



CHESAPEAKE REGIONAL INFORMATION SYSTEM FOR OUR PATIENTS

ICN Infrastructure Tools and Services Current and Future Capabilities

July 23, 2015

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Agenda Overview

1. Introduction
2. ICN Infrastructure Conceptual Approach
3. Existing Tools and Service
 1. Clinical Query Portal
 2. Encounter Notification Service
 3. CRISP Reporting Services
4. ICN Tools and Services
 1. Clinical Query Portal Enhancements
 2. In-Context Notifications and Alerting
 3. Care Profile Creation and Sharing
 4. Data Router and Practice Connectivity (including Consent Mgmt)
 5. Standardized Risk Stratification Tools
 6. General Timeline
 7. Other Tools and Services
6. Questions and Discussion



How today will help you

- Today will provide a detailed overview of current services and those planned under the ICN infrastructure effort.
- We will detail current thinking on approaches and how engagement with community partners is shaping that thinking.
- Feedback and engagement on how best to develop services is encouraged.
- Our aim is to offer incremental near-term solutions while pursuing longer-term offerings.
- Discussions and thinking about the tools and services can be through both the Regional Partnership lens but also as individual provider entities.



CRISP and Statewide ICN Infrastructure

- CRISP's role in pursuing ICN infrastructure and services is rooted on identifying and deploying those services that can and should be offered as common state-level infrastructure and are best pursued cooperatively.
- We are in part translating (and in some cases further defining) the Care Coordination Workgroup report into a set of work activities building towards agreed upon common infrastructure and services.
- CRISP's new tools should complement the ongoing and significant investments health systems, hospitals and ambulatory providers have already made.
- For some providers, CRISP will offer new solutions and tools. For other providers, CRISP will provide new data, make connections among different health system providers, and facilitate a shared understanding of the needs of shared patients.
- Consistent with CRISP's history and mission, we will be thoughtful about maintaining an incremental approach defined by CRISP users' needs.
- CRISP will work within its broad-based governance structure to define and prioritize work and partner with early adopters and innovators to pilot and refine initiatives.



Current Tools and Services



Clinical Query Portal

- The clinical query portal allows credentialed users to search the HIE for clinical data.
- All 47 acute care hospitals in Maryland and 6 of 8 DC hospitals share clinical data.
- There are currently over 100,000 queries per month.
- 10 hospitals have enabled “single sign-on” connectivity to the portal enabling single-click access to data in CRISP.

The screenshot displays the CRISP (Clinical Query Portal) interface for a patient named Jenny K Rollins. The patient's information includes her name, gender (Female), date of birth (12/20/1978, 36 yrs), and community ID (3344223). The interface is divided into several sections:

- Laboratories (12):** A table listing various lab tests such as TOTAL CHOLESTEROL, CBC W/ AUTO DIFF, MAGNESIUM, CHEM7, DIFFERENTIAL - AUTO, and HCG pregnancy.
- Imaging (3):** A table listing imaging studies like FLUORO, UP TO ONE HR, CHEST, SINGLE V/W (A), and ANKLE, COMP. (3 VIEWS).
- Medications (5):** A table listing medications such as OSIMVASTATIN, INHYDROCODON, ILORAZEPAM 1, LYRICA 100 MG, and COLINDEN TAR.
- Ambulatory Encounters (1):** A table listing a single encounter on 06/27/2014.
- Documentation (1):** A table listing an OPERATIVE REPORT from 04/01/2013.
- Vitals (2):** A table listing vital signs: BMI (29) collected on 06/02/2014 and BLOOD PRESSURE (100/97) collected on 06/02/2014.

The interface also includes a navigation menu on the left with options like 'Back to List', 'Download CCD', and 'Share Summary PDF'. The top right corner shows 'CRISP Training' and user options like 'CRISP Administrator' and 'Logout'.

