

CHOIS: Enabling grid technologies for obesity surveillance and control

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12:40 PM



National University Community Research Institute (NUCRI)



NU Community Research Institute (NUCRI)

(<http://nucri.nu.edu>)

NUCRI is an outreach to the Community for National University

- HASTAC (higher education)/HASS grid
- National School Board (NCC/FRC)
- UC Humanities Research Institute
- K12 (AmeriCorps)
- ARTCA
- Illinois Department of Public Health
- NCSA/University of Illinois at Urbana-Champaign
- SmileHealthy, SIU, etc.



**focused on digital technology need
based Research for the community**



National University Community Research Institute (NUCRI)



CHOIS for obesity surveillance and control

Obesity: this metabolic disorder is often associated with an increased risk for developing a variety of serious health related conditions including social and emotional problems.

Recent study has shown that the maternal obesity may even cause a serious congenital heart defect to the new-born baby.



<u>Gene</u>	<u>Disease</u>	<u>Chr.</u>	<u>Primary reference</u>
ADRB3	Eating behavior	8	Cecil, et. al., 2007
ALOX5	obesity	10	Mehrabian, et. al, 2005.
ALOX5AP	obesity	13	Mehrabian, et. al, 2005.
C3AR1	obesity	12	Schadt, et. al., 2005.
FTO	obesity	16	Chu, et. al., 2008.
GAS7	obesity	17	Marchini, et al., 2005.
GPX3	obesity	5	Marchini, et al., 2005.
GK	obesity	X	Marchini, et al., 2005.
HSD11B1	obesity	1	Schadt, et. al., 2005.
INSIG2	obesity	2	Chu, et. al., 2008.
LACTB	obesity	15	Chen, et al., 2008
LPL	obesity	8	Chen, et al., 2008.
ME1	obesity	6	Marchini, et al., 2005.
PFKFB3	obesity	10	Jiao, et al., 2008.
PPARA	T2D	22	Schadt, et al., 2008.
PPARG	obesity	3	Kubota, et al., 1999.
PPM1L	obesity	3	Chen, et al., 2008.
TGFBR2	obesity	3	Schadt, et al., 2008.
ZFP90	obesity	16	Schadt, et al., 2008.

TABLE: Obesity related genes.
More than a dozen genes have been identified associated with obesity.



The latest U.S. National Health and Nutrition Examination Survey documents that about one third of adults in the United States are now overweight/at-risk and another one third are obese. Recent survey also suggests almost 1/3 of children and adolescents are overweight or obese and 11.3% of children and adolescents are very obese.



The economic impact of this condition is staggering: in 2008, it has been estimated that more than 147 billion dollars were spent just in the United States for medical costs related to obesity and this estimation does not include the time lost from work.

obesity has become a major concern in US. The present administration under President Obama has recently established a task force on childhood obesity (White house, Office of the Press Secretary, February 09, 2010) to address this issue (White house, Office of the Press Secretary, February 09, 2010).



Development of effective surveillance, prevention, treatment and management strategies to address the health, social and emotional problems associated with overweight, particularly among school-aged children is very critical.

Legislation has been passed in several states including in Illinois to screen obese and at-risk children and involve them in wellness program with proper diet and regular physical activity.

BMI



CHOIS

Electronic Medical Record

System

Supported by CI



National University Community Research Institute (NUCRI)



Datta/CHOIS

Electronic Medical Record

By 2014, all the citizens should have an access to his/her Electronic Medical Record.

Communications of the ACM, Nov 2009, Vol 52 (11), 18-20.

EMR are widespread in Europe, Australia, and elsewhere, but only 4% of American doctors have a fully functional system.

New England J. med., 356, 24, June 14, 2007, 2527 – 34.



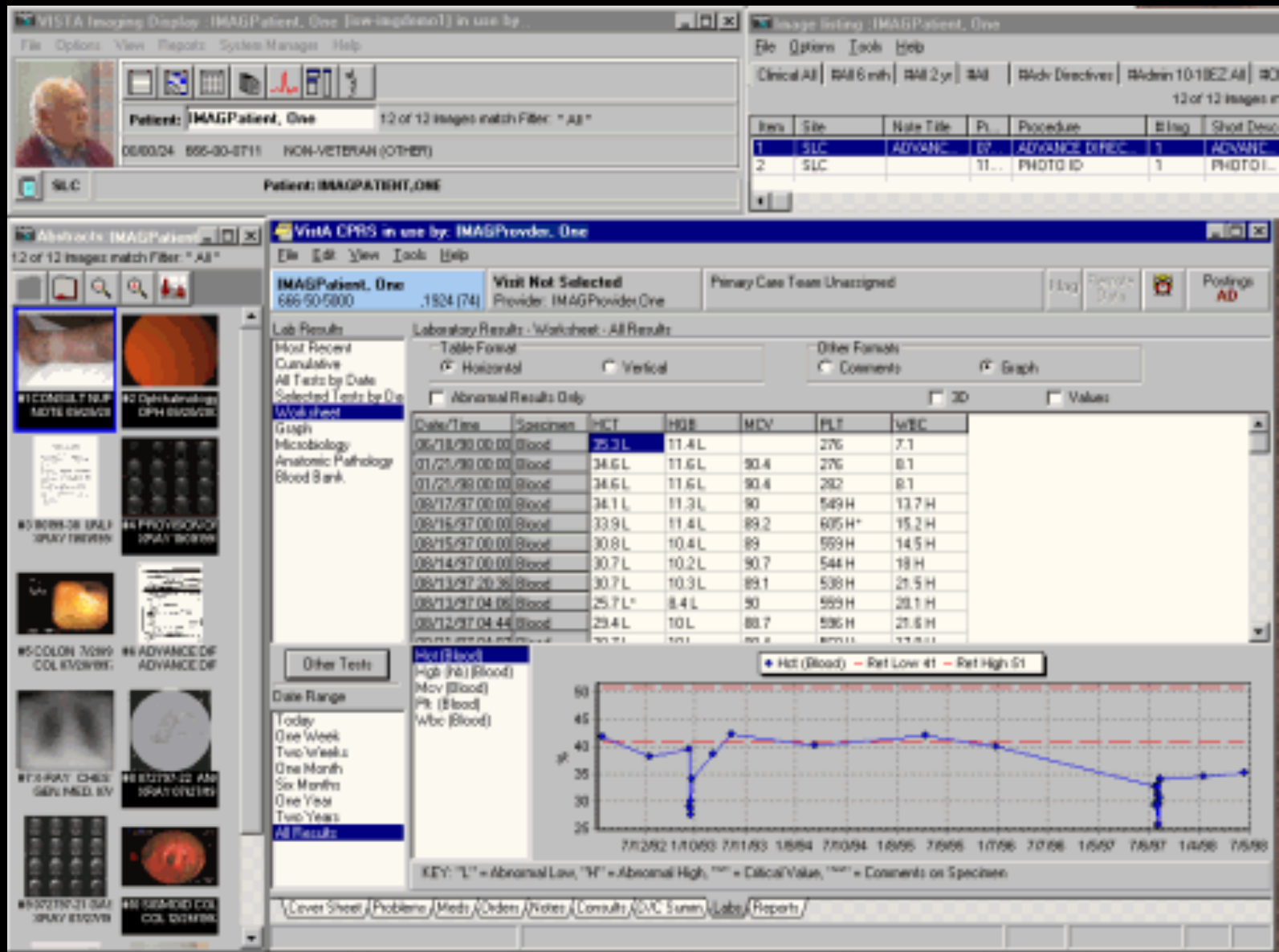
Implementing Electronic Medical Record

- Benefits are obvious
- Reduction of clerical errors
- Clinical-decision support
- Furthering medical research
- Economic Incentives to doctors
- Economic Incentives to Hospitals
- Regulations – HIPAA, FERPA
- Standards (HL 7, ISO, DICOM, etc.)
- Data Integration

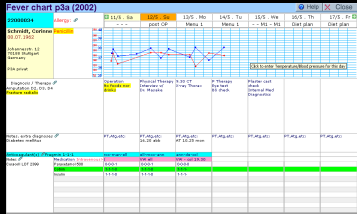


Communications of the ACM, Nov 2009, Vol 52 (11), 18-20.





