

June 1, 2015

Population Health Management Tools to Improve Care for Individuals and Populations of Patients

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Building Population Health

- Information-powered clinical decision-making
 - Use robust patient data sets to support proactive, comprehensive care
 - Operate within an integrated data network
 - Position a leader to merge data analytics with clinical care
- Primary care-led clinical workforce
 - Elevate PCP to “CEO” of care team
 - Mobilize community workforce to extend care team reach
- Patient engagement and community integration
 - Map services to population need
 - Overcome non-clinical barriers to maximize health outcomes
 - Integrate patient’s values into the care plan
 - Use community stakeholders to connect patients with high-value resources



Population Health Core Components



dbMotion – Top HIE score for “Helping Maximize Value”

Care Management – #1 suite

Population Health Analytics – KLAS Best analytics on aggregated data

EPSi – Category Leader for “Decision Support”

FollowMyHealth – 100% would buy again

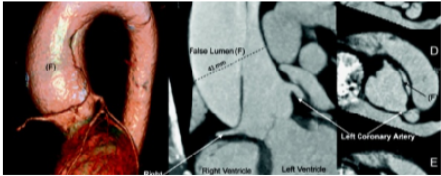
Interoperability, Care Coordination

Day One at UPMC...



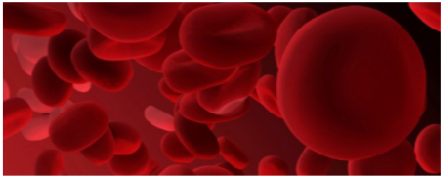
A patient that was admitted to the UPMC St. Margaret ED complaining of abdominal pain was referred for a standard workup.

A nurse consulted her interoperability platform and discovered that the patient had a history of an aortic aneurysm. The patient was immediately sent for a CT scan which revealed an acute dissection with the likelihood of a rupture.



The UPMC St. Margaret team decided to transfer the patient to UPMC Presbyterian for the complex operation.

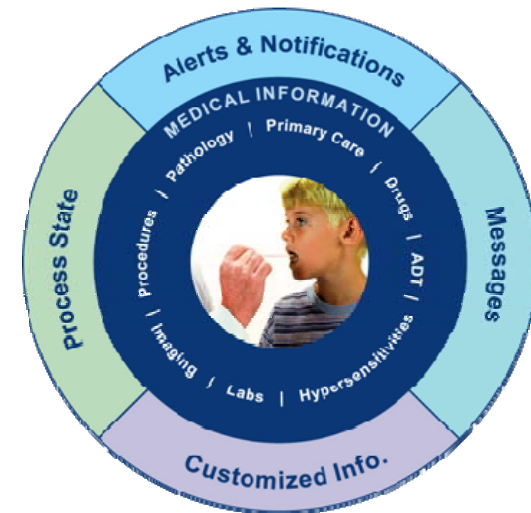
Prior to transfer, the nurse also noted, via interoperability platform, that the patient was taking a blood thinner... and appropriate therapy was initiated during transfer thus preventing further delay of surgery and saving the patient's life.



Achieving Interoperability

Optimize the point of care. Create an organized, longitudinal patient record spanning all points of care with technology focused on:

- **Workflow** – create real-time connections to EHRs at the point of care
- **Semantic Interoperability** – organize disparate data and translate disparate vocabularies
- **Community** – reach out, connect, exchange, empower physicians through standards
- **Adaptable Platform** – leverage a platform-based approach to implement Accountable Care and support analytic and research needs



The dbMotion single patient record

Visualizing Connected Healthcare

Leverage technology solutions above the EHR to bring the community into existing solutions and workflows.

dbMotion Collaborate

The screenshot shows the 'My Patients (10 patients out of 10)' interface. On the left is a navigation menu with categories like PATIENTS, RECENT EVENTS, TASKS, WORKING LIST, and DISEASE MANAGEMENT. The main area displays a table of patients:

Name	Gender	Age	PCP
Branch, James	Male	61 Years	James Medici
Brunton, Judy	Female	62 Years	James Medici
Cahl, Peter	Male	33 Years	James Medici
Debasi, Howard	Male	84 Years	James Medici
Hahn, Emma	Female	39 Years	James Medici
Jones, Thomas	Male	70 Years	James Medici
Krenzowski, Robert	Male	42 Years	James Medici
Misuraca, Ana	Female	30 Years	James Medici
Motocha, Samuel	Male	68 Years	James Medici
Tilko, Iris	Female	21 Years	James Medici

Below the table, a detailed view for 'Jones, Thomas, Male/70 Years' is shown, including a list of encounters, documents, labs, and imaging.

dbMotion EHR Agent

The screenshot shows the 'dbMotion EHR Agent' interface for a patient named Thomas Jones. The interface includes a navigation bar, a patient summary, and a detailed view of clinical records. The 'Clinical Records' section is expanded to show 'Problems' with a list of conditions and their dates:

- 05/19/2011 Hypertension
- 05/19/2011 Myocardial Infarction
- 05/19/2011 Pneumonia
- 11/08/2010 Respiratory Finding
- 11/08/2010 Diabetes mellitus
- 11/01/2010 Coronary atherosclerosis of...
- 11/01/2010 Coronary atherosclerosis...
- 07/23/2010 Coronary atherosclerosis...
- 07/23/2010 Coronary Artery disease
- 11/19/2009 Coronary Artery Disease
- 11/01/2010 Atrial Fibrillation
- 11/01/2010 hx of smoking
- 07/23/2010 Intestinal infection due to cl...
- 07/23/2010 Other nonspecific abnormal...

Driving Insights to the Point of Care

Fusion

Integrating patient information from community clinical systems directly into Sunrise workflows for improved care and outcomes

- Include community medications directly in reconciliation and views
- Check for duplicate orders throughout the community prior to order placement
- Display community documents and allergies directly in EHR
- Integrate population health insights into clinical workflow

The screenshot displays the Prescription Writer interface for patient HALL, ANGELA NICOLE. The patient's information includes ID 20119983 / 10046, age 36y (DOB 08-Feb-1977), and gender Female. Allergies are listed as LATEX. The interface features an Options Panel on the left with filters for Status (Unsubmitted, Active, No Longer Taking, Inactive) and Multum Item Class (By Prescription Only, Over the Counter (OTC), Free Text (non-Multum)). It also includes display styles and a 'Show' section for instructions, details, and renew options. The main area shows a Medication Summary table with 6 items, including ascorbic acid, calcium acetate, ferrous fumarate-iron polysaccharide, Migquin, Namenda, and Ortho Tri-Cyclen. A Community Record section below shows two items: ascorbic acid and Migquin. A warning message at the top indicates that some patient medication may not be shown due to status filters.

Medication	Status	Start Date	Renew Date	Rx End Date
ascorbic acid 100 mg oral tablet 1 orally	Active	17-Aug-2006	17-Aug-2006	
calcium acetate 667 mg oral tablet 1 orally	Active	17-Aug-2006	17-Aug-2006	
ferrous fumarate-iron polysaccharide 162...	Active	17-Aug-2006	17-Aug-2006	
Migquin 325 mg-100 mg-65 mg oral capsule	Active	17-Aug-2006	17-Aug-2006	
Namenda 5 mg oral tablet 1 orally	Active	17-Aug-2006	17-Aug-2006	
Ortho Tri-Cyclen oral tablet 1 ea orally	Active	17-Aug-2006	17-Aug-2006	

Medication	Status	Start Date	Renew Date	Rx End Date
ascorbic acid 100 mg oral tablet 1 orally	Active	17-Aug-2006	17-Aug-2006	
Migquin 325 mg-100 mg-65 mg oral capsule	Active	17-Aug-2006	17-Aug-2006	

Population Health Analytics

Analytics in 2015

- Risk is increasingly being shifted to the point of care
- “The Cloud” has created an opportunity not only to store information remotely...but to leverage computing power in a new way
- “Big Data” approaches allow us to solve new problems
 - Data does not have to be normalized prior to ingestion as in the past
 - Queries can be done on non-relational structures using server arrays to “rent” computing power
 - Questions can be modified and re-asked gracefully and quickly