- Types of data available:
- Patient demographics
 - Lab results
 - Radiology reports
 - **PDMP Meds Data**
 - Discharge summaries
 - History and physicals
 - Operative notes
 - Consult notes



Clinical Query Portal - Single Sign-on

Single Sign-On (SSO) is an approach to enable faster and more efficient access to the query portal through the EHR.

Inpatient Summary

Diagnoses (10)

- Acute Pain (338.1)
- Bile duct stricture (576.2)
- Gout, Unspecified (274.9)
- Hypertrophy (Benign) of Prostate without Urinary Obstruction and Other Lower Urinary Tract (Luts) (600.00)
- Malignant Neoplasm of Extrahepatic Bile Ducts (156.1)
- Obstruction of Bile Duct (576.2)
- Obstruction of Bile Duct (576.2)
- Tobacco Use Disorder (305.1)
- Unspecified Essential Hypertension (401.9)
- Unspecified Glaucoma (365.9)

Vital Signs

Last 36 hours for the selected visit

No results found

Measurements and Weights (4)

	Latest	Previous	Change
Weight Dosing	60 kg	60 kg	0 kg
Height/Length Dosing	157 cm	157 cm	0 cm
BSA Dosing	1.6 m ²	1.6 m ²	0.0 m ²
Body Mass Index Dosing	24.34 kg/m ²	24.34 kg/m ²	0.00 kg/m ²

MedStar HIE

Note: No new data has been received for this patient in the last 30 days.

Click Here to view patient in MedStar HIE

Click here for Help/Training

CRISP HIE

Click here to access CRISP

Click here to view CRISP data sources

For CRISP support, call 877-952-7477



CRISP Production

CRISP

Patients

Patient x

Menu

- Inpatient Summary
- Summary2
- Results Review
- Orders
- Clinical Documents
- MAR Summary
- Infusion Billing Report
- Allergies/Intolerances
- Form Browser
- Medication List
- Immunization Schedule
- Advanced Growth Chart
- Patient Information
- Patient Care Summary
- Reference Text Browser
- Diagnosis & Problems
- Histories
- Chart Level MPage
- Chart Search
- Clinical Coding Summary

Summary | More Patient Information

Laboratories (100+) | Other Orders (0)

Date	Name	Source
Sep 18	CA19-9	MS_GUH
Sep 18	GFR	MS_GUH
Sep 18	CMP	MS_GUH
Sep 18	CBC w/ Diff	MS_GUH
Apr 07	CMP	MS_GUH
Apr 07	LAC	MS_GUH

Imaging (0)

No Imaging to display

Medications (0)

No Medications to display

Documentation (0)

No Documentation to display

Allergies (1)

Allergen	Reactions	Reported
NO KNOWN Allergies	UNK	Mar 10

ambulatory encounters (17)

Date	Type	Source
Sep 18	ROUTINE ELECTIVE	MS_GUH
Sep 18	ROUTINE	MS_GUH

By securely sending a local user's credentials and the current patient medical record number (or other demographics), CRISP can send the user directly to the patient summary screen.



Encounter Notification Service – Current Capabilities

- CRISP currently receives Admission Discharge Transfer messages in real-time from:
 - All Maryland Acute Care Hospitals
 - 6 of 8 D.C. Hospitals
 - All Delaware Hospitals
- Through ENS, CRISP generates **real - time hospitalization notifications** to PCPs, care coordinators, and others responsible for patient care.



Important Current Capabilities

- Full Continuity of Care Documents (CCDs) are also routed through ENS to subscribing providers, who elect to receive them to support transitions of care.
 - 10 Hospitals currently send CCDs to CRISP
- Hospitals can “auto-subscribe” so they can be alerted when one of their past discharges is being readmitted within 30 days. This same capability allows the receiving hospital to be notified, when a patient arriving at their facility had been discharged from another facility, within the past 30 days.
 - 34 hospitals currently auto-subscribe to receive readmission notifications
- ENS was recently enhanced to include the ER and IP visits for a given patient with the past 6 months.