Data Integration



Electronic Medical Record



Hematology



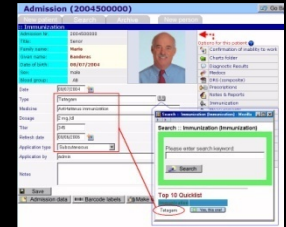
Oral Pathology



Histopathology



Blood tests



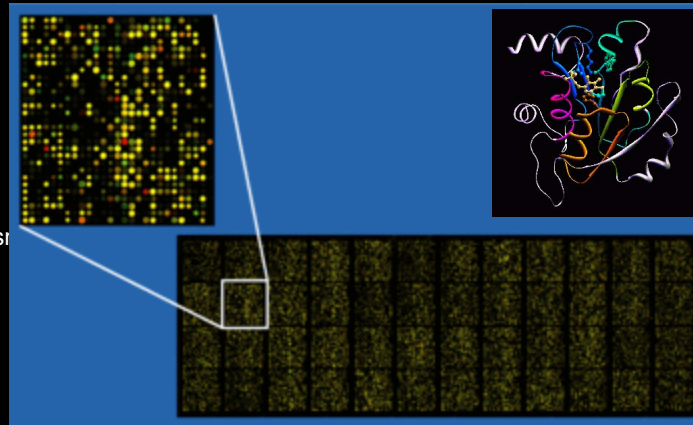
Electronic Healthcare Record



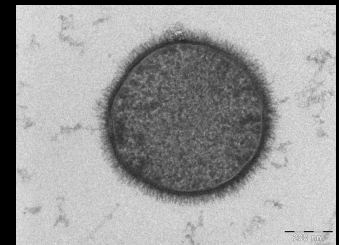
X-ray



Image of acute arterial embolism



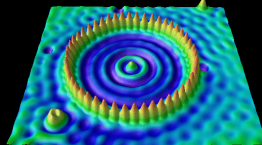
Microarray



Transmission electron microscopy

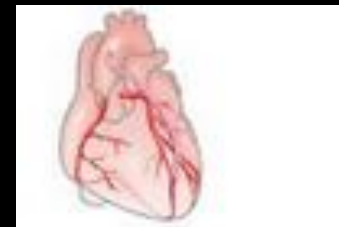


CT finding, Epithelial carcinoma of the ovary



Scanning Tunneling Microscopy

Atomic force microscope (AFM)



Heart surgery



National University Community Research Institute (NUCRI)



Datta/CHOIS

Electronic Devices for capturing the data



Echocardiography (EKG)



