

Weaving HealthCare Data

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@vaibhavb
#hack4health

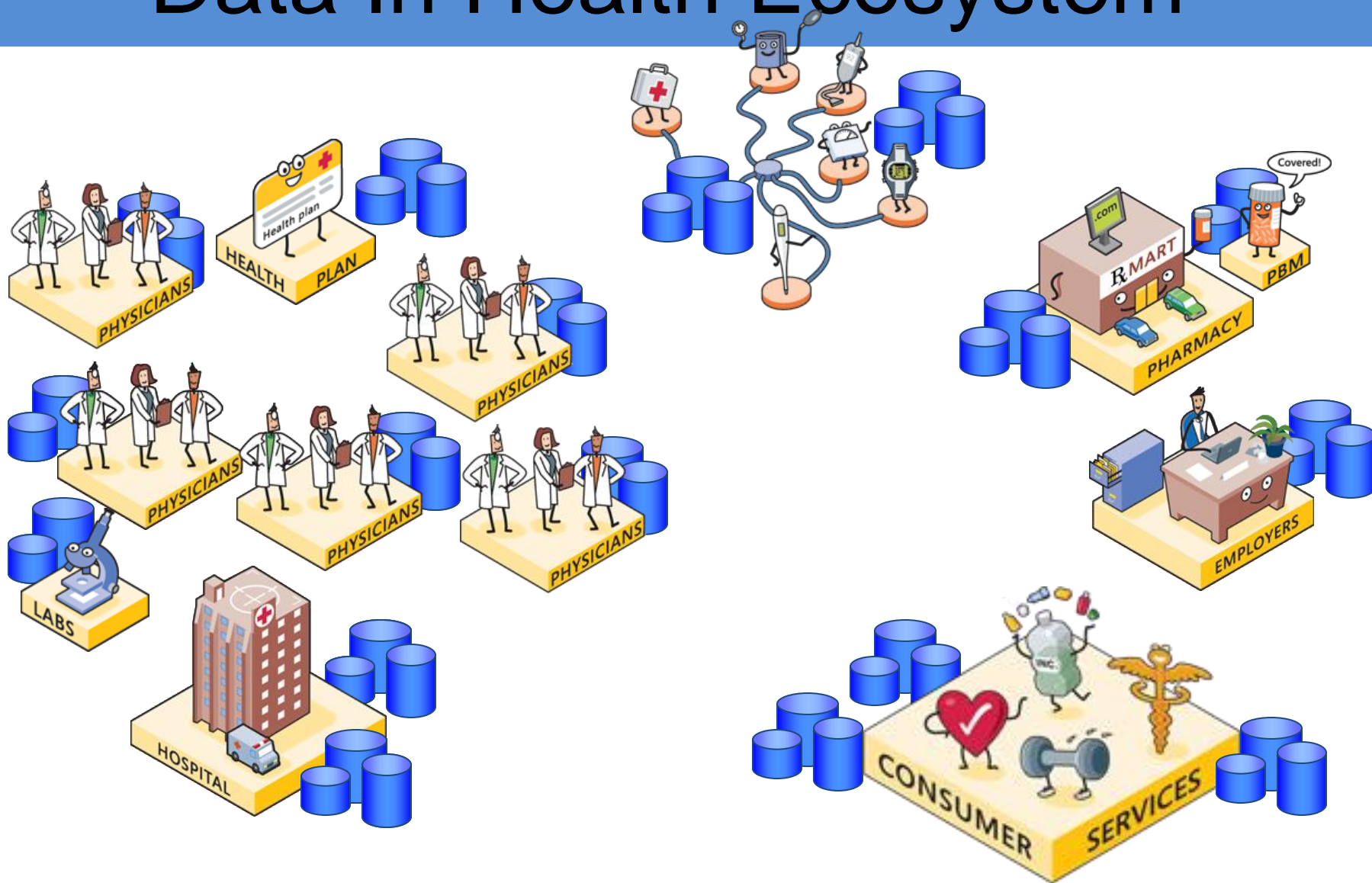
?



A word cloud centered around the text "SNOMED-CT". The words are arranged in a circular pattern around the central text, with varying sizes and colors. The colors include shades of red, green, purple, and blue. The words are: "Licensing", "HIT Standards", "Terminology", "Service Providers", "IHE", "Medical Terminologies in Microsoft Products", "News & Events", "RxNorm", "LOINC", "ICD-9 to ICD-10 Conversion", and "ONC".