Methods to Receive Notifications

- Currently, ENS recipients can choose to receive real-time or a daily (or twice daily) summaries of the prior 24 hours of hospitalizations.
- Most notifications are sent via CRISP secure direct messaging tool (shown below).
- Some ENS subscribers choose to integrate notifications into their EHR by receiving the notifications in the form of an ADT.

Example: Daily summary notification sent as an attachment to CRISP's secure inbox

The screenshot displays a secure inbox interface for the email address ryan.bramble@crispdirect.org. The interface includes a navigation bar with 'Email', 'Admin', and 'Invitations' links. The main content area shows an email titled 'Fwd: CRISP ENS Summary Notification for Johns Hopkins C9' received on August 07, 1:48 PM. The email body contains an attachment named 'JHCP_Notifications.csv' (26KB) and a section titled 'Encounter Notifications'. The notification text reads: 'Please see the attached document for a summary of CRISP ENS Notifications. Additional Info: CRISP Query Portal Link. You are receiving this message because you have requested Encounter Notifications from the statewide health information exchange for your patient panel. Any questions/concerns can be sent to: alert.hie@crispealth.org. Your participation in ENS is sponsored by Johns Hopkins Hospital.' The interface also features a 'Quick Reply' field and 'Send' and 'Save' buttons.



Near-term Additional Approaches for ENS

Outside Messages 0 unread, 1 total

From: ENS, User
Addressed To: Stephen Sisson, MD
Routed To: Jhoc Internal Medicine Clinical Support Staff
Context: CRISP Event Notification

Discharge Summary - CareEverywhere, Jackie (50 y.o. Female) As of Jul. 17, 2015

Patient Demographics			
Patient Address	Communication	Language	Race / Ethnicity
111 Main St Baltimore, MD 21222	Unknown	Unknown	Unknown / Unknown

Hospital Discharge Diagnosis	
Diagnosis Code	Diagnosis Description
X0020	personnel lxx of venous thrombosis and

Chief Complaint and Reason for Visit
AdmtReasonCode-Dizziness

ENS PROMPT

Proactive Management of Patient Transitions

Notifications from: LAST 30 DAYS

SEARCH NAME

Sheri Stanton (88770)

901-030-5837

DOB: 12/24/66 POC: Abigail Barlett
Address: 714 First Street NPI: 6414765
City/State: San Diego, MO ACC:
Race: Asian
Ethnicity: Unknown

MOST RECENT EVENT

Event Date: 7/15/13 4:34 PM
Event Type: IP Admit
Event Location: Aria Buckle County Campus
Hospital Service:
Patient Diagnosis: LT LEG PAIN/FOOTBALL
Discharge Disposition:
Discharge to Location: HEAD INJ
Patient Complaint: HEAD INJ
Admit Source: Transfer from a hospital

EVENT HISTORY

+	7/13/13 11:29 PM	Diagnosis: LOW B/P Complaint: HEAD INJ	Aria Frankford Campus	ER	Admit
Hospital Service: Discharge Disposition: Discharge to Location: Admit Source: Transfer from a hospital					
+	7/12/13 5:30 PM	Diagnosis: VIB WPAIN ON BOTH SIDES Complaint: HEAD INJ	Aria Frankford Campus	ER	Registration

- ENS is in final testing to deliver notifications directly into Epic.
- Notifications are also currently flowing into other recipient systems in production.
- CRISP will also offer an ENS user interface beginning in early August rather than simple spreadsheet via secure email.
- Users will still have the ability to download the spreadsheet.



