

August Arizona BioSense Workgroup Meeting

Sara Imholte, Stanley Kotey & Krystal Collier
Electronic Disease Surveillance Program
October 6th, 2015



Health and Wellness for all Arizonans

Electronic Partners Status Update

Hospital Onboarding

Registration of Intent = 66

Hold Queue = 37

Testing = 5

Validation = 1

Production = 23

Data Use Agreements

Hospitals = 65

Local Public Health
Jurisdictions = 13

Onboarding Updates

Production

23 Facilities
in Production

Validation

Yuma Regional Medical
Center

Testing:

Banner University Medical
Center

- Banner University Medical Center-South Campus
- Banner University Medical Center-Tucson Campus

IASIS Healthcare

- Tempe St. Lukes Hospital
- St. Luke's Medical Center
- Mountain Vista Medical Center

Production Data

Local Public Health Jurisdiction	Number of Facilities Contributing Production Data
Cochise County	1
Coconino County	1
La Paz County	1
Maricopa County	12
Pima County	3
Pinal County	2
Santa Cruz County	1
Yavapai County	2
Yuma County	* DoD data only
Total # of LPHJS = 9	Total # of Facilities in Production = 23

- Arizona Data is available on the BioSense Visualization Site.

Syndromic Surveillance for Weather-Related Impacts

For more information about this presentation contact:

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Health and Wellness for all Arizonans



Photo Flickr Creative Commons:
anatomy4 dummies

ICD-10 Transition

Differences Between ICD-9-CM and ICD-10 Code Sets		
	ICD-9-CM	ICD-10 code sets
Procedures	3,824 codes	72,589 codes
Diagnosis	14,025 codes	68,069 codes
ICD-10 Code Structure Changes (selected details)		
	Old	New
Diagnosis Structure	ICD-9-CM • 3 -5 characters • First character is numeric or alpha • Characters 2-5 are numeric	ICD-10-CM • 3 -7 characters • Character 1 is alpha • Character 2 is numeric • Characters 3 – 7 can be alpha or numeric
Procedure Structure	ICD-9-CM • 3-4 characters • All characters are numeric • All codes have at least 3 characters	ICD-10-PCS • ICD-10-PCS has 7 characters • Each can be either alpha or numeric • Numbers 0-9; letters A-H, J-N, P-Z

Learn More with these tools for the ICD-10 Transition

[Master Mapping Reference Table](#)-International Society for Disease Surveillance (ISDS), Council for State and Territorial Epidemiologists (CSTE) and Centers for Disease Control and Prevention (CDC)

[ICD-10 Conversion](#)-International Society for Disease Surveillance (ISDS)

The ICD-10 [Clinical Modification \(CM\)](#) and [Procedure Coding System \(PCS\)](#) value sets- Public Health Information Network (PHIN) Vocabulary Access and Distribution System (VADS)

SAS [ICD9/ICD10 Transition Tools](#)-National Association Health Data Organizations (NAHDO)

[MapIT](#)-Agency for Healthcare Research and Quality (AHRQ) and CDC

Centers for Disease Control and Prevention (CDC) [ICD-10](#) page



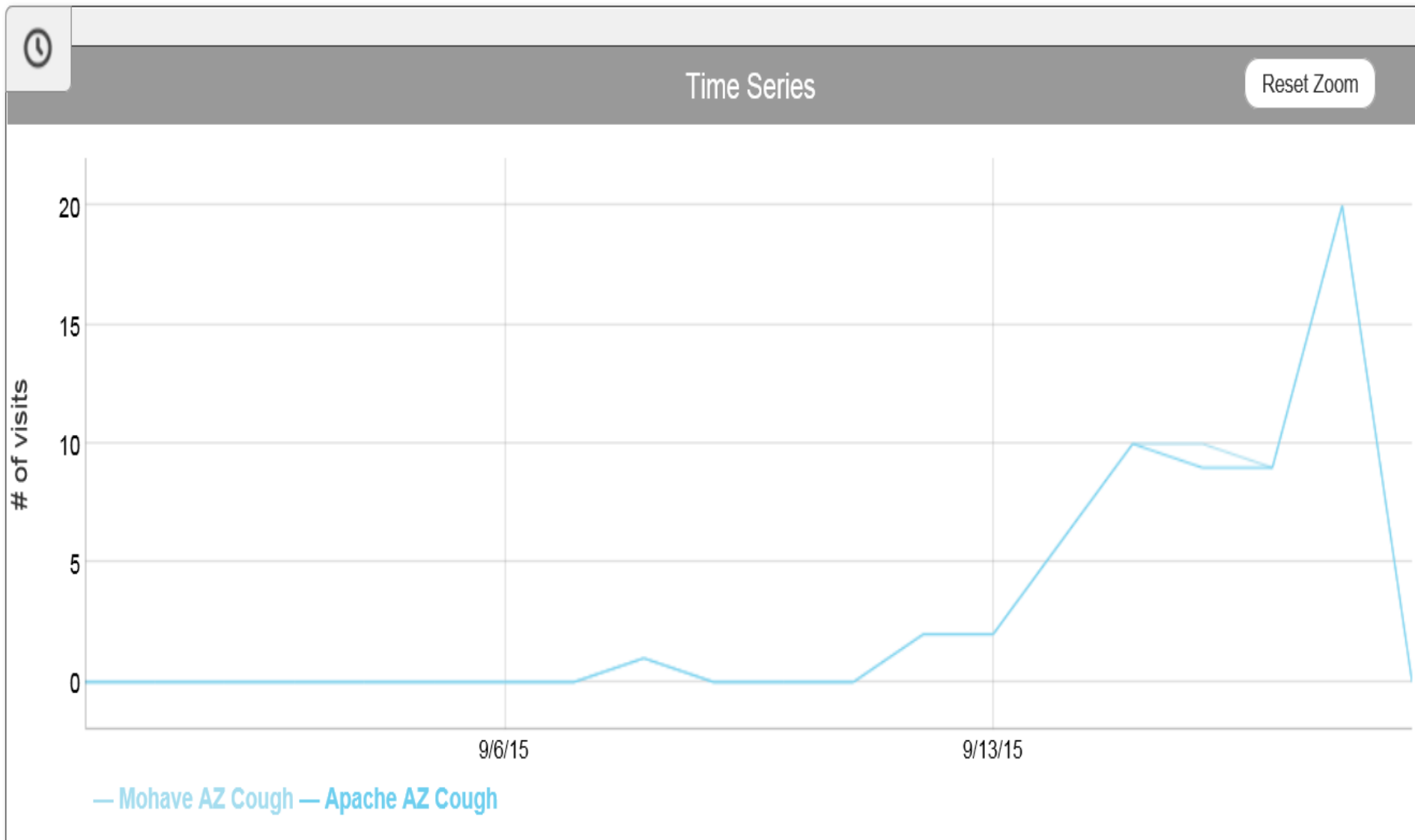
BioSense ICD-10 Testing with Banner University Medical Center



