

- **HL7 Version 2.x** – Using HL7 Version 2, data feeds by type of data (as listed in the “Data Types” section) are sent from a Participant to The Network.

- **HL7 Version 3.x** (Continuity of Care Document – CCD) – Using HL7 Version 3 standards, the data contained in this format are embedded in an XML document (or similar format) and may be viewed directly using web services. A portion of the embedded data within the CCD can be parsed out and stored as discrete data; however, the bulk of the CCD is presented as a single integrated document, not in discrete form. Information in this data format is both machine-readable and human-readable.

- **C-CDA** (Consolidated-Clinical Document Architecture) – Using the harmonized HL7, IHE and HITSP standards, data is delivered utilizing one of the following XML documents:
  1. Continuity of Care Document (CCD)
  2. Consultation Note
  3. Diagnostic Imaging Report
  4. Discharge Summary
  5. History and Physical
  6. Operative Note
  7. Procedure Note
  8. Progress Note
  9. Unstructured Document

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**Data Types**

Currently, utilizing the three Data Exchange Formats described in the left-hand column, The Network attempts to collect and make available for viewing and distribution the following data types:

- Advanced directives
- Allergies
- Diagnostic results & reports including
  - Lab
  - Microbiology
  - Pathology
- Encounters
- Family history
- Immunizations
- Medications
- Patient demographics
- Patient identifiers (MRN, Group ID)
- Payer and insurance
- Problem list
- Procedures
- Provider information
- Radiology reports
- Social history
- Source of the information
- Transcribed documents
- Vital Signs

Actual data available is dependent upon the information provided by each Participant. C-CDA documents have some variation in content based upon the document type.

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The Network is a program of Arizona Health-e Connection (AzHeC) that provides secure access to patient health information, as well as the secure exchange of patient health information between The Network and its participating exchanges and providers. Through the secure sharing of health information among authorized participants, The Network is enabling Arizona’s health care community to improve health care coordination, quality and safety, and to reduce costs. The Network is Arizona’s largest statewide health information exchange (HIE).

**Participants include:**

- **Hospitals** – from the state’s largest hospitals and hospital systems to critical access hospitals and rural hospitals;
- **Physicians and other providers** – including primary care and specialty care providers in single and multispecialty practices;
- **Health plans** – including most commercial and Medicaid (AHCCCS) plans;
- **Reference labs** – including the state’s two largest reference labs; and
- **Other health care organizations and providers** – including community health centers, long-term care facilities and county correctional facilities.

For more information visit: www.azhec.org

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Key Services of The Network

Bidirectional Exchange
The Network connects to certified EHRs allowing access to patient health information by all authorized Network users. This bidirectional connection allows a Network Participant to automatically send patient information to The Network, and it allows a certified EHR to query The Network and receive information on patients.

Use Case Example – A patient with chronic cardiologic disease needs his or her care coordinated among several treating providers. Through bidirectional exchange, a community hospital can electronically distribute in machine-readable form various patient-related data including admissions, discharges, EHR registrations, lab results, radiology reports, and other transcribed reports to providers within their service area through one interface with The Network. The Network can then route this information to the appropriate provider practice via its interface with the practice’s EHR system. This approach to information exchange eliminates the need for the hospital to establish an interface with every provider practice in its service area, and it allows a practice to establish a single interface with The Network through which information from multiple hospitals, labs, and other physician practices can be provided.

Alerts & Notifications
The Network sends relevant patient data related to a patient’s ED registration, inpatient admission, discharge or transfer to a provider or health plan case managers and care coordinators to advise them of a patient’s movement within the health care community. Additionally, The Network sends notices to providers and health plan representatives informing them of a patient’s lab and radiology results and of the availability of transcribed results and reports. The provider and health plans submit their list of current patients or beneficiaries, select the alerts and notices they wish to receive, and the Network will forward the related medical information as it is received.