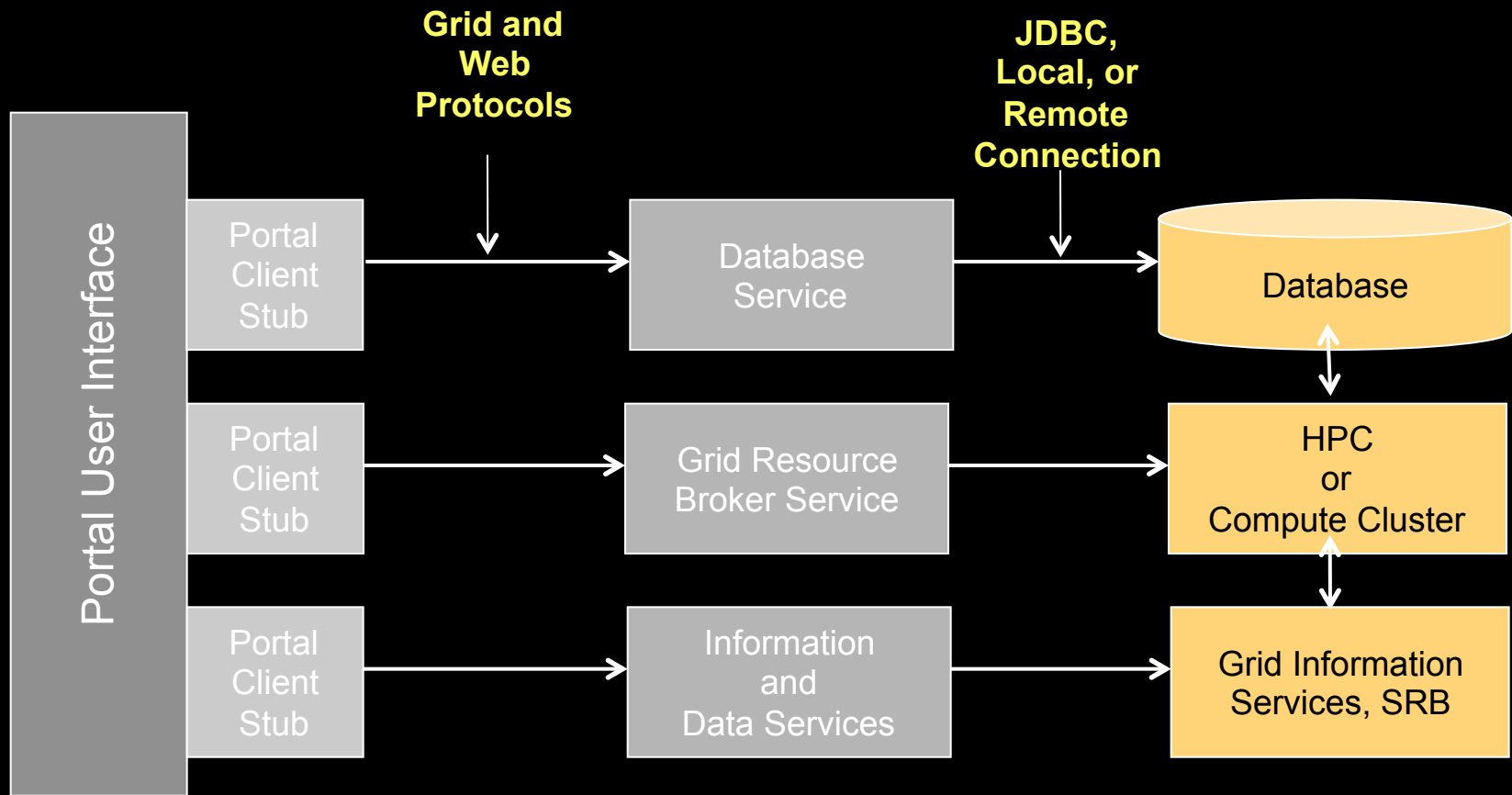
Smart Phone



Tablet-PC



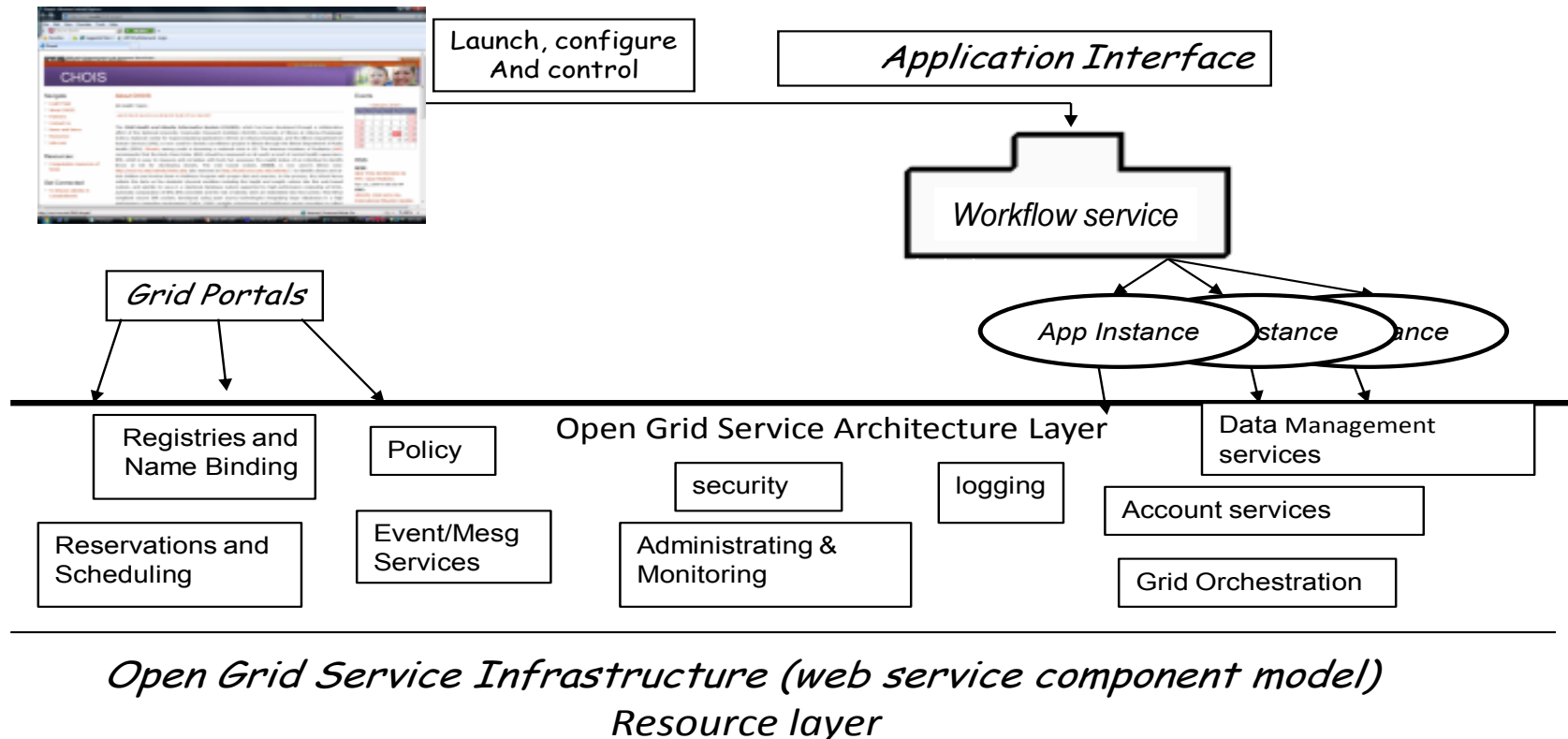
Three-Tier Architecture



Three-tiered service oriented architecture is accepted standard for accessing Grid and other services



Distributed Grid and Web Services



(slide by Dennis Gannon, modified)



DHS: School Health - Windows Internet Explorer

http://nucri.nu.edu/DHS/login.php

File Edit View Favorites Tools Help

★ Favorites ☆ Suggested Sites Free Hotmail Get More Add-ons RealPlayer

DHS: School Health

Illinois Department of Human Services

for Customers for Providers about DHS

DHS > for Customers > Services by Division > Community Health & Prevention Services >

School Health

EMAIL ID:

PASSWORD:

Related Links

- ▶ [Alcoholism & Addiction](#)
- ▶ [Cash](#)
- ▶ [Child Care](#)
- ▶ [Customer Service](#)
- ▶ [Developmental Disability](#)
- ▶ [Disability & Rehabilitation](#)
- ▶ [Food](#)
- ▶ [Health & Medical](#)
- ▶ [Housing](#)
- ▶ [Mental Health](#)
- ▶ [Pregnancy & Parenting](#)
- ▶ [Violence & Abuse Prevention](#)
- ▶ [Youth Services](#)
- ▶ [Services by Division](#)
- ▶ [HIPAA](#)
- ▶ [FERPA](#)
- ▶ [Health Info](#)
- ▶ [Login](#)

DHS Office Locator

Type:

County:

DHS Help Line

1-800-843-6154

1-800-447-6404 TTY

Done

Internet 100%

start Arun Datta - Ou... DHS: School He... MyTalks Submitted Microsoft Power... Paper_AKD_He... Untitled - Notepad 1:29 PM

demo



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Datta/CHOIS

DHS: School Health - Windows Internet Explorer

http://nucri.nu.edu/DHS/student_info_nurse.php

File Edit View Favorites Tools Help

Favorites Suggested Sites Free Hotmail Get More Add-ons RealPlayer

DHS: School Health

Home General List Active Cases Program directors Reports Help

User: Admin - Arun Datta

School Health

Student ID: S -	Birth Date: / / Format: mm/dd/yyyy	Gender: ☐ Male ☐ Female	School Code:
Grade Level: ☐ Pre-K ☐ K ☐ 1 ☐ 6 ☐ 9	Zip Code 		

Diagnosis of asthma?	☐ Yes ☐ No ☐ Not Reported	Heart murmur/High blood pressure?	☐ Yes ☐ No ☐ Not Reported
Child wakes during the night coughing?	☐ Yes ☐ No ☐ Not Reported	Dizziness or chest pain with exercise?	☐ Yes ☐ No ☐ Not Reported
Diabetes?	☐ Yes ☐ No ☐ Not Reported	Tobacco use?	☐ Yes ☐ No ☐ Not Reported

If yes (type, frequency)?

Admin Related Links

- Forms
- Add/Edit User
- Vista
- Health Info
- HIPAA
- FERPA
- Upload File
- Tools
- Logout

Done

start Arun Datta - Ou... DHS: School Hea... MyTalks Submitted Microsoft Power... Paper_AKD_Heal... Untitled - Notepad 1:29 PM



DHS: School Health - Windows Internet Explorer

http://nucri.nu.edu/DHS/student_info_nurse_update_list.php

File Edit View Favorites Tools Help

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DHS: School Health

DHS Illinois Department of Human Services

User: Admin - Arun Datta

Home General List Active Cases Program directors Reports Help

School Health

Empowering Individuals

STUDENT FORM UPDATE LIST
Total 11034 Records found
Page 1, Displaying Record #1-300

Search: **[Display All]**

Student ID

Sort: **[Clinic]** **[School]** **Display All**

records per page: Records

PAGE 1

1 2 3 4 5 Next > Last

No.	Student ID	Entry Date	Comment	Status	Entry By
1	C000001-03925	2006-11-21 00:00:00	View	NENTRY	
2	C000001-03973	2006-10-26 00:00:00	View	NENTRY	
3	C000001-03925	2007-01-25 00:00:00	View	NENTRY	

Admin Related Links

- Forms
- Add/Edit User
- Vista
- Health Info
- HIPAA
- FERPA
- Upload File
- Tools
- Logout

Done

start Arun Datta - Ou... DHS: School Hea... MyTalks Submitted Microsoft Power... Paper_AKD_Heal... Untitled - Notepad 1:30 PM



DHS: School Health - Windows Internet Explorer

http://nucri.nu.edu/DHS/upload_report.php

File Edit View Favorites Tools Help

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DHS: School Health

Home General List Active Cases Program directors Reports Help

User: Admin - Arun Datta

School Health

Please upload your file in CSV/Excel for sending the report to DHS

Upload Information

*File Name Browse...

*SBHC Clinic ID

*Fiscal Year 2010

*Name Of the Software Used For Generating Excel/CSV Clinical Fusion

Enter Other Software Name here:

Upload Selected File

Files Uploaded:

HealthEd001sh.xls Remove

Contacts001sh.xls Remove

Contacts002sh.xls Remove

Admin Related Links

- Forms
- Add/Edit User
- Vista
- Health Info
- HIPAA
- FERPA
- Upload File
- Tools
- Logout

Done

start Arun Datta - Ou... DHS: School Hea... MyTalks Submitted Microsoft Power... Paper_AKD_Heal... Untitled - Notepad 1:32 PM



Genomic Information *In EHR*

NIH Challenge Grant # 15-LM-101

Description of the RFA: Presenting genome information in electronic health records. Develop approaches for presenting relevant genomic information in an understandable way, in the context of a patient's electronic health record. As genomic data becomes available for more individuals, these data must be integrated into electronic health records in ways that: help clinicians and patients to understand the significance of the data; provide an avenue for alerting clinicians and patients when new knowledge from GWAS, etc. rises to the level of potential clinical impact; and enable linking to effective decision support.