Licensing HIT Standards
Terminology Service Providers IHE
Medical Terminologies in Microsoft Products
SNOMED-CT News & Events
RxNorm LOINC
ICD-9 to ICD-10 Conversion

Data In Health Ecosystem



Agenda

- Rich Health Data Sources
 - CHDI – Population Health
 - CDC – Content
- Various way to reach consumers
 - Windows Phone 7
 - HealthVault

Community Health Data Initiative

CHDI

Understanding CHDI Data Set

- Tables
 - CountyHealthRankings
 - Demographics
 - LeadingCausesOfDeath
 - MeasuresOfBirthAndDeath
 - PreventiveServicesUse
 - RelativeHealthImportance
 - RiskFactorsAndAccessToCare
 - SummaryMeasuresOfHealth
 - VulnerablePopsAndEnvHealth

Windows Azure CHDI Service

- To develop your competition entries feel free to use the following service (limited time only) :

<http://chdisourcedataservice.cloudapp.net/Chdi.svc/>

Interesting Applications

- Interleave them on bing or google maps!
- Use interesting visualization tools to showcase the data
- Pair this information with data from other organizations!

CDC Content Data Source

- Content Syndication Site
 - <http://tools.cdc.gov/register/default.aspx>
- Example
 - Tobacco Use

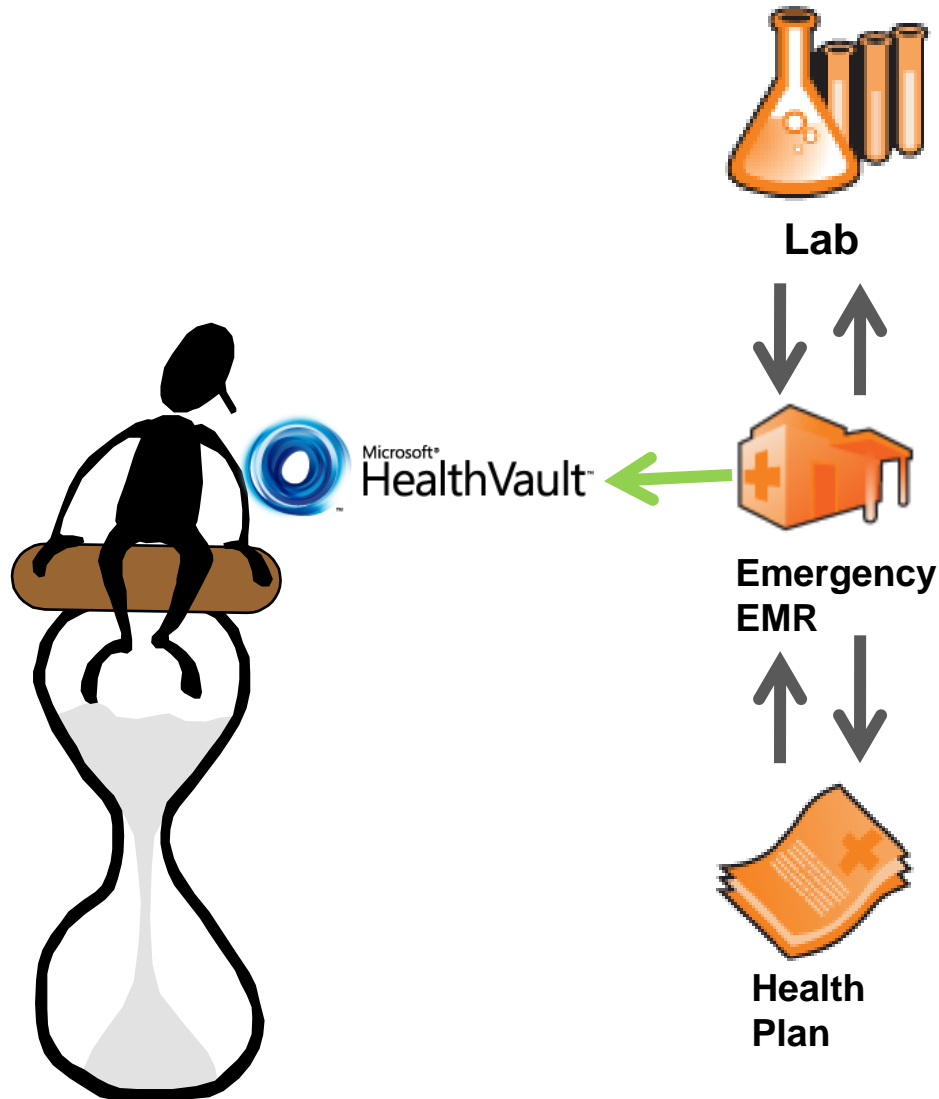
Interesting Resources

- HHS Data Sets
 - <http://www.hhs.gov/open/datasets/communityhealthdata.html>
- My family health portrait
 - <https://familyhistory.hhs.gov/fhh-web/home.action>

