

# Weaving HealthCare Data

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#health20boston



**CDC**

**Terminologies**

**USDA**  
**Medical**  
**CHDI**

# Data In Health Ecosystem



# Agenda

- Rich Health Data Sources
  - CHDI – Population Health
  - CDC – Content
- Various way to reach consumers
  - Windows Phone 7
  - HealthVault
- Data Analysis Engine
  - Microsoft Amalga
- Announcement

# 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 Ideas

- Interleave them on bing or google maps!
- Use interesting visualization tools to showcase the data
  - E.g. Javascript InfoVis - <http://thejit.org/>
- 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

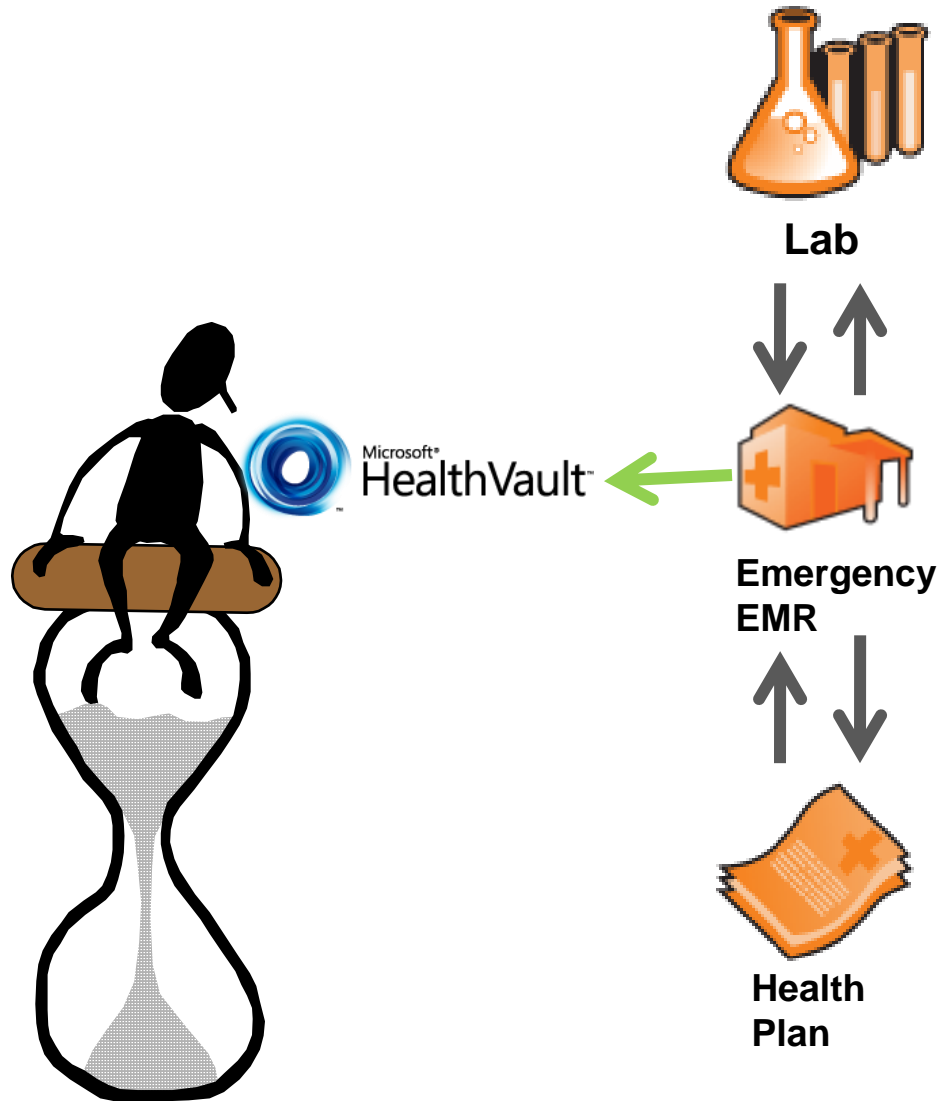
# Interesting Resources

- 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>

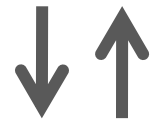
```



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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());

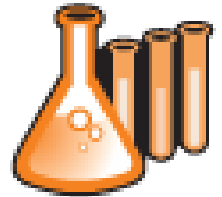
        return super.makeRequest(request);
    }
}
```

# Leaving the Clinical Silo

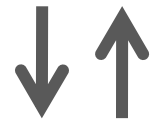
- While in enterprise your application need to comply with HIPAA 5010
- When Jim log's in to HealthVault then the data is flowing in to consumer domain



Microsoft®  
HealthVault™

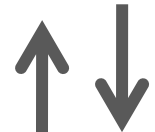


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Clinical Silo

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 a record added on 5/24/2010 from the CCR Physician Group. Overlaid on the right side are four icons with arrows indicating data flow: a Lab flask icon with arrows pointing to and from the HealthVault logo; an Emergency room icon with arrows pointing to and from the HealthVault logo; a Health Plan icon with arrows pointing to and from the Emergency room icon; and a computer icon labeled "Jim" with a green arrow pointing to it from the HealthVault logo. The footer contains copyright information for 2010 Microsoft and links to Trademarks, Privacy, Legal, and Code of Conduct.

