Clinical Interoperability and Its Impact on Practice Transformation

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NE HIMSS Interoperability, HIE and Advocacy Day
October 10th, 2018

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Larry Garber, MD

- Internist at Reliant x 32 yrs
- Medical Director for Informatics x 20 years
- Principal Investigator for $4M AHRQ/ONC/MeHI grants for SAFE Health and IMPACT HIEs in Massachusetts
- Chair, MAeHC
- Board Member, DirectTrust

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Reliant Medical Group

2600 EMPLOYEES

300 PHYSICIANS

200 ADVANCED PRACTITIONERS

324,000 PATIENTS

>50% Risk-Sharing

27 LOCATIONS

30 SPECIALTIES

- Pediatrics
- Adult Medicine/Hospitalists
- Specialty (Medical/Surgical) Care
- Behavioral Health
- Urgent Care
- Occupational Health
- Durable Medical Equipment

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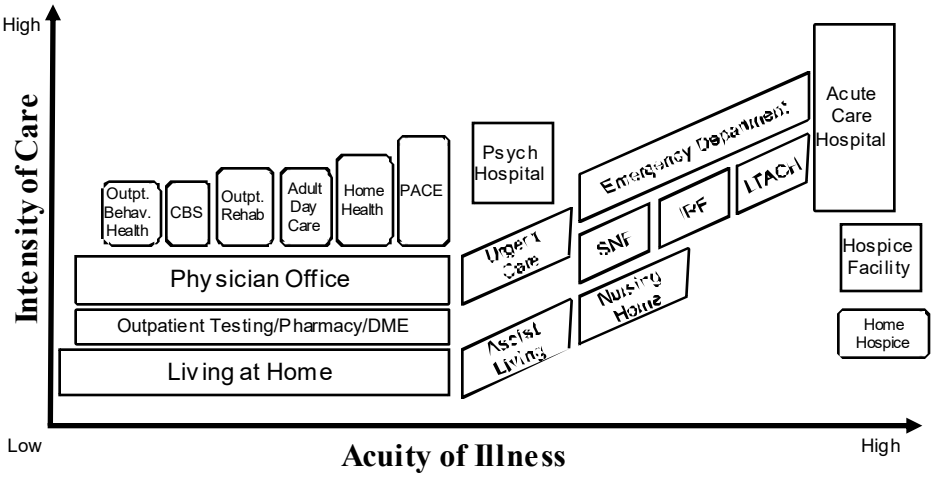
The Spectrum of Care is Vast…



Adapted from Derr and Wolf, 2012

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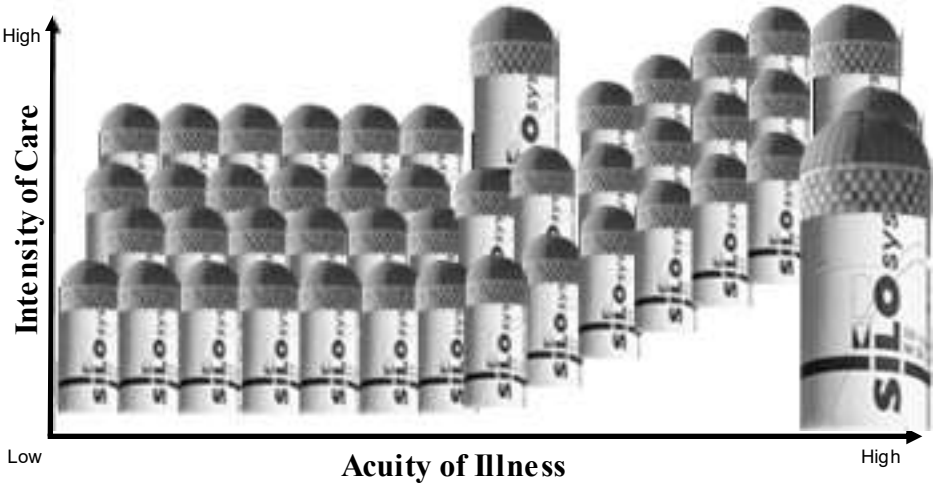
…as are the silos of medical records



Adapted from Derr and Wolf, 2012

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Problems With Visits to the Emergency Dept (ED)