Interacting with consumer Health Data

HealthVault

Moving Patient Data



CCR

```
<?xml version="1.0" encoding="utf-8"?>
<ContinuityOfCareRecord xmlns='urn:astm-org:CCR'>
  <CCRDocumentObjectID>Doc</CCRDocumentObjectID>
  <Language>
    <Text>English</Text>
  </Language>
  <Version>V1.0</Version>
  <DateTime>
    <ExactDateTime>2008</ExactDateTime>
  </DateTime>
  <Patient>
    <ActorID>Patient</ActorID>
  </Patient>
  <Body>
    <VitalSigns>
      <Result>
        <CCRDataObjectID>0001</CCRDataObjectID>
        <Description>
          <Text>Blood Pressure</Text>
        </Description>
        <Source>
          <Description>
            <Text>Unknown</Text>
          </Description>
        </Source>
        <Test>
          <CCRDataObjectID>0002</CCRDataObjectID>

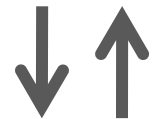
```



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Emergency
EMR



Health
Plan

CCD or C32

```
<?xml version="1.0" encoding="UTF-8" ?>
<!-- edited with XMLSpy v2010 (http://www.altova.com) by Len Gallagher (NIST) -->
<!-- Sample XML file generated by XMLSpy v2007 sp2 (http://www.altova.com) -->
<ClinicalDocument xmlns="urn:hl7-org:v3" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schem
  http://xreg2.nist.gov:8080/hitspValidation/schema/cdar2c32/infrastructure/cda/C32_CDA.xsd">
  <realmCode code="US" />
  <typeId root="2.16.840.1.113883.1.3" extension="POCD_HD000040" />
  <templateId root="2.16.840.1.113883.3.27.1776" assigningAuthorityName="CDA/R2" />
  <templateId root="2.16.840.1.113883.10.20.3" assigningAuthorityName="HL7/CDT Header" />
  <templateId root="1.3.6.1.4.1.19376.1.5.3.1.1.1" assigningAuthorityName="IHE/PCC" />
  <templateId root="2.16.840.1.113883.3.88.11.32.1" assigningAuthorityName="HITSP/C32" />
  <id root="2.16.840.1.113883.3.72" extension="HITSP_C32v2.5_Rev3_11Sections_NoEntries_EntryErrorsOnly
  <code code="34133-9" displayName="Summarization of episode note" codeSystem="2.16.840.1.113883.6.1" c
  <title />
  <effectiveTime value="20091110130945" />
  <confidentialityCode />
  <languageCode code="nn-CC" />
- <recordTarget>
- <patientRole>
  <id />
  - <addr use="HP">
    Are any of the following specifically required or can the address be just text at this location?
    <streetAddressLine />
    <city />
    <state />
    <country />
  </addr>
  <telecom />
- <patient>
  - <name>
    <given />
    <given />
    <family />
  </name>
  <administrativeGenderCode code="F" displayName="Female" codeSystem="2.16.840.1.113883.5.1" codeSys
  <birthTime value="19840704" />
  <maritalStatusCode code="S" displayName="Single" codeSystem="2.16.840.1.113883.5.2" codeSystemName
```

HealthVault Interaction

```
/**
 * This RequestTemplate fills in the details to call HealthVault
 * and receive the response. Online means the user is logged in and
 * we have access to the user token from the session. Fill in the user
 * token, their record, and make the call.
 */
public class OnlineRequestTemplate extends SimpleRequestTemplate
{

    /** The connection. */
    Connection connection;

    /**
     * Instantiates a new request template.
     *
     * @param connection the connection
     */
    public OnlineRequestTemplate(Connection connection)
    {
        super(connection);
    }

    /**
     * Make request.
     *
     * @param request the request
     */
    // TODO: refine exceptions here...should be HVException
    public Object makeRequest(Object request) throws Exception {
        PersonInfo personInfo = RequestCtx.getPersonInfo();

        setUserAuthToken(personInfo.getUserAuthToken());
        setRecordId(personInfo.getRecordId());

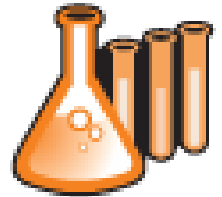
        return super.makeRequest(request);
    }
}
```