CRISP Reporting Services (CRS)

Home > Regional Partnership

Regional Partnership Rename

PROJECT

Workbooks 5 Views 10 Data Sources 0 Permissions Details

0 selected

Sort by: Name (A-Z)

Search

General Filters

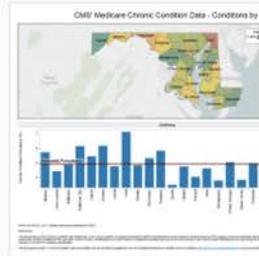
Owner

Tag

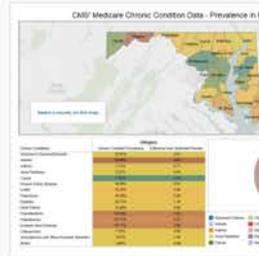
Modified on or after

Modified on or before

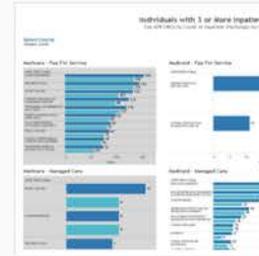
- Only my favorites
- Only my recently viewed
- Has an alert



CMS Medicare Chronic Condition Data - Conditions by



CMS Medicare Chronic Condition Data - Prevalence in



Individuals with 3 or More Inpatient Discharges in FY2014



RP - MD ED Disease



RP - MD Inpatient

Link to July 9th Webinar Materials and Recording

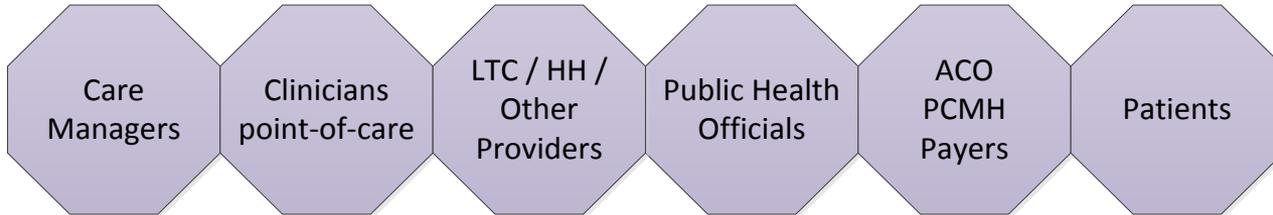
<http://pophealth.dhmdh.maryland.gov/transformation/SitePages/Technical%20Assistance.aspx>



ICN Infrastructure Tools and Services



ICN Infrastructure Concept



Deliverables	<ul style="list-style-type: none"> • Risk stratified patient analysis • Care Profile view • Care Mgmt tools • Notifications • New clinical data feeds for care management • Performance metrics • Consent management 	<ul style="list-style-type: none"> • Richer clinical query portal information • Care Profile view • Notifications • In-context alerts • Care Alerts receive & create • Consent management 	<ul style="list-style-type: none"> • Richer clinical query portal information • Care Profile view • Performance metrics • Consent management 	<ul style="list-style-type: none"> • Performance metrics • Statewide & regional analytics 	<ul style="list-style-type: none"> • Risk stratified patient analysis • Care Profile view • Care Mgmt tools • Notifications • New clinical data feeds for care management • Performance metrics • Consent management 	Deliverables