Interoperability: Critical for “Big Data”

The screenshot shows the Healthcare IT News website. At the top, the logo "Healthcare IT News" is displayed in white on a red background. Below the logo is a navigation bar with links for "News", "Blog", "White Papers", "Webinars", "Jobs", "Videos", and "More". A secondary navigation bar lists topics: "EHRs", "Meaningful Use", "Privacy & Security", "HIE", "ICD-10", and "Interoperability". The main content area features a profile for Erin McCann, Associate Editor, with a small photo and a bio. Below this is a "WEBINAR" section for "GE Healthcare/Microsoft" on November 17th at 2PM ET, titled "Are You Reducing Costs and Simplifying C...". The main article is titled "No interoperability? Goodbye big data" in large blue font. The sub-headline reads "Effective analytics depends on interconnectivity of clinical systems, says Cleveland Clinic CIO". The byline is "CLEVELAND | November 3, 2014". Social sharing buttons for Twitter (127), Google+ (8), Facebook (Recommend 23), and LinkedIn (Share 119) are visible. The article text begins with "You want genomic analysis and big data to take off? Don't count on it until interoperability becomes more than just a plan tossed about in federal HIT policy meetings. It actually needs to come to fruition, said Cleveland Clinic's Chief Information Officer C. Martin Harris. Otherwise, healthcare innovation: Welcome to limbo."

"Interoperability is the way we can get information where it needs to go in an effective fashion...How else could you expect to take reams of fragmented data from disparate systems and transform it into meaningful information used to make clinical decisions? Short answer: you can't."

C. Martin Harris, CIO, Cleveland Clinic
Healthcare IT News, Nov. 3



The Allscripts Difference

Allscripts has been doing the “challenging” work for healthcare analytics since 1999

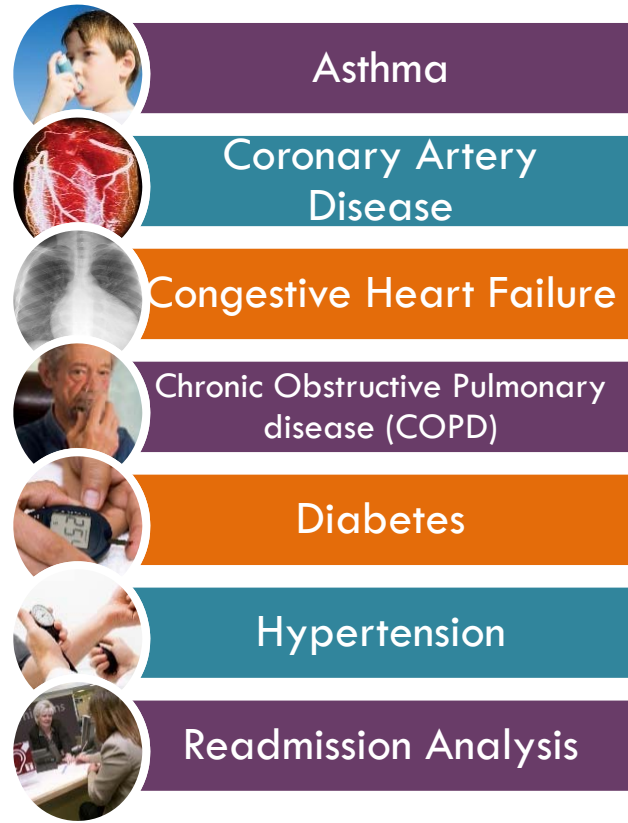
1. Aggregating and staging data
2. Point-of-Care connections
3. Chronic disease management
4. Amassing data



Population Health Analytics

Stratify populations and understand gaps in care and patient compliance. Take action to impact care.

- Point-of-care, real-time analytics
 - Automatic patient tags for chronic conditions
 - Care team alerts for gaps in care and out-of-range tests
- Cohort management
- Predictive models
- Quality metrics and dashboards for derived insights across care settings



Patient Engagement

FollowMyHealth

A patient-owned, untethered patient engagement solution to rapidly help you change patient behavior.