CHOIS – Child Health and Obesity Informatics System

DHS: School Health - Windows Internet Explorer
http://nucri.nu.edu/DHS/student_info_nurse_update.php?re

File Edit View Favorites Tools Help

M [McAfee SiteAdvisor]

DHS: School Health

PHYSICAL EXAMINATION REQUIREMENTS

HEIGHT: 49.25 ☐ cm ☒ in

BMI: 22

DIABETES SCREENING: BMI>85% age/sex: ☐ Yes ☐ No ☒ And any two of the following

Family history? ☐ Yes ☐ No ☒ Not Reported

Signs of Insulin Resistance (hyperglycemia) ☐ Yes ☐ No ☒ Not Reported

Physician/Advanced Practice Nurse/Physician Assistant performed: Date: / / Format: mm/dd/yyyy

Genomic Information

Name of Gene: **ADRB3** Protein Name: cytochrome oxidase subunit

Genomic Data Immunization Form Alternative

Update Submit

DHS Office Locator **DHS Help Link**

DHS: School Health - Windows Internet Explorer
http://nucri.nu.edu/DHS/CHOIS.php?Client_ID=12

File Edit View Favorites Tools Help

M [McAfee SiteAdvisor]

DHS: School Health

Illinois Department of Human Services
Carol L. Adams, Ph.D., Secretary

User: Admin

Genomic Information Page. Enter all the fields as indicated.

Basic Information

Record Date 	Gene Tested FTO	If Other 	Results Obtained Attachment: Browse...
Test Date 	Source of the biological Sample 	Addtl. Comments Max* 500 Characters	

Relevant Information

Gene Term 	Published Gene Sequence Accession Number
Protein Name 	Published Protein Sequence Accession Number

Done

Internet | Protected Mode: On

Connect to a ... For SC09 - No... SC09 Microsoft Word EndNote X2 Microsoft Po... 4 Internet Ex... 11:12 PM

Incorporating Genomic Information



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Datta/CHOIS

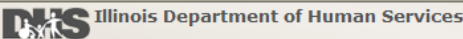
DHS: School Health - Windows Internet Explorer

http://nucri.nu.edu/demo/hit/medicurator.php

File Edit View Favorites Tools Help

★ Favorites | ★ Suggested Sites | Free Hotmail | Get

DHS: School Health



School Health

In today's information - driven environment, data integration is separating end users from the data they need. Medicurator users through this common user friendly graphical interface can integrate various database-servers and integrate those in a meaningful way. To access, please click [MedCurator here](#).

No file uploaded

DHS Office Locator

Type: All

County: All Find Offices

Untitled Page - Windows Internet Explorer

http://216.119.77.240/server/

File Edit View Favorites Tools Help

★ Favorites | ★ Suggested Sites | Free Hotmail | Get More Add-ons | RealPlayer

Untitled Page

HOME ABOUT US INTEGRATE VIEW REPORT ENHANCEMENTS CONTACT



for Customers for Providers

DHS > for Customers > Services by Division > Community Health & Prevention Services >

School Health

You are at > Home

Welcome, Guest Login

Welcome to Web-Based Data Intergration for CHOIS

Here you can Integrate Data from various distributed data sources and from different kinds of servers. Then after according to the specific needs, user can download results of integration to PDF, MS Word and Excel. He can save his results in database for later use.

Following are the data bases that are being dealt with in this situation

- Microsoft SQL Server 2008
- Access 2008
- NCBI Websites

*CSC 686, CSC 687 (Project towards Completion of Courses)

start | 4 Internet Explorer | MyTalks | Submitted | Microsoft PowerPoint ... | Paper_AKD_Healthgri... | Untitled - Notepad | 1:40 PM



The screenshot shows a Windows Internet Explorer browser window displaying the Medici login page. The address bar shows the URL <http://isda.ncsa.uiuc.edu/mmdb/>. The page has a navigation bar with links: Home, Datasets, Collections, Tags, Upload, Login, and Sign up. The main content area is titled 'Login' and contains a form with fields for 'Email' and 'Password', a 'Login' button, and links for 'Sign up' and 'Forgot Password?'. Below the login form, it says 'Powered by NCSA/CET Medici: (v0.5.0#6) | [Medici Desktop Application](#) | [Report a problem](#) | [Request a feature](#)'.

On the left, a sidebar for 'DHS: School Health' contains a form with the following fields:

- Student ID: -
- Grade Level: ☐ Pre-K ☐ K ☐ 1 ☐ 6
- Diagnosis of asthma?
- Child wakes during the night coughing?
- Diabetes?

On the right, a sidebar shows the user 'Admin - Arun Datta' and a section titled 'Admin Related Links'.



Drupal - Windows Internet Explorer

http://nucri.nu.edu/DHS/drupal/

File Edit View Favorites Tools Help

★ Favorites | ★ Suggested Sites | Free Hotmail | Get More Add-ons | RealPlayer

Drupal

Search

for Customers | for Providers | about DHS

CHOIS

Navigate

- [Login Page](#)
- [About CHOIS](#)
- [Collaborators](#)
- [Contact](#)
- [News and Views](#)
- [Resources](#)
- [Info Link](#)

Resources:

- [Computation resources of NCSA](#)

Get Connected:

- [To Discuss obesity in CyberEdWorld](#)

About CHOIS

All Health Topics

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

The **Childhood Obesity Informatics System (CHOIS)**, which has been developed through a collaborative effort of the National University Community Research Institute (NUCRI), University of Illinois at Urbana-Champaign (UIUC), National Center for Supercomputing Applications (NCSA) at Urbana-Champaign, and the Illinois Department of Human Services (DHS), is now used for obesity surveillance project in Illinois through the Illinois Department of Public Health (IDPH). **Obesity** among youth is becoming a national crisis in US. The American Academy of Pediatrics (AAP) recommends that the Body Mass Index (BMI) should be measured on all youth as part of normal health supervision. BMI, which is easy to measure and correlates with body fat, assesses the weight status of an individual to identify those at risk for developing obesity. This web based system, **CHOIS**, is now used in Illinois (see: <http://nucri.nu.edu/obesity/index.php> also mirrored at <http://ilyash.ncsa.uiuc.edu/obesity/>) to identify obese and at-risk children and involve them in Wellness Program with proper diet and exercise. In the process, the School Nurse collects the data on the students' physical condition including the height and weight, enters into this web based system, and submits to save in a relational database system supported by high performance computing at NCSA. Automatic computation of BMI, BMI percentile and the risk of obesity alert are embedded into this system. This HIPAA compliant secure EHR system, developed using open source technologies integrating large databases in a high performance computing environment (Datta, 2008), enables school-nurse and healthcare service providers to collect

Events

« June 2010 »

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

RSS

NCBI:
NEW TITLE IN PMC: Journal of Neurogastroenterology and Motility
Jun 09, 2010 10:00:00 AM

CDC:
Initializing ticker...

WHO:
Pandemic (H1N1) 2009 -

Error on page.