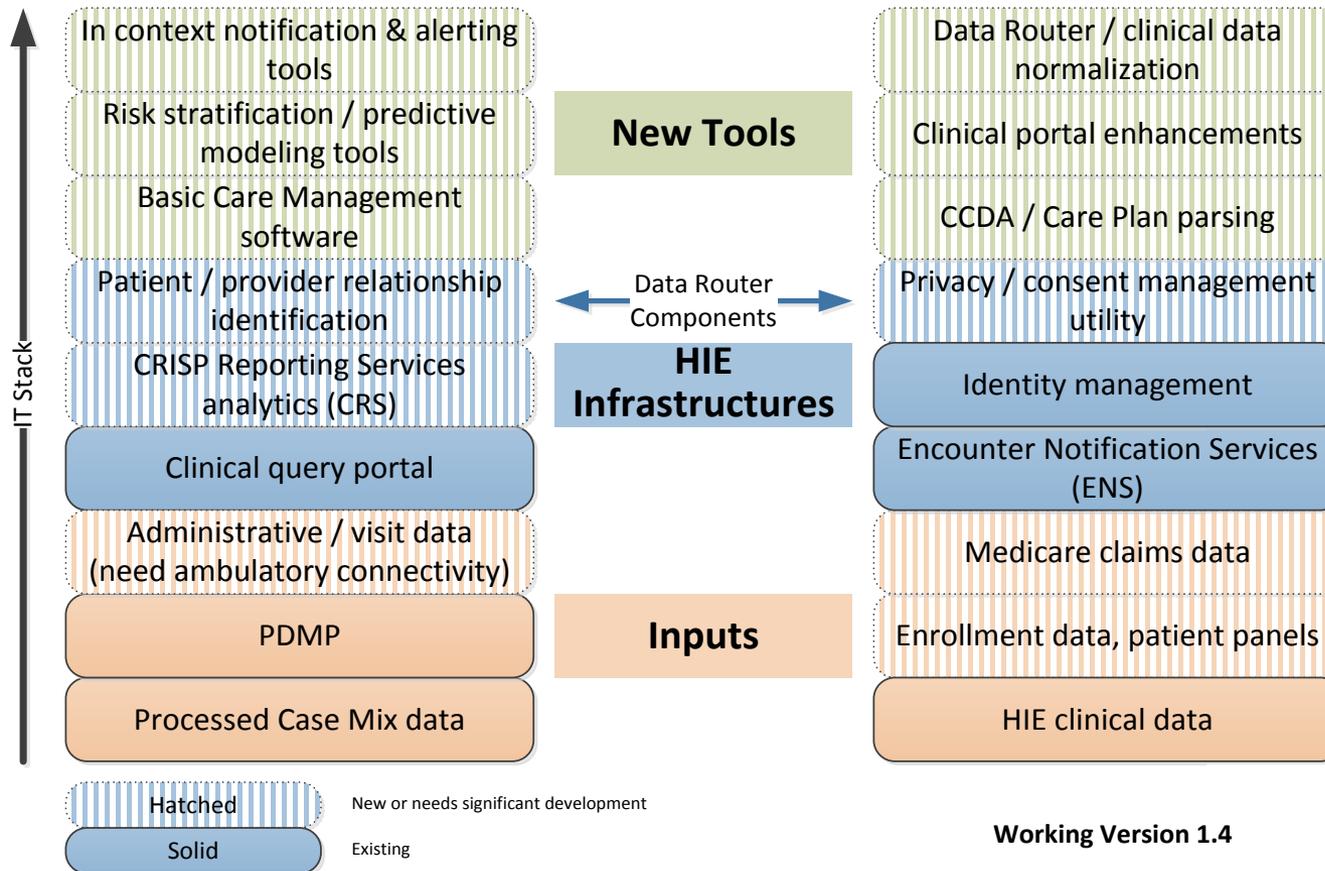
In development with Regional Partnerships and others

Statewide ICN Infrastructure Development Plan



ICN Infrastructure Concept

Statewide ICN Infrastructure Development Plan





Clinical Query Portal Enhancements



CRISP

My Results **Patients** Providers Reports Setup Administration

Patient » Rollins, Jenny K

CRISP Training
CRISP Administrator | Change Site | Shared | Logout

- Patient Actions**
- Back to List
 - Download CCD
 - Download CCDA CCD
 - Download Summary PDF
 - Share Summary
 - Send Summary to Me
 - View Clinical Messages
 - Configure Layout
 - Request Advance Directive
 - Request Med History

Rollins, Jenny K Female 12/20/1978 (36 yrs)
2985 Oxford Court, Columbus, MD 39701

Care Alert Available! (Click to View)
[Click to View Full Care Profile](#)