Microsoft HealthVault™

Welcome, vaibhav bhandari | Your account | Sign

Home Health information Sharing History of changes

Vaibhav

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

Jim

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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

# WalkMe – Open Sourced

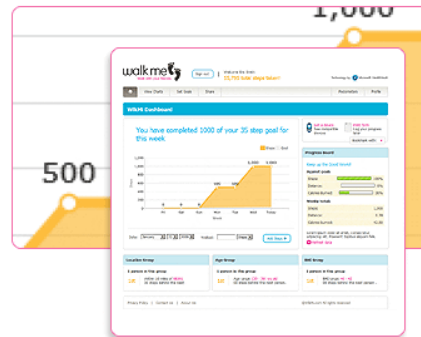


Sign in

SandBox for Microsoft® HealthVault™

## Get Walking and Get Fit

Take the next step with WalkMe



### With WalkMe, you can:

- Get a clear picture of how active you are—no guessing
- Remember to walk more by using a pedometer
- Set goals and get more exercise by tracking steps

Note: To use WalkMe, you'll need to have a Microsoft HealthVault account.

Sign up >

### Why track steps?

Because it works. People who start a pedometer-based walking program increase the steps they take by about 2,000 to 4,000 a day, the equivalent of an extra one to two miles. (Source: MSN)

### WalkMe member step totals!

344,863,248  
steps and counting...

[Privacy Policy](#) | [Terms of Use](#) | [Email us](#) |

Bookmark with: ▼

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<http://walkme.codeplex.com>

Be Well. Be Protected.

# THANK YOU

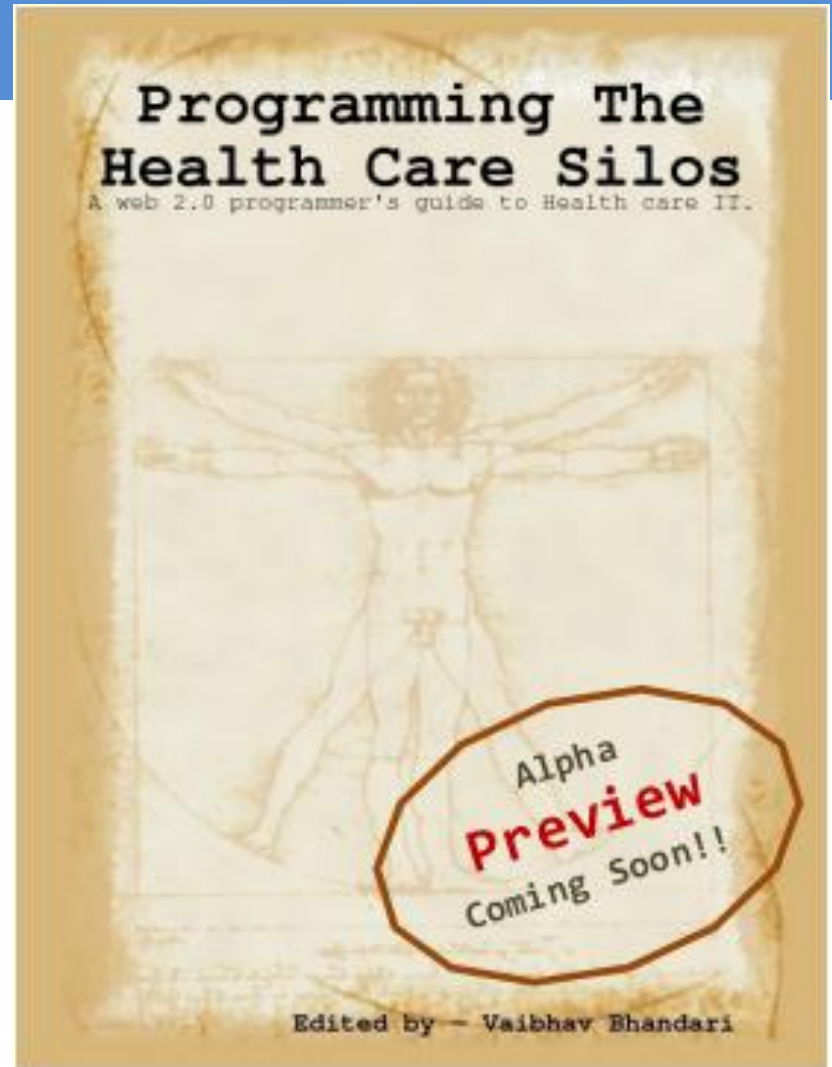
twitter



@vaibhavb

#health20boston

?



<http://bit.ly/health20codathonboston>