Clinical Data Integration
Creating an Integrated Patient Record across Information Sources

Introduction

Different healthcare organizations typically cannot agree to share medical documents with one another in a functional, electronic form—and for a bevy of reasons: they may work on different security rules for control of patient data or disagree on whether records should move between clinics, facilities and settings by default or only when a patient opts in. Critical questions plaguing healthcare organizations that need to share patient data include:

1. Can the content of electronic medical records for patients be shared electronically across system boundaries, without diluting their discrete electronic structure, or resorting to faxing and other document management approaches?

2. Can all the relevant information for patient be aggregated across the different sources to create a single integrated view of the patient record in an electronic/discrete form?

3. Can the integrated patient record be shared across practitioners of care who treat the patient, agnostic of enterprise boundaries?

The simple and short answer to these questions is “Yes.” Given advancements in the state of health information standards, technology and security mandates by regulatory initiatives, it is possible to meet these requirements. In fact, the ability to create a shared, integrated view of the patient is the core foundation for Population Health Management as the industry shifts towards value-based care and alternative payment initiatives.

As a gateway technology leader, Edifecs is at the forefront of automating information exchange between payers and providers. With the increasing shift towards value-based care, payers will play a pivotal role in driving efficiencies in coordinating and managing care of patients across provider organizations, products and lines of business. The shared patient view is the complete population health dataset which combines clinical information from disparate sources along with administrative, gaps in care and network usage information that equips providers to manage care transitions based on a holistic view of the patient. This approach allows flexible access to the shared patient view that can be integrated into core system workflows by payers and providers.

The Edifecs Clinical Data Integration Solution is designed specifically to address the prominent data sharing challenges faced by payers and providers today.

1 Read more here: http://www.kansascity.com/news/business/health-care/article31574180.html#storylink=cpy
The Edifecs CDI solution creates and shares an actionable Population Health dataset. CDI integrates disparate external clinical and administrative data streams with internal clinical intelligence, administrative and financial information. As payers and providers transition from pilot population health programs to scalable implementations across their enterprise, the CDI Solution provides foundational capability of aggregating all member information needed to address requirements in this next generation of population health management solutions.

Clinical, financial and administrative information sourced from disparate external and internal sources are normalized, de-duplicated and stored in a patient-centric Integrated Patient Record (IPR). The member information in the IPR is supplemented with workflow capabilities that enable seamless coordination of care for patients.

Member information in the IPR can be accessed by the care team through a number of mechanisms including the Population Dimensions portal and Data as a Service remote access mechanisms that allow for integration of member health information into native systems and workflows of providers and case managers.

The CDI Solution is comprised of the Population Dimensions (PD) product built on the foundation of the Edifecs Partnership Platform that is scalable to support exponential growth of digital data in healthcare. The platform is designed to leverage existing investments through the use of sophisticated data virtualization capability to seamlessly integrate remote data sources into the IPR. These existing investments can either include the Edifecs Smart Trading capabilities (as illustrated above), or use other equivalent data exchange capabilities.
Population Dimensions

Population Dimensions addresses the problem of scaling population health initiatives from pilots and small programs to massive operations across large patient populations. Scaling these initiatives requires a significant advancement from previous generation of population health solutions that were used in pilot initiatives. Population Dimensions meets these requirements by providing a comprehensive repository of patient and population-level data that combines clinical, financial and administrative information about the patient and the value-based partner network in a single shared view. Administrative and value-based partner network coverage information is pro-actively utilized to steer transitions of care, preserving value-based network integrity.

Medical history information in the integrated view combines clinical information in real-time, as they are received from disparate provider sources with the clinical context of patient’s claims sourced from the health plan. The real-time update to an integrated patient view is made possible by use of edge technology-based infrastructure that extracts clinical information from inbound real-time transactions, normalizes content and stores it in a patient centric repository. This approach dramatically reduces the time lag involved in the generation and communication of patient health status to the care team.

Population Dimensions is built on the Partnership Platform that is scalable to support exponential growth of digital data in healthcare. The platform is designed to leverage existing investments through the use of sophisticated data virtualization capability to seamlessly integrate remote data sources into the IPR. PD offers a number of options to view or access member information, including portal-based access using the Population Dimensions portal, and remote access using Data as a Service.
Portal-Based Access

Population Dimensions displays an integrated service utilization view, enabling clinicians and care coordinators to understand the pattern of service utilization for a given patient, with a quick summary of information captured during the encounter.

Patient Medical History Aggregated from Clinical and Claims Data

Population Dimensions' Integrated Patient Record demonstrates several components of a patient's medical history, including vital signs, problems, procedures and diagnostic lab values. The screen illustrates how numerical values for several health indicators and lab values can be trended to gain a complete picture of the patient's medical history.

Disclaimer: The patient data displayed in Figure 2 and 3 is fictitious.
**Services-based Access:**

Participating organizations (payers or providers) can alternatively access the shared patient view in the Integrated Patient Record (IPR) through an extensible set of services (APIs) exposed through sophisticated data virtualization technology in the Partnership Platform. This capability enables access to patient data required within the context of an existing workflow in a core system used by payers and providers.

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**Data as a Service**

<table>
<thead>
<tr>
<th>Flexible access</th>
<th>Secure &amp; Scalable</th>
<th>Extensible</th>
<th>Efficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information access from any external system</td>
<td>User security and access privileges</td>
<td>Additional services can be added rapidly</td>
<td>Consolidates information access, for example there is no need to query external EMPI in addition to using DaaS</td>
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**Structured access mechanism to normalized data in the Integrated Patient Repository**

- PERSON DETAIL
- CLINICAL DETAIL
- NOTIFICATIONS
- USER MEMBER ASSOCIATION
- MEMBER DOCUMENT
- MEMBER CONSENT
- MEMBER EMPI

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**Figure 4: Data as a Service diagram**