ENS Subscribers to this Patient
Johnson Family Medicine – 410-555-7676

Summary More Patient Information Patient Groups Patient Documents PMP Gateway

Laboratories (12)

Date	Name	Source
06/11/2014	TOTAL CHOLESTEROL...	CGH
03/30/2013	CBC W/ AUTO DIFF	CGH
03/30/2013	MAGNESIUM	CGH
03/30/2013	CHEM7	CGH
03/30/2013	DIFFERENTIAL - AUTO	CGH
03/28/2013	CBC W/ AUTO DIFF	CGH
03/28/2013	DIFFERENTIAL - AUTO	CGH
03/28/2013	CHEM7	CGH
03/28/2013	PTT SCREEN	CGH
03/28/2013	PT therapy/ INR	CGH
03/28/2013	ABO & RH	CGH
03/28/2013	HCG pregnancy	CGH

Imaging (3)

Date	Name	Source
03/29/2013	FLUORO, UP TO ONE HR	CGH
03/29/2013	CHEST, SINGLE VW (A/...	CGH
03/28/2013	ANKLE, COMP.,(3 VIEWS)	CGH

Ambulatory Encounters (1)

Date	Type	Source
06/27/2014	1	CGH

Documentation (1)

Date	Name	Source
04/01/2013	OPERATIVE REPORT	CGH

Medications (5)

Date	Name	Source
06/16/2014	GCN (SIMVASTATIN 0...	PDMP
01/28/2014	GCN (HYDROCODON-...	PDMP
01/28/2014	GCN (LORAZEPAM 1...	PDMP
11/26/2013	GCN (LYRICA 100 MG...	PDMP
09/05/2013	GCN (ZOLPIDEM TAR...	PDMP

Vitals (2)

Name	Value	Collected
BMI	29	06/02/2014
BLOOD PRESSURE	160/97	06/02/2014

Readmission Risk: 76

results

Clinical Query Portal Enhancements – Improvements to the existing clinical query portal including approaches to simplify access, incorporating new content such as access to care profiles, and displaying the patient’s providers.



In-Context Notifications and Alerting

- In-context alerting is intended to provide key information to clinical decision makers at the most effective point in their clinical workflows.
- An example of an in-context alert is pushing information to a hospital ER when a patient is registered indicating if a care plan is available in CRISP.
- In this in-context alert use case, a pre-defined method to access the care plan (or just key sections such as the care alert) would be established between CRISP and the receiving organization.

The screenshot displays an 'Inpatient Summary' dashboard with the following sections:

- Diagnoses (10):** Acute Pain (338.1), Bile duct stricture (576.2), Gout, Unspecified (274.9), Hypertrophy (Benign) of Prostate without Urinary Obstruction and Other Lower Urinary Tract (Luts) (600.00), Malignant Neoplasm of Extrahepatic Bile Ducts (156.1), Obstruction of Bile Duct (576.2), Obstruction of Bile Duct (576.2), Tobacco Use Disorder (305.1), Unspecified Essential Hypertension (401.9), Unspecified Glaucoma (365.9).
- Vital Signs:** Last 36 hours for the selected visit. No results found.
- Measurements and Weights (4):**

	Latest	Previous	Change
Weight Dosing	60 kg	60 kg	0 kg
Height/Length Dosing	157 cm	157 cm	0 cm
BSA Dosing	1.6 m ²	1.6 m ²	0.0 m ²
Body Mass Index Dosing	24.34 kg/m ²	24.34 kg/m ²	0.00 kg/m ²
- Problems (16):**
- Allergies/Intolerances (1):**
- Medications & Fluids Administered:**
- Home Medications (12):**
- Immunizations (0):**
- D/C Follow-up (1):**
- Patient Status Orders:**
- Flagged Events (0):**
- Intake and Output:** Last 3 days for the selected visit. No results found. * Indicates a day without a full 24 hour measurement period.
- Lines, Tubes, and Drains (0):**
- RT Vent Measurements:**
- MedStar HIE:** Note: No new data has been received for this patient in the last 30 days. Click Here to view patient in MedStar HIE. Click here for Help/Training.
- CRISP HIE:** Click here to access CRISP. Click here to view CRISP data sources. For CRISP support, call 877-952-7477. **Care Alert Available!**
- Outstanding Tests, Exams (0):** Selected visit. No results found.
- Diagnostics (0):**
- Labs:** Last 8 days for all visits. No results found.