- Home health aware of ED visits only 10% of time (Garber, 2012)
- Physicians in the ED lack important or critical patient information 32% of the time (Stiell, et al., 2003)
- 150,000 preventable adverse drug events ($8 Billion nationwide wasted) each year occur at the time of admission due to inadequate knowledge of outpatient medication history (Bates, et al., 2003)
- 14% of ED admissions could be avoided if the ED had outpatient information (Patient Safety Institute, 2003)

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Problems After Hospital Discharge

- 1.5 Million preventable adverse events annually nationwide from discharge treatment plans not followed (Forster, et al., 2003)
- When multiple physicians are treating a patient following a hospital discharge, 78% of the time information about the patient's care is missing (van Walraven, et al., 2008)
- 10% increase in 30-day hospital readmission rate if discharge summary is delayed 2 days (Hoyer, et al., 2016)

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Congress: "No interoperability"

Health Affairs Blog

Where Is HITECH's $35 Billion Dollar Investment Going?

Sen. John Thune, Sen. Lamar Alexander, Sen. Pat Roberts, Sen. Richard Burr, and Sen. Mike Enzi

March 4, 2015

After spending $28 billion so far of the $35 billion total taxpayer investment, significant **progress toward interoperability has been elusive**…. Meaningful use of EHRs is supposed to deliver value to patients and physicians, but instead we have reports that have shown that ONC certified products **fail to deliver the value of easily exchangeable health information** to better coordinate care.

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Keys to Interoperability

GAO – 5 Keys (October 2015)

- Lower cost of HIE
- Data standards
- Patient matching rules
- Uniform privacy rules
- Trust among stakeholders

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Keys to Interoperability

ONC– 4 Keys (October 2015)

- Payment reform
- Data standards
- Uniform privacy rules
- Policies to support interoperability

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Keys to Interoperability

Garber – 3 Keys (February 2010)

- Value to all stakeholders
- Fit into real-world workflows
- Trust among stakeholders

Also known as the "3 U's":

- Useful
- Useable
- "U" have to develop trust

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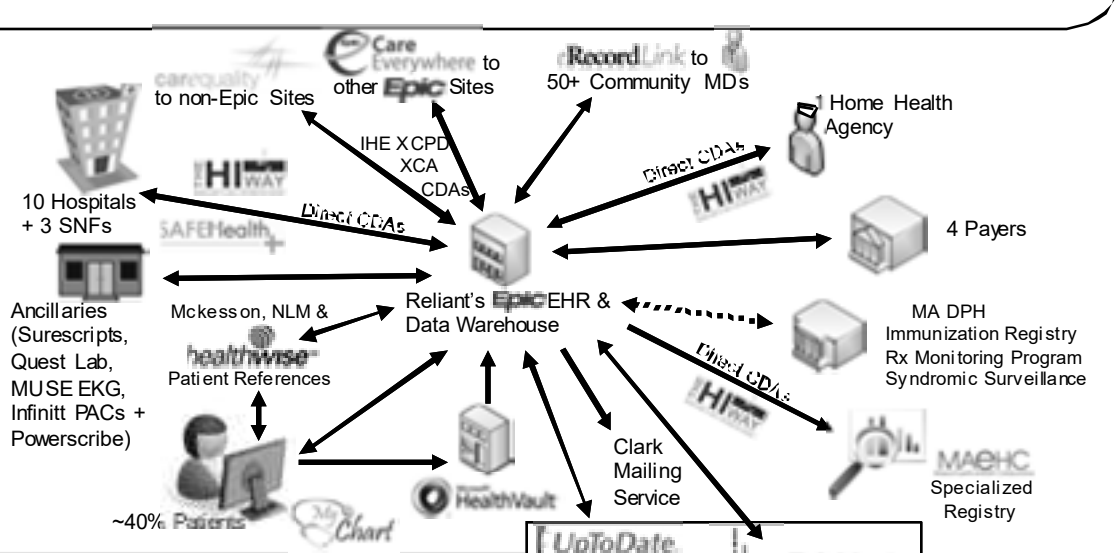
Reliant Medical Group's Hassle-Free HIE