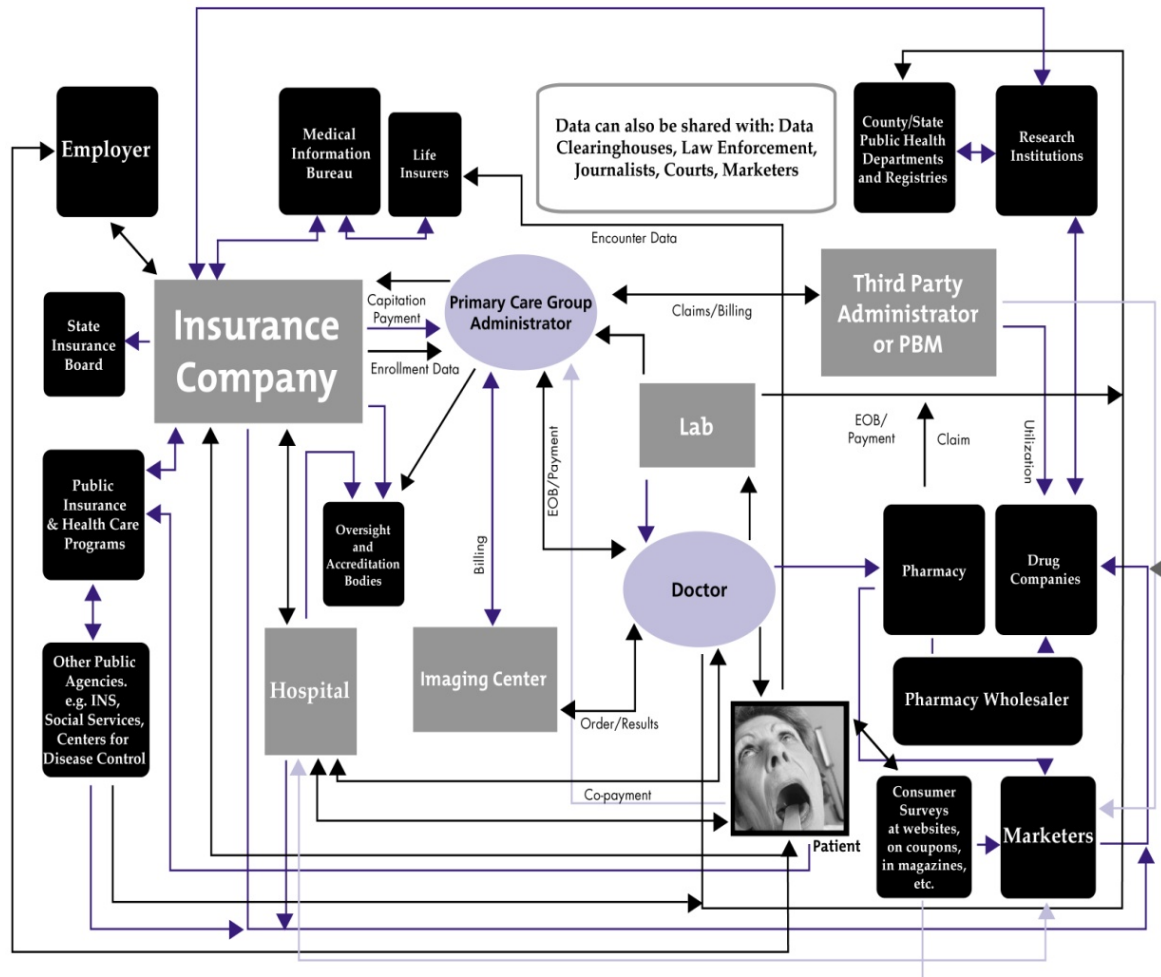
start | Arun Datta - Ou... | Drupal - Windo... | MyTalks | Submitted | Microsoft Power... | Paper_AKD_He... | Untitled - Notepad | 1:28 PM



Information flow at present setup

Sample Data Flow

Based on a presentation developed by the California HealthCare Foundation



Please note that the explanations are meant to be illustrative. They are not comprehensive.



National University Community Research Institute (NUCRI)

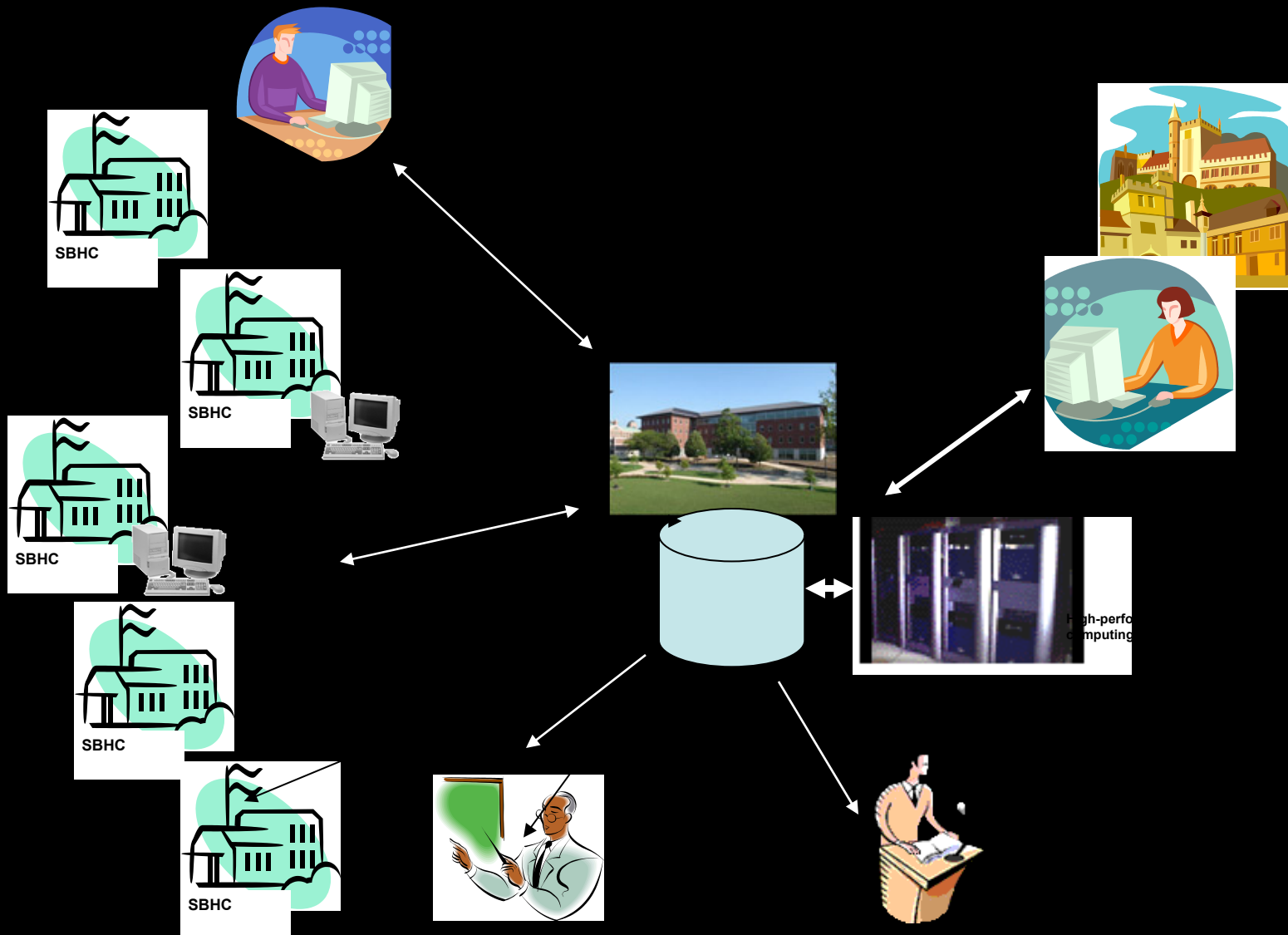


Datta/CHOIS

CI in Healthcare Management

- EHR will be in place by 2014
- Health information exchange policy will be in place
- Medical devices will be standardized to send the data to the EHR and 'connect' to each other
- Patient will have a greater control over his/her health data
- Patients will have more control over surveillance system
- More meaningful reports can be generated using CI
- Users needs to be trained for appropriate use of EHR





Reporting the encountered data using the proposed web application by the School.



National University Community Research Institute (NUCRI)