- **Patient-owned, patient-controlled** – No user management required
- **Cloud-based architecture** – No on-site hardware or software to manage with rapid deployment
- **EHR-agnostic** – Discrete data flows back into EHR; tight integration with Allscripts EHRs and dbMotion
- **Configurable** – Organizations set thresholds for results and sophisticated family management criteria

The screenshot displays the FollowMyHealth patient portal. The top navigation bar includes 'Home', 'Inbox (0)', 'My Health', and 'My Info'. The main content area is divided into several sections: 'Demographics' (Patient: Jones, Thomas), 'My Care Team' (listing providers like Dr. Smith and Dr. Brown), 'Diagnoses' (listing conditions like Muscle Spasm and Liver Cancer), 'Surgical History', 'Allergies', and 'Medications'. A 'Conditions' panel is open, showing a table of active conditions.

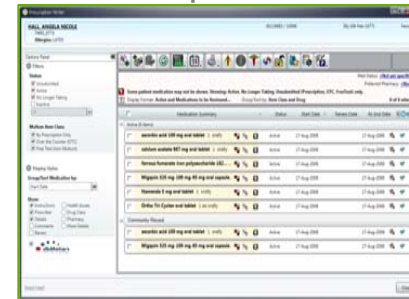
Condition	Resolved	Source	Options
Muscle Spasm		Mercy Hospital (Center)	View Edit Delete
Mobility		Family Practice (Allscripts Pro)	View Edit Delete
Liver Cancer		Family Practice (Allscripts Pro)	View Edit Delete
Urging		Family Practice (Allscripts EDW)	View Edit Delete
Esophago		US Gastroenterology (Sunrise)	View Edit Delete
Diabetes Mellitus		Family Practice (Allscripts Pro)	View Edit Delete
Severe Psoriasis (psoriasis)		Family Practice (Allscripts Pro)	View Edit Delete
Berlin Caserta Hypertension		Family Practice (Allscripts Pro)	View Edit Delete
Exophthalmos		EyeCare Associates (Greenway)	View Edit Delete

FollowMyHealth Achieve

Engaging patients directly in their care, while enabling providers to monitor patient status remotely and intervene in a timely manner.

1. Care plans created in Allscripts EHR
2. Patient accesses clinicians' orders via FollowMyHealth
3. Patient follows care plan, using wireless devices integrated with the portal—scales, blood pressure monitor, blood glucose meter
4. Results are automatically integrated with EHR
5. Care team is notified via EHR messaging if patient is noncompliant or results exceed parameters.

Allscripts EHR



FollowMyHealth



Achieve @ Yampa Valley

- Live on Achieve Jan. 2015
- Client feedback
 - Achieve training & set-up fast, intuitive and straightforward
 - End users of Achieve at Yampa
 - Care managers – not physicians
 - Managing 119 diabetics on care plans
 - Behavioral health care plans for weight monitoring
 - Rollout success
 - Targeting 119 diabetics with good response
 - New FMH registrations driven by the Achieve goal
 - Improved care manager productivity through auto notifications
 - Discreet data from Achieve available in Pro EHR (History & Physical)



FollowMyHealth Telemedicine: Avail. 2015

Phase 1

- Secure Asynchronous eVisit Messaging
 - Out-of-the-box support for ~ 10 chief complaints
 - Proxy support
 - Limited dashboard customization

Phase 2

- Advanced Asynchronous eVisit Messaging
 - Dashboard customization of chief complaint forms
 - Flat fee payment integration
 - Billing & volume reporting
 - eVisit File Uploads – image and document attachments

Phase 3

- Real-Time Video Virtual Visits
 - Scheduling & check-in via FMH w/Virtual Waiting Rooms
 - Support for registration & insurance updates
 - Secure real-time videoconferencing
 - Secure real-time chat & screen sharing