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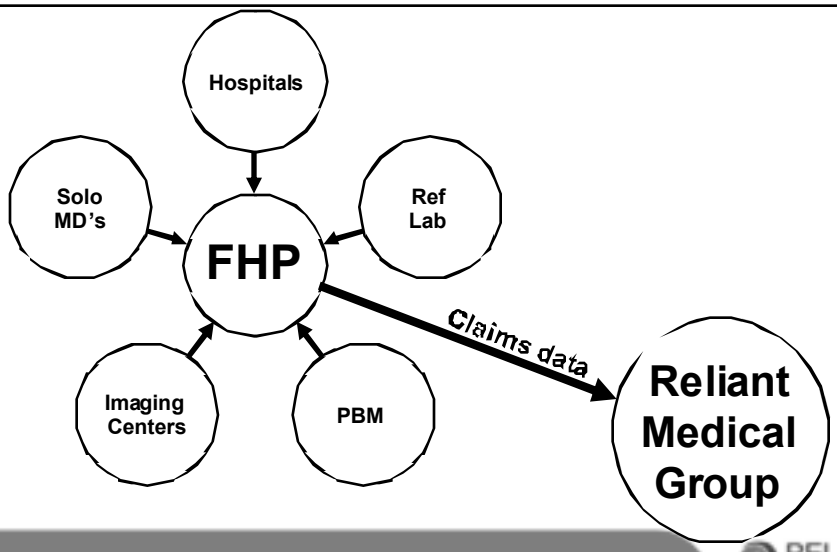
At-risk claims data fed to clinic



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Billing and Claims data

- FHP Claims → medication list and fill hx
- FHP and Reliant claims/billing:
  - Immunizations
  - Health Maintenance Dates (e.g. Mammo, Colonoscopy, CPE, etc…)
  - Disease Management Dates (e.g. HA1c, Retinal Exam, Smoking status, etc…)
  - Past Medical Hx (filtered for chronic & signif. dxs)
  - Past Surgical Hx (filtered for significant procedures)
  - Visit Hx (OV, CPE, Consults, ER, Hospital, SNF, LTC)

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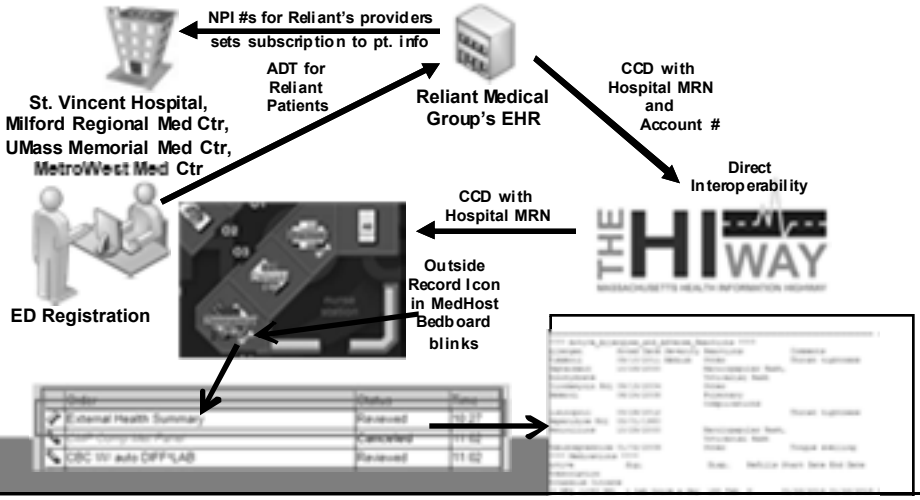
Patient Summary from PCP to ED using Direct

90 seconds after ED registration, Reliant's CCD is automatically loaded into ED's EHR (~6,000/month)



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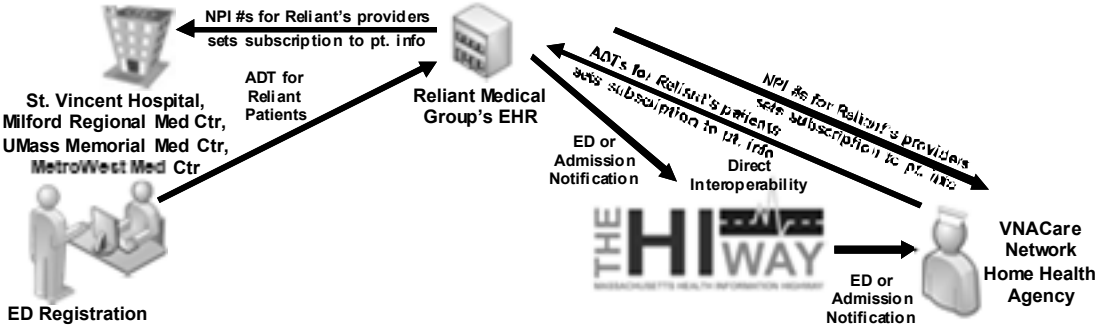
ED and Admission Alert to Home Health using Direct

90 seconds after ED registration or hospital admission, home health agency is automatically notified



If not admitted, sees the patient the next day.
If admitted, knows not to bother trying to do a home visit.