Datta/CHOIS

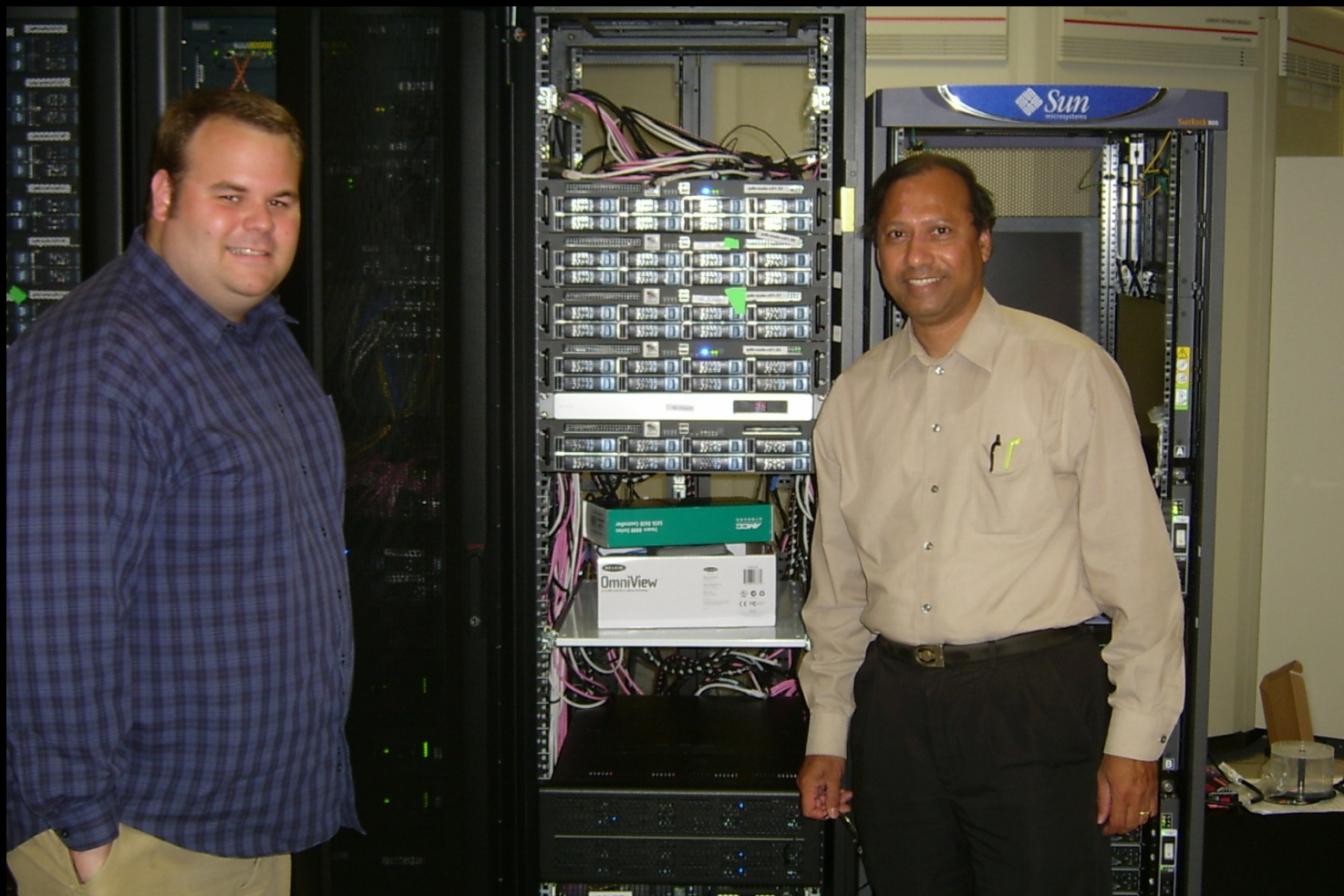
CHOIS – *Child Health and Obesity Informatics System*

Features of CHOIS

- Web based forms
 - * BMI, Asthma, etc
 - * Genomic info
- Combination of federated and central databases
- Reports are available from anywhere anytime
- Role based accessibility
- Regulatory compliance (HIPAA, FERPA)
- Mobile version is available
- CMS, *Drupal*
- Data integrator & DSS
 - Cyberintegrator, MotifNetwork, etc.*
- Alert system
- Cyberenvironments



Datagrid deployment

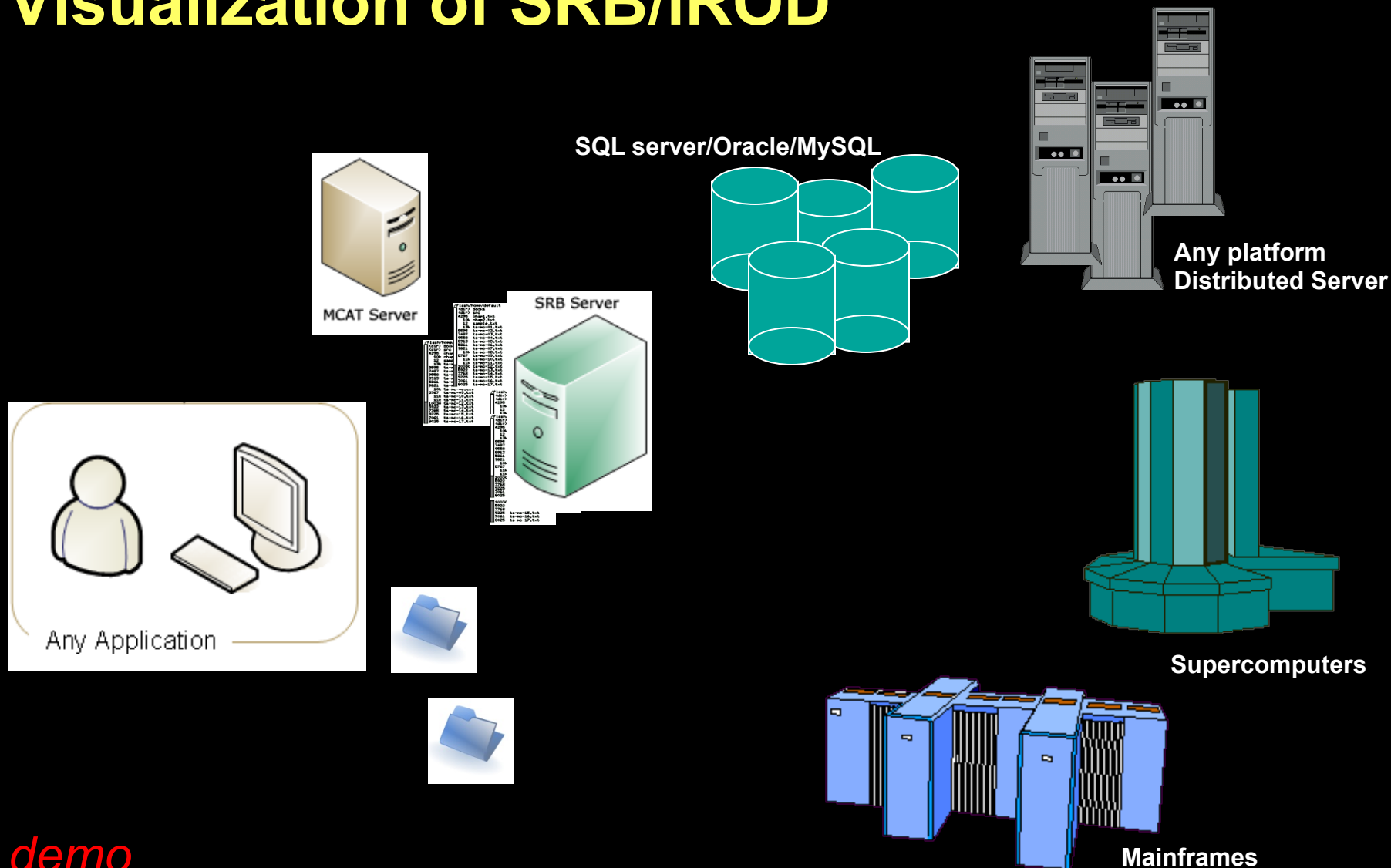


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Datta/CHOIS

Visualization of SRB/iROD



demo



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Datta/CHOIS

Community Grid - Windows Internet Explorer

http://nucri.nu.edu/c-grid/index.php?login_val=yes

File Edit View Favorites Tools Help

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Community Grid

Home Collaboration Events Newsroom

CG Community Grid

Enabling GRID Technologies for Community Research

Bringing the Community Together

Home Publications Resources FAQ & Help Collaborators Training Contact Us Exit

Community Grid

C-Grid, the Community Grid web portal is developed to store massive amount of health related data for further analysis by the community. Remote management of C-Grid infrastructure is done using eziRODS which is web-based application that act as a gateway for the community institutions and organizations to communicate with cyberinfrastructure using Grid Technology.

The objective of this web portal is for long-term data preservation, unified data access and share domain specific data amongst community members. The NUCRI Grid is a distributed computing deployment and data management system for sharing resources, data and computing power with other people who are in Grid community via the internet. It provides the collaborative data sharing and maintenance of distributed storage resource collections. The web portal has been uniquely created using PHP scripting language integrated with GRID using the Integrated Rule-Oriented Data System (iRODS). The iRODS acts as the middleware between Grid technology and User application, which helps to create, manage "virtual data collection" that can be stored on heterogeneous data resources across distributed network. iRODS is being used by data-grid as the underlying technology to share and manage large amounts of distributed data.