FollowMyHealth Payer & Wellness

- Available later in 2015
- Keep employee/patient populations healthy and engaged
- Provide a wellness solution leveraging FollowMyHealth
- Higher costs due to rise in chronic diseases
 - 75% of all healthcare expenditures driven by chronic diseases
 - General rise in chronic diseases with earlier appearance in younger populations
- Lifestyle changes and prevention can eliminate or mitigate many chronic illnesses BUT...
 - Low employee/patient engagement in current wellness programs
 - Current healthcare model rewards treatment for symptoms rather than prevention

FollowMyHealth Payer & Wellness

- Wellness program creation and management
- Integration with key internal HR systems
- Health Assessment with recommendations and a defined action plan
- Activity Tracking using the latest health-tracking technology
- Incentives for completing wellness activities; competitions and challenges; support/peer groups
- Reporting measuring program effectiveness, overall biometric/health assessment results and ROI

Case Studies

30+ hospitals connecting

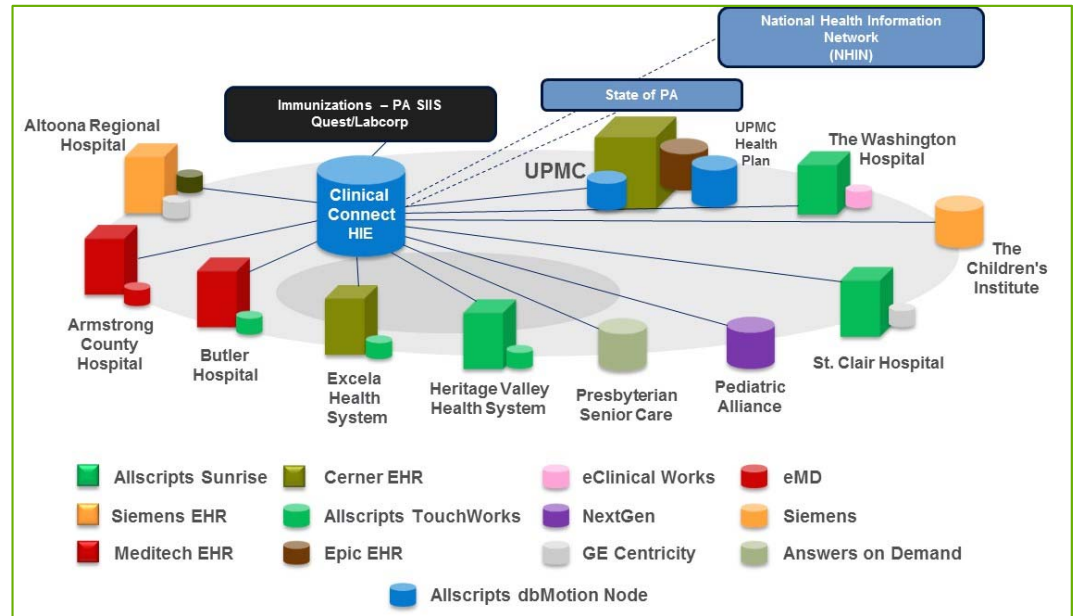
- 11TB of aggregated data
- 45,000 users