Leaving the Clinical Silo

- While in enterprise your application need to comply with HIPAA 5010
- When Jim log's in to HealthVault then the data is flowing in to consumer domain



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Clinical Silo

Emergency
EMR



Health
Plan



Microsoft®
Amalga™

-- Direct To Clinical--



Welcome, vaibhav bhandari | [Your account](#) | [Sign out](#) | [Help](#)

Connect with your provider

HealthVault needs a special code to get your health information. If you don't see it below, please enter the code your provider gave you.

NOTE: If you copy and paste the entire code into the first field, it will automatically fill the other fields.

Identity code

 - - - -

Type the characters you see in this picture

This ensures that a person, not an automated program, is entering this information.

Picture



The picture contains 6 characters.

Characters

Continue

Data In User's Account

The screenshot shows the Microsoft HealthVault interface for user Vaibhav. The page title is "Continuity of Care Record (CCR)". A table lists the CCR entries, with one entry from "CCR Physician Group" dated "5/24/2010 8:13:53 PM". Annotations on the right side of the image illustrate data sources: "Lab" (represented by test tubes and a flask) has arrows pointing to and from the "HealthVault" icon; "Emergency" (represented by a house with a cross) has arrows pointing to and from the "HealthVault" icon; and "Health Plan" (represented by a document with a cross) has arrows pointing to and from the "HealthVault" icon. A green arrow points from the "HealthVault" icon to a computer monitor icon labeled "Jim".

Microsoft HealthVault™

Welcome, vaibhav bhandari | Your account | Sign

Home Health information Sharing History of changes

Vaibhav

Edit profile

Switch to: kamal

Add a person

See all

Home > Health information > Continuity of Care Record (CCR)

Continuity of Care Record (CCR)

+ Add: Continuity of Care Record (CCR)

Delete Export See sharing Change date range

	Date Added	Description	From	Items added to HealthVault?	Details
<input type="checkbox"/>	5/24/2010 8:13:53 PM	Health Information	CCR Physician Group	No	

Lab

Emergency

Health Plan

HealthVault

Jim

Help | Feedback





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HealthVault Medical Imaging

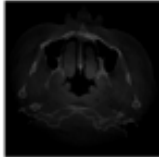
Home > Health information > Medical Image Study

Medical Image Study

[Delete](#) | [Export](#) | [See sharing](#) | [Change date range](#)

	Date	Description	Method	Preview	Details
	11/15/2009 11:39:24.565 AM	Study Description	CT, CT		

[Details](#)
[History](#)



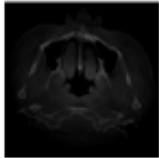
Date 11/15/2009 11:39:24.565 AM

Patient Name John Doe

Description Study Description

Study Instance UID 1.2.3.4.5

Key Images



[Print](#) | [Mark as Personal](#)

HealthVault Mobile Client Application



HealthVault Resources

- Community Promise
- Open Source SDKs
 - Java : CodePlex
 - Ruby : RubyForge
 - Python : Google Code
 - PHP: SourceForge
- Reference License .NET SDK
 - <http://msdn.microsoft.com/healthvault>

Key Takeaways

- Rich Health datasets in various domains
 - CHDI population data
 - CDC content
- HealthVault offers a complete and easy to use platform to reach consumers in various ways
 - Imaging
 - Mobile

Microsoft @ Health2.0

- Platinum Event Sponsor & Hackathon Sponsor
- **Showcase: The Health 2.0 Developer Challenge** (Thursday, October 7th @11:45am)
 - Microsoft submitted challenge response to Markle Blue Button Challenge
- **Community Health Data Initiative & Blue Button: What's Next?** (Thursday, October 7th @ 12:45 – 1:45pm)
 - Sean Nolan, Distinguished Engineer, Microsoft HSG is panelist & will demo
- **Tools and Unplatforms Part I: The Data Utility Layer** (Friday, October 8th @ 9am)
 - David Cerino, General Manager, Microsoft HSG is panelist
 - Microsoft solutions showcased in Accelerator Demos
- **Tools and Unplatforms Part II: the Emerging Consumer Ecosystem** (Friday, October 8th @11am)
 - David Cerino, General Manager, Microsoft HSG is panelist

Be Well. Be Protected.

THANK YOU

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