Explore C-Grid

Developed and supported by the National University Community Research Institute (NUCRI)

Done Internet 100%

start Arun Datta - O... Community Grid... MyTalks Submitted Microsoft Powe... Paper_AKD_He... Untitled - Notepad 1:15 PM



Community Grid - Windows Internet Explorer

http://nucri.nu.edu/c-grid/cgrid.php

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Community Grid

Page Safety Tools

CG Community Grid

Enabling GRID Technologies for Community Research

Bringing the Community Together

Home Collaboration Events Newsroom

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Move Up Exit Other Info Online Help

Upload Copy File Create Collection Browse Query Tutorial

Collections :

/nuZone
/pzone

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Datta/CHOIS

Community Grid - Windows Internet Explorer

http://nucrl.nu.edu/c-grid/upload.php

File Edit View Favorites Tools Help

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Community Grid

Home Collaboration Events Newsroom

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Home Publications Resources FAQ & Help Collaborators Training Contact Us Exit

UPLOAD FILE

iRODS Object Name:

Collection Name:

Resource Name: Data Type:

Other MetData #1: = (Units)

Other MetData #2: = (Units)

Other MetData #3: = (Units)

Upload File Name:

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Done

start Arun Datta - O... Community Grid... MyTalks Submitted Microsoft Powe... Paper_AKD_He... Untitled - Notepad 1:16 PM



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Datta/CHOIS

Community Grid - Windows Internet Explorer

http://nucri.nu.edu/c-grid/cgrid.php

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Community Grid

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Home Publications Resources FAQ & Help Collaborators Training Contact Us Exit

Move Up Exit Other Info Online Help

Upload Copy File Create Collection Browse Query Tutorial

Collections :

/nuZone
/pzone

Developed and supported by the National University Community Research Institute (NUCRI)
in Cooperation with the San Diego Supercomputer Center (SDSC)

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National University Community Research Institute (NUCRI)



Datta/CHOIS

Community Grid - Windows Internet Explorer

http://nucri.nu.edu/c-grid/cgrid.php?dir=/nuZone/home/nitin

File Edit View Favorites Tools Help

★ Favorites ★ Suggested Sites Free Hotmail Get More Add-ons RealPlayer

Community Grid

CG Community Grid
Enabling GRID Technologies for Community Research

Bringing the Community Together

Home Collaboration Events Newsroom

Move Up Exit Other Info Online Help

Upload Copy File Create Collection Browse Query Tutorial

Collections :

/nuZone/home/nitin/
/nuZone/home/nitin/p

Owner	Location	Size (KB)	Name	Action
nitin	01277497148	32266	Abstract_HTMotif_Teragrid09.pdf	View /Download /Delete
nitin	1276801737	26112	Test.doc	View /Download /Delete
nitin	01276805659	41517	bochsrc-sample.txt	View /Download /Delete
nitin	01274850955	17559	error.docx	View /Download /Delete
nitin	01276538435	3987	gradePrac.java	View /Download /Delete
nitin	01276887871	11569	header.jpg	View /Download /Delete
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3G 8:36 PM