In-Context Notifications and Alerting – inclusive of a range of alert types sent to the point of care or to a care manager that pertains to critical information about a patient, identifies care gaps, indicates post-discharge follow-up care has not occurred, etc.



Care Profile View

Content Type / Source

Update Frequency

Care Profile Repository and Access Point

Access Methods

Patient Demographics

Daily

Clinical Alert Information

Daily

ENS Subscriber Information

Daily

ADT Data

Daily

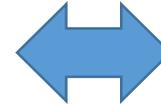
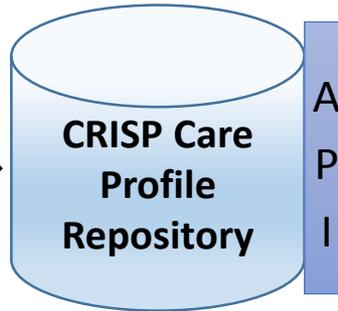
CRS Case Mix Data

Monthly

Care Plan Availability Indicator

Daily

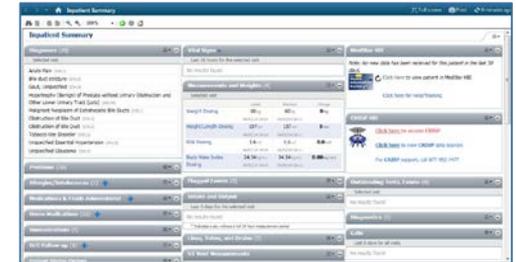
 = to be developed



SSO Access through Query Portal



API call from EHR



Link from ENS User Interface

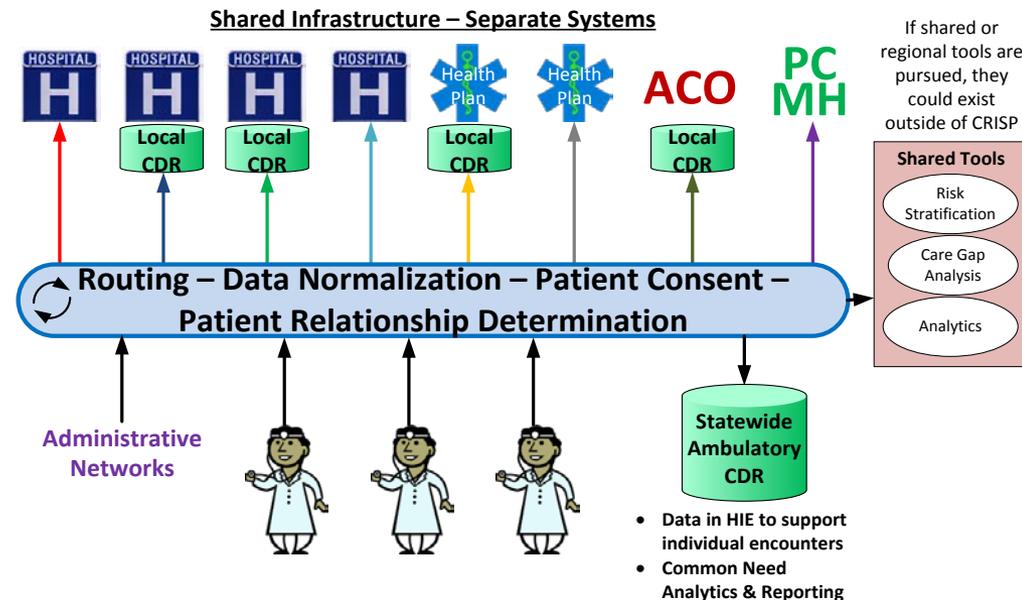




Data Router and Non-Hospital Connectivity

Key Functions include:

- Consent management
- Data normalization
- Data routing
- Patient-provider relationships determination and management



Data Router - The router is a service that includes key functionality to support connectivity, consent management, data routing to other services or data consumers, and determine patient-provider relationships. These approaches may rely on connectivity through a health system, through a hosted EHR, directly to the practice, or via an administrative network.



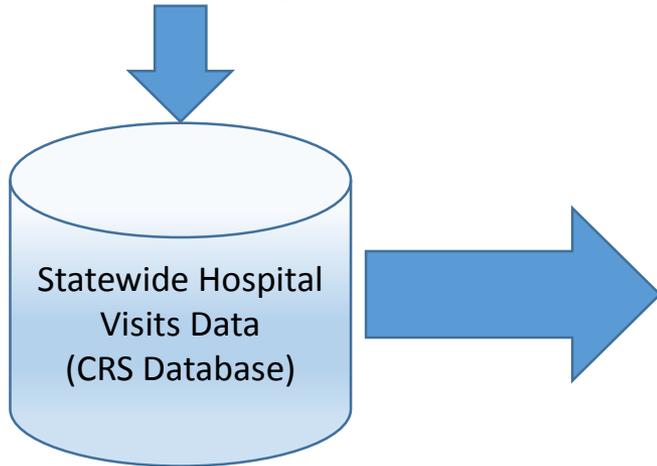
Router Continued

- **Connectivity and Routing** – inclusive of a range of connectivity approaches including connections to practice through health systems, direct connectivity to EHRs, hosted EHR connectivity, and administrative network connections.
- **Data Normalization** – applications of message transformation and vocabulary mapping services to inbound data.
- **Consent Engine** – the centrally managed consent engine will still require provider / care manager patient engagement and a significant patient education campaign. The consent engine will enable individuals to select more granular consent preferences that the current “all - in or all - out” choice.
- **Relationship Determination** – patient to provider relationships could be established and maintained through a range of data types flowing through CRISP, for example by using administrative claim data and ENS subscription panels. Other tools to enable management of those relationships are also planned in order to facilitate program enrollment (and consent), such as CCM.



Standardized Risk Stratification Tools

Risk Stratification
Methodology



- Standardized and shared risk stratification and predictive modeling tools
- Supporting common understanding high risk patients
- Data feeds to provider care management systems
- Risk scores available through broader set of CRISP tools

Note: Over time, additional data, such as Medicare claims data, can supplement the currently available hospital case mix data.

Standardized Risk Stratification Tools - deployment of one or more centralized risk stratification methodologies to support stratification of patients initially using HSCRC case mix data housed in CRS but expanding to include broader data sets. Predictive risk score will be shared through a range of tools, including the query portal and ENS.



General Timeline for Service Roll-Out

	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jul-16	Aug-16	
ICN Infrastructure - Tools and Services	1	2	3	4	5	6	7	8	9	10	11	12	13	
	Planning			Development			Implementation			Production				
Clinical Portal Enhancement														
In context Alerting														
Care Profile View														
Standardized Risk Stratification Tool														
Data Router and Non Hospital Connectivity														
					100			1500				2500		



Next Steps

➤ Frequently Asked Questions

- Specific to this webinar – CRISP contact list
- Overall list on Basecamp

➤ Next Learning Sessions

- August 6 Learning Collaborative: via phone 9-10am
- August 13 Webinar: Governance Structures and Decision-Making
- August 27 Webinar: Care Coordination – Overview and workforce discussion

➤ Extended Hour Discussion Session

- Q and A, feedback on timeline
- Practical applications
- WebEx and at MHA



Questions / Discussion