Heritage Valley Health System

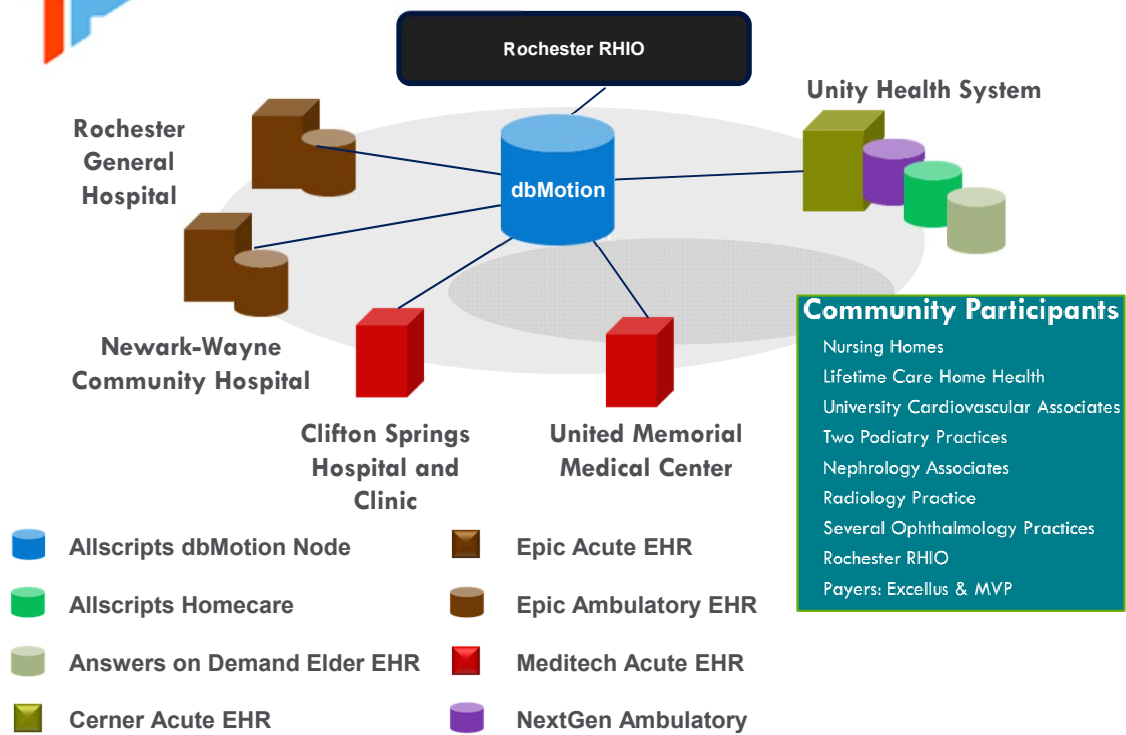
- CCD communication into their “CAP” physician portal
- Connecting Sunrise and TouchWorks environments
- Now deploying Heritage Valley’s dbMotion solution

UPMC

- 13,000 users accessing information with EHR Agent
- Integrated 2 million health plan members’ information
- Deploying full analytics suite
- Connected to State Immunization Registry



Connecting Western Pennsylvania



- Reduced the number of patients with uncontrolled A1c levels (A1C > 9%) by 14% in year two, and by 25% in year three
- NCQA Diabetes Recognition Certification for all Unity primary care physicians
- Decreased time to bring patients in control of fasting BGs through intensive insulin management tool (61 days)
- Improved patient satisfaction scores (3.8% improvement by year two in the six participating PCMH practices, averaging 95.2%)
- Hospital readmissions dropped 11% by year three

HCA

dbMotion @ HCA

Timeliness of Data

- Peak at 60 messages per second
- Data latency requirements vary by use case

Data Standardization

- Non-standard implementations across 30-plus markets in 20 U.S. states
 - ✓ Customized Dictionaries within each market
- Terminology Standards – SNOMED, LOINC, RxNorm

Foundation for our Strategies

- HIE – Longitudinal view of patient records
- Consumer portal – bill pay, scheduling, pre-registration, clinical results
- Natural Language Processing
- Decision Support at Point of Care (future)
- Analytics



Analytics @ HCA

Clinical Excellence

- Analytics used to score and benchmark care areas to drive out clinical variance and improve quality across the enterprise

Emergency Department

- Real-time analytics optimizes throughput and customer satisfaction; posting ER wait times on billboards across the community

Surgical Services

- Analytics used to drive efficiency of operating rooms

The Province of Manitoba



Manitoba's Connected Healthcare Solution

- 285 live sites utilizing the solution!
- Supporting a very distributed geography
 - Supporting 1.2 million people throughout the province including 150,000 First Nation
- Solution live province-wide in 9 months... on time and on budget

Province-Wide Deployment

- Security and Privacy
 - Optional masking of clinical information
 - Province wide Chief Security Role
 - Very low "opt-out" rate
- Communication and Population Education
 - Video and Advertisements
 - Web Site for Manitobans - <http://www.connectedcare.ca/echartmanitoba/>
 - Instant Access to Facility list
- Implementing "Above the Tree Line"
 - Deploying 2-3 Facilities per week throughout the province
 - Deploying to remote areas across the province

Thank you!

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