mCHOIS ON

Clinic Code

Grade Level

☐ Pre-K
 ☐ K
 ☐ G1
 ☐ G6
 ☐ G9

Student ID

Gender

☐ Male
 ☐ Female

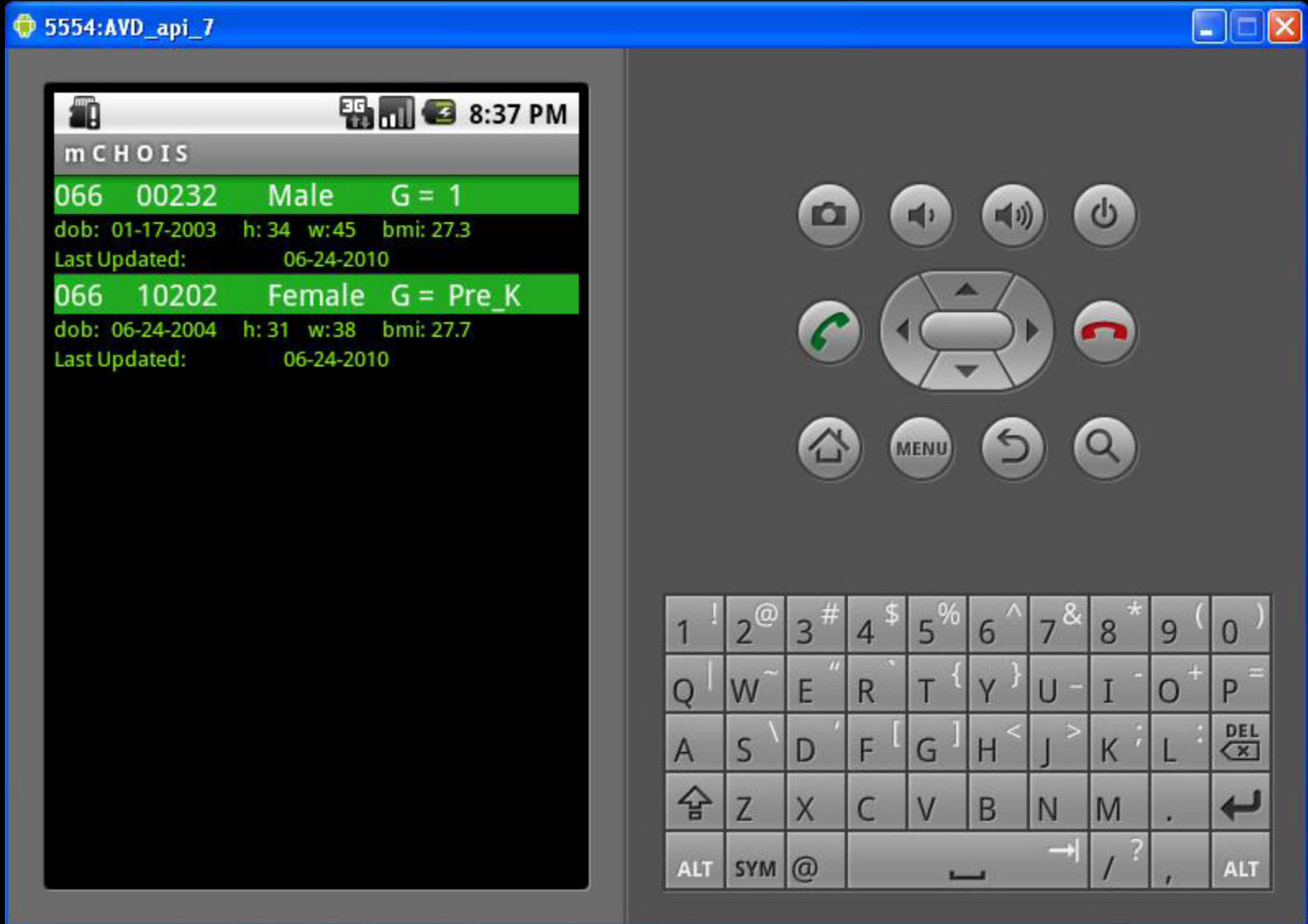
Birth Date

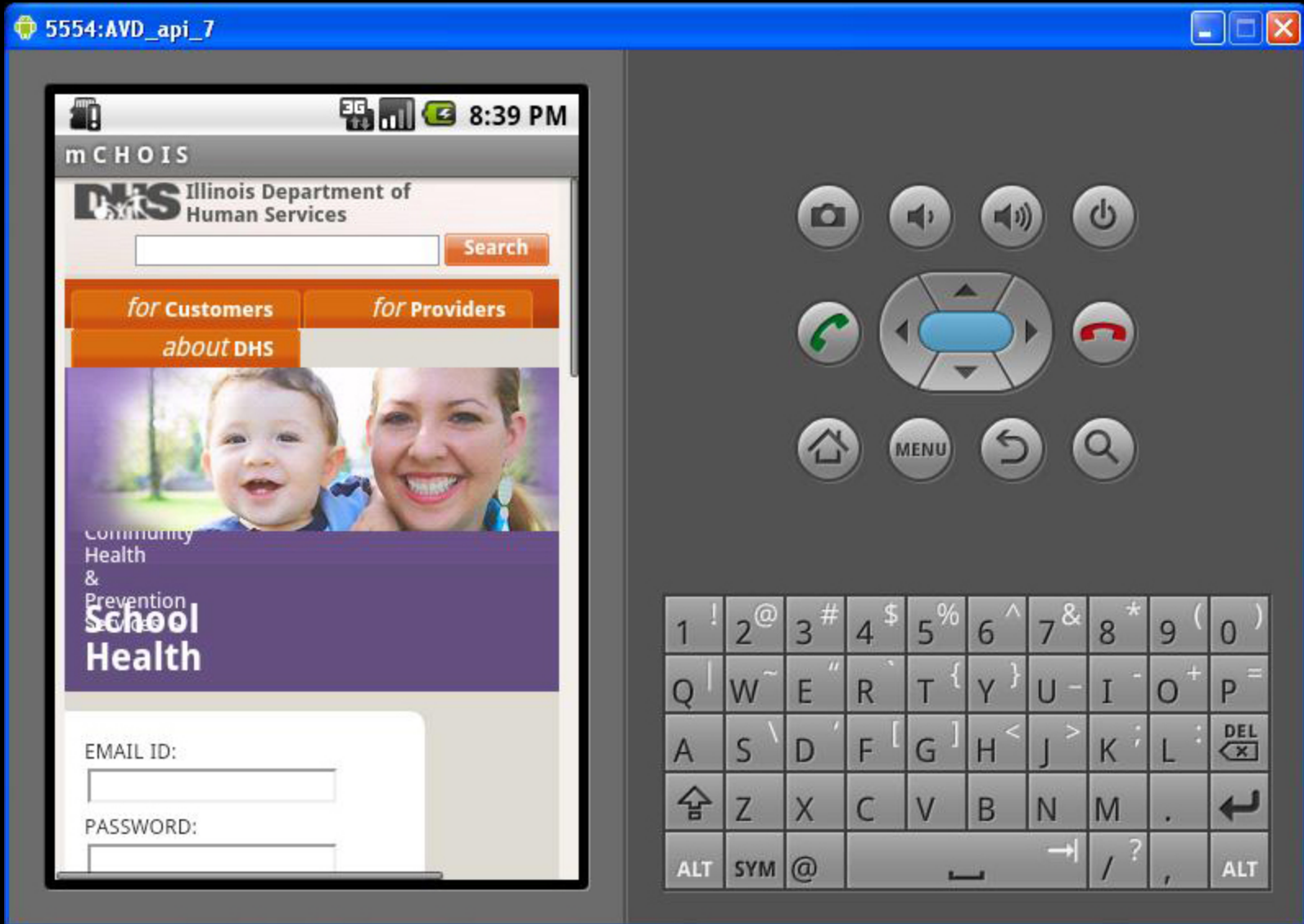
Height (inch)

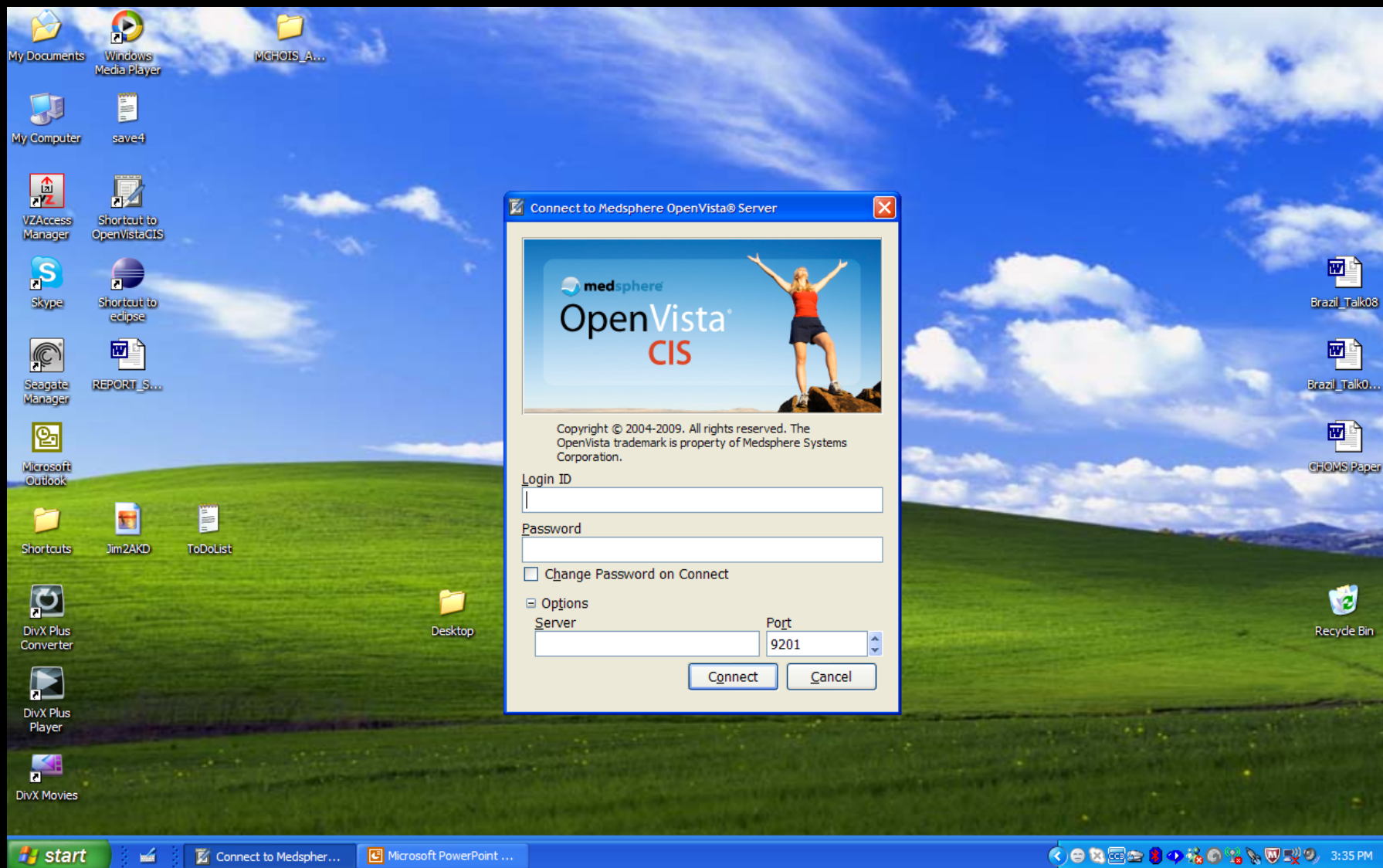
Weight (lb)

BMI









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Medsphere OpenVista® CIS [OPEN] - Connected as USER,PHYSICIAN (216.120.113.101)

File Edit View Tools Help

	PATIENT, PEDIATRIC	Wt:	GENERAL RADIOLOGY	Admitted: 9/9/2008 4:20:37 AM	Postings:	Care Team
	MRN: TST900000106 Age/Sex: 7 (Male)	Ht: BMI/BSA:	Provider: USER,PHYSICIAN Admit Dx: SKIN RASH	Acct #:	Alerts:	Admitting MD: USER,PHYSICIAN Attending MD: USER,PHYSICIAN

Active Problems No results found.	Allergies / Adverse Reactions No results found.	Patient Record Flags No results found.
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Active Medication Status No results found.	Clinical Reminders Due Date
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Recent Lab Results Date No results found.	<table border="1"> <thead> <tr> <th>Vital</th> <th>English</th> <th>Metric</th> <th>Date</th> <th>Qualifiers</th> </tr> </thead> <tbody> <tr> <td colspan="5">No results found.</td> </tr> </tbody> </table>	Vital	English	Metric	Date	Qualifiers	No results found.					<table border="1"> <thead> <tr> <th>Date</th> <th>Appt./Visit/Admission Type</th> <th>Acct #</th> </tr> </thead> <tbody> <tr> <td colspan="3">No results found.</td> </tr> </tbody> </table>	Date	Appt./Visit/Admission Type	Acct #	No results found.		
Vital	English	Metric	Date	Qualifiers														
No results found.																		
Date	Appt./Visit/Admission Type	Acct #																
No results found.																		

Patient Summary | Problem List | Medications | Orders | Clinical Notes | Consults/Procedures | Discharge Summary | Vital Signs | Lab Results | Chart Inquiries

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Thank You



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