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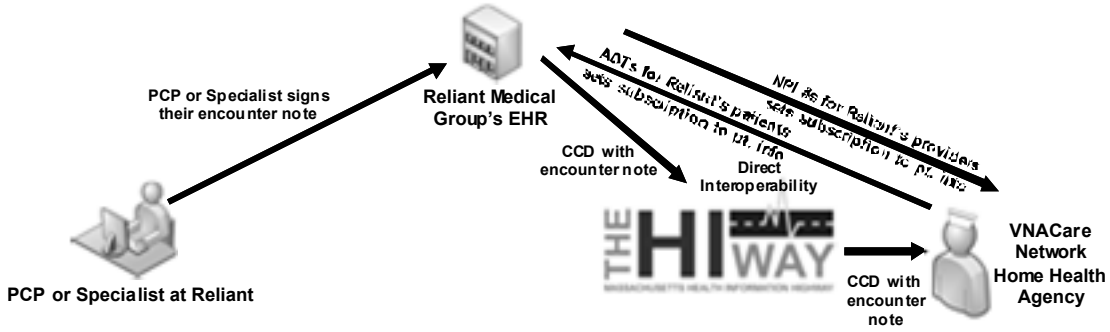
Home Health gets updated Care Plan using Direct

Home health automatically receives C-CDA CCD with encounter note for every visit on their Reliant patients



Encounter note identifies changes to Care Plan such as changes to problems, goals, meds, or other interventions

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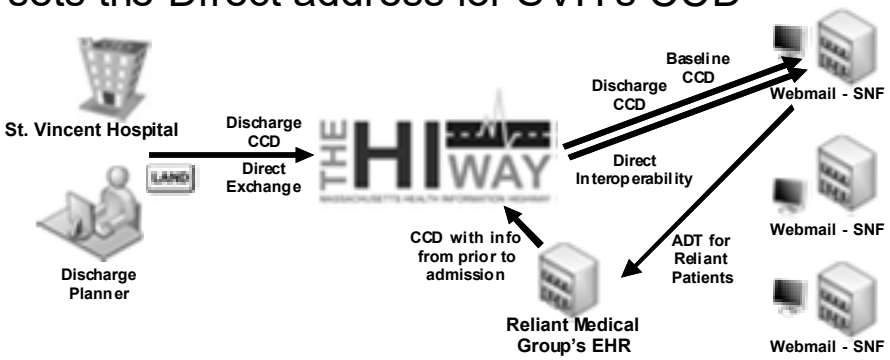
Discharge & PreAdmit Summaries to SNF using Direct

Discharge Planner enters name of SNF which sets the Direct address for SVH's CCD



Reliant also automatically sends a Direct message with baseline information so problems & meds aren't forgotten

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Discharge Summary to PCP using Direct

Hospital has all of Reliant providers' NPI numbers which maps to Direct address for Direct message with CCD

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Leveraging Data from Discharge C-CDA Documents

CDA using Direct interoperability from hospital after discharge is automatically parsed by Reliant's interface engine:

- Immunizations (e.g. Newborn Hep B, Tetanus, Pneumococcal, Flu) are automatically loaded into Reliant's EHR
- High-risk medications (anticoagulants, opiates, diabetic) automatically trigger message to pharmacist for education

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Coordinating Care with Hospital

- ER and hospital Discharge Notes file into EHR as well as InBasket of PCP's Nurse and Care manager
- ER and hospital lab/rad/procedure notes file **silently** into EHR, **EXCEPT** for those resulted after discharge, and pulmonary nodules, which also go to physician InBasket
- 3 Days after discharge, PCP's appointment secretary gets notified in a hospital follow-up visit wasn't scheduled
- During first visit within 30-days, provider is alerted to perform and attest to medication reconciliation