Use Case Example – A physician practice’s care coordinator is responsible for scheduling post-discharge appointments for the practice’s patients. The practice has provided The Network with a list of its patients, has selected to receive inpatient admission, ED registration, discharge, and transfer alerts, and has designated the care coordinator as the recipient of the alerts. The care coordinator receives in near real-time a discharge alert via a secure email message for one of the practice’s patients. Based upon the information contained in the alert, the care coordinator knows that a follow-up appointment is appropriate and contacts the patient to schedule that appointment within the desired 7 or 14 day post-discharge window.

Use Case Example – A case manager is working with a patient whose information has been received by The Network. The index associates a patient’s records from multiple provider practices with one unique identifier for that patient. The care coordinator is responsible for scheduling appointments for the patient’s practice. The practice has provided The Network with a list of its patients, has selected to receive inpatient admission, ED registration, discharge, and transfer alerts, and has designated the care coordinator as the recipient of the alerts.

Core technical components that form the backbone of The Network and support the transfer of patient information include the following:

- **Master Patient Index** – The Master Patient Index (MPI) is a database that maintains a unique index (or identifier) for every patient whose information has been received by The Network. The index associates a patient’s records from multiple Network Participants with one unique identifier for that patient.

- **Provider/User Directory** – The Provider/User Directory contains both individual level and entity level information on individual health care professionals and health care organizations. Each health care professional and organization listed in the Provider/User directory has a unique ID that serves as the key and consistent identifier for that individual or organization’s record.

Provider Portal
Patient clinical information can be accessed via a web-based portal. This service allows an authorized user from a Network Participant to access patient records one patient at a time via the Provider Portal over a secure Internet connection.

Use Case Example – A patient presents for the first time at a provider practice. Utilizing the Provider Portal, the practice staff can access and review patient-related information hosted by The Network including demographic, clinical, insurance and consent data. The portal presents this information in a format similar to that of an electronic health record (EHR), providing the practice with insight into the patient’s current medical information including medications, allergies, health conditions, problems and recent medical encounters.

Payer Portal
Beneficiary clinical information can be accessed via a web-based portal. This service allows an authorized user from a Network health plan Participant to access beneficiary health records one beneficiary at a time via the Payer Portal over a secure Internet connection.

Use Case Example – A Network cardiology practice has an appointment scheduled with a winter visitor patient whose primary care physician, home cardiologist and cath lab records are in Michigan. Prior to the visit, the practice is able to query the eHealth Exchange to locate patient records that are available through an HIE in Michigan that is also connected to the eHealth Exchange. As a result, the practice is able to have a more complete patient record at the time of the patient visit.

Public Health Reporting Gateway
The Network will provide an electronic gateway for Network participants to submit state and federally required public health information from their certified electronic health record (EHR) system. The types of gateways supported will include:

- Immunization Registry Gateway
- Syndromic Surveillance Gateway
- Reportable Lab Results Gateway
- Reportable Diseases Gateway

Use Case Example – A Network pediatric practice is required to send immunization records of its patients to the State immunization registry. Through a Network connection to the practice’s EHR, immunization records can be periodically sent to the registry. This direct connection can save valuable staff time and resources for the practice and can keep the practice current with State immunization reporting requirements.

eHealth Exchange
The Network enables a secure electronic exchange of patient information via the national eHealth Exchange network. The eHealth Exchange connection allows Network participants to discover records, query and receive health information and share documents on their patients with HIEs in other states and with federal agencies such as the Department of Veterans Affairs.

Use Case Example – A Network cardiology practice has an appointment scheduled with a winter visitor patient whose primary care physician, home cardiologist and cath lab records are in Michigan. Prior to the visit, the practice is able to query the eHealth Exchange to locate patient records that are available through an HIE in Michigan that is also connected to the eHealth Exchange. As a result, the practice is able to have a more complete patient record at the time of the patient visit.

Direct Secure Email
A HIPAA compliant, encrypted, standards-based application that enables Direct Secure Messaging between Network participants and providers for point-to-point sending and receiving of routine information such as referrals, simple clinical messages and test results.

Use Case Example – A Network primary care provider determines that a patient needs to be seen by a specialist in The Network. The primary care provider is able to send a secure message to the specialist and attach applicable notes, patient information and test results. The referring provider is also able to receive patient information and test results back from the specialist via the same secure connection.