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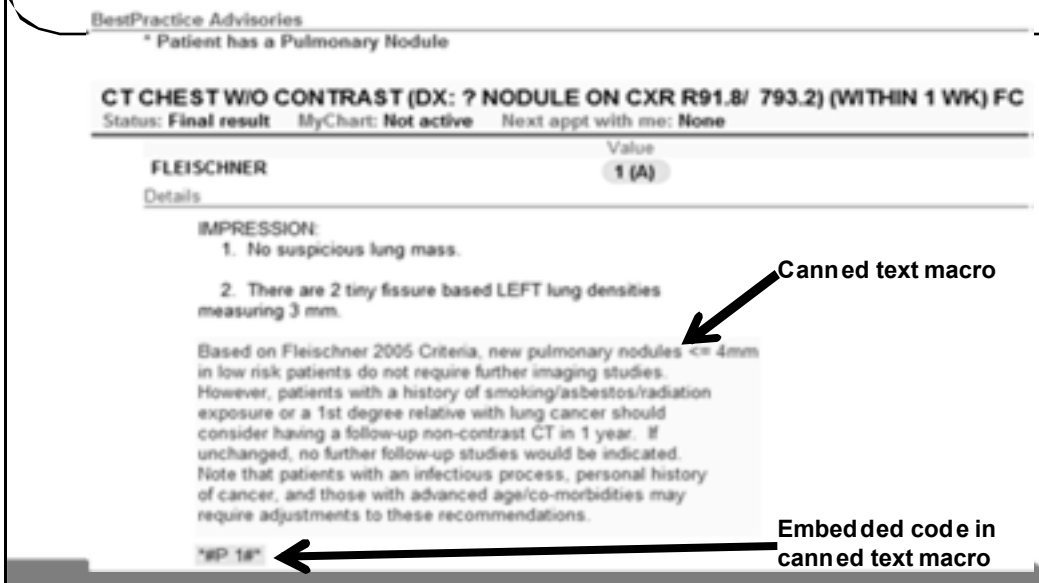
Auto-notify PCP for Pulmonary Nodule



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Auto-notify PCP for Pulmonary Nodule

BestPractice Advisories
* Patient has a Pulmonary Nodule

CT CHEST W/O CONTRAST (DX: ? NODULE ON CXR R91.8/ 793.2) (WITHIN 1 WK) FC
Status: **Final result** MyChart: **Not active** Next appt with me: **None**

	Value
FLEISCHNER	1 (A)

Details

IMPRESSION:
1. No suspicious lung mass.

2. There are 2 tiny fissure based LEFT lung densities measuring 3 mm.

Based on Fleischner 2005 Criteria, new pulmonary nodules <= 4mm in low risk patients do not require further imaging studies. However, patients with a history of smoking/asbestos/radiation exposure or a 1st degree relative with lung cancer should consider having a follow-up non-contrast CT in 1 year. If unchanged, no further follow-up studies would be indicated. Note that patients with an infectious process, personal history of cancer, and those with advanced age/co-morbidities may require adjustments to these recommendations.

"#P 1#"

Interface engine recognizes embedded code which:

1) **Spawns an extra result component with the code**
2) **Sets abnormal flag**
3) **Routes inpatient results (that would otherwise have filed silently) to PCP's InBasket**

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Auto-populate Pulmonary Nodule Registry

Pulmonary Nodule Registry- outreach needed today [21968] as of Thu 8/27/2015 2:35 PM

Age	Sex	Fleischner Date	Last Fleischner	Last Outreach	Next Outreach	Last Chest CT/MRI/PET	Next CT Appt Date	CT/MRI/PET Order?	Completed Reason	Completed Date
72 y.o.	Female	08/05/2014	4		Not Specified	7/27/2015		No		
77 y.o.	Male	07/07/2015	1	07/14/2015	07/14/2015	7/9/2015		No	Appropriate Follow Up Interval Completed	7/14/2015
78 y.o.	Male	03/17/2015	1		Not Specified	3/29/2015		No		
78 y.o.	Female	10/18/2012	1		Not Specified	4/19/2013		No		
85 y.o.	Male	03/12/2015	1		Not Specified	2/2/2012		Yes		
69 y.o.	Male	09/19/2014	1		Not Specified	9/19/2014		No		
81 y.o.	Male	07/09/2015	4		Not Specified	7/16/2015		Yes		
80 y.o.	Male	04/06/2015	1		Not Specified	4/8/2015		No		
89 y.o.	Female	04/25/2011	1		Not Specified	4/27/2011		Yes		
60 y.o.	Female	08/19/2015	4		Not Specified	8/24/2015		No		
71 y.o.	Female	03/22/2013	1		Not Specified			No		
75 y.o.	Female	10/17/2011	3		Not Specified	4/6/2015		No		
65 y.o.	Female	02/26/2015	2		Not Specified	2/27/2015		No		
67 y.o.	Female	08/03/2015	1		Not Specified	8/6/2015		No		
77 y.o.	Female	01/16/2012	4		Not Specified	4/25/2013		No		
67 y.o.	Male	06/26/2015	3		Not Specified	7/5/2015		Yes		
85 y.o.	Male	10/21/2014	1		Not Specified	10/23/2014		No		
81 y.o.	Female	07/29/2014	1		Not Specified	8/1/2014		No		

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The Results of Pulmonary Nodule Tracking

Have tracked more than 7,000 patients in the Pulmonary Nodule Registry	If follow-up not already scheduled, Registrar sends order to PCP's EHR InBasket for signature	Certified reminder letters for overdue patients, those refusing testing, and patients who leave our network

No patients in registry with follow-up failures in 11 years

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Reliant is Interoperable

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Reliant is Interoperable

In the past month, clinicians added:

Problems	Allergies	Medications	Dispenses
988	1,122	3,072	20,285

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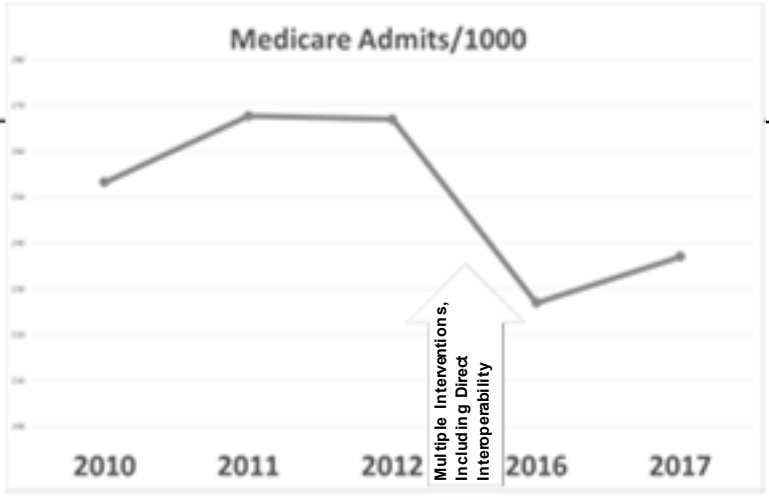
Outcomes



Note: Implementing Direct Interoperability of C-CDA Documents in 2014 was only one of several interventions between 2012 and 2016

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And we provide exceptional care quality

2016: 90th%-tile in 90% of
Healthcare Quality Measures
(21/23 HEDIS measures)

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Summary

- **The keys to successful HIE are providing**
  - **Usefulness**
  - **Usability**
  - **Trust (that "U" develop)**
- carequality **and** DirectTrust **facilitate Hassle-Free HIE**
- **Some of us enjoy Hassle-Free HIE today, and it's <u>wonderful</u>!**

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Questions?

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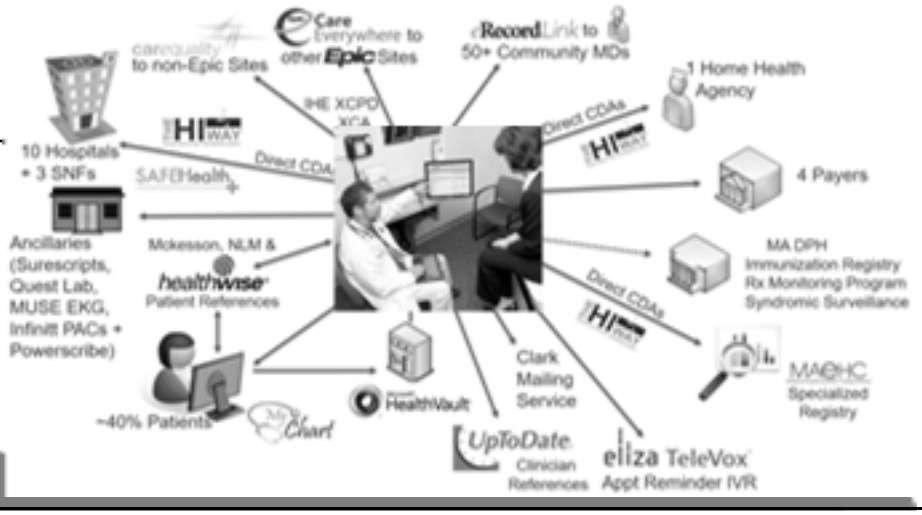

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