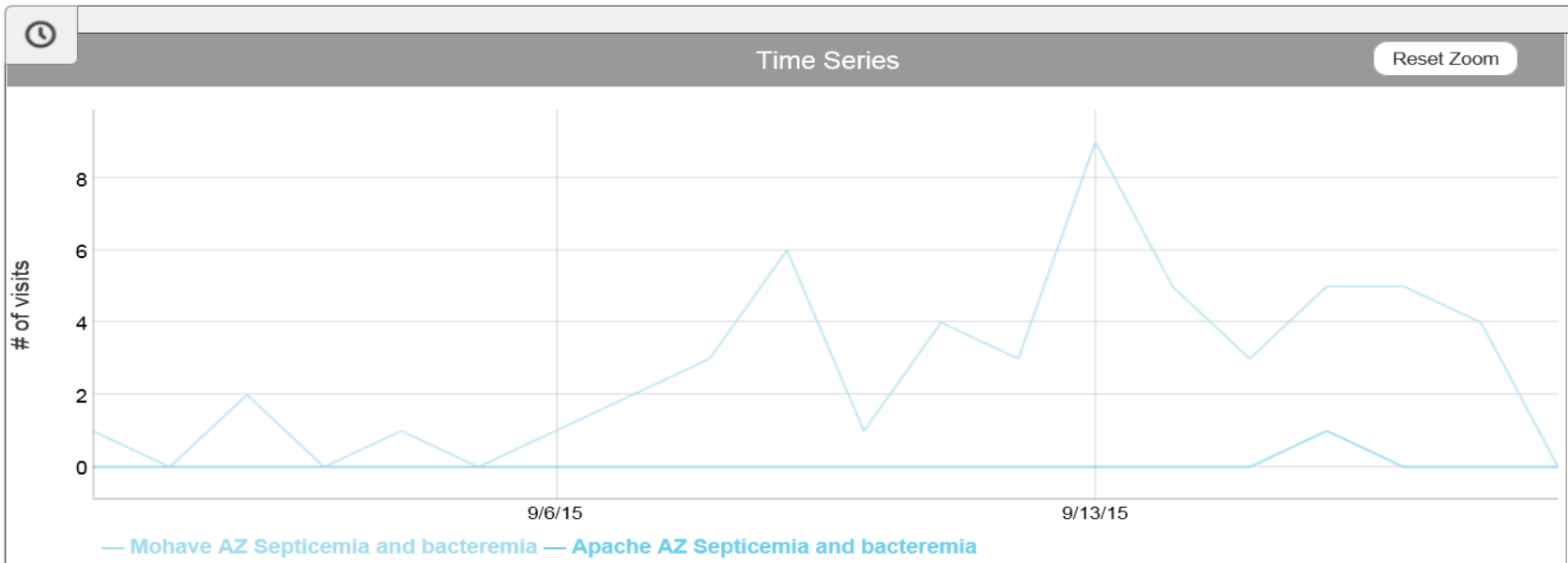
...turn his hate
...crown, but with all duteous love
...you and yours, God punish
...in those where I expect most love
...most need to employ a friend,
...sure that he is a friend,
...treacherous, and full of guile,
...This do I beg of God,
...in love to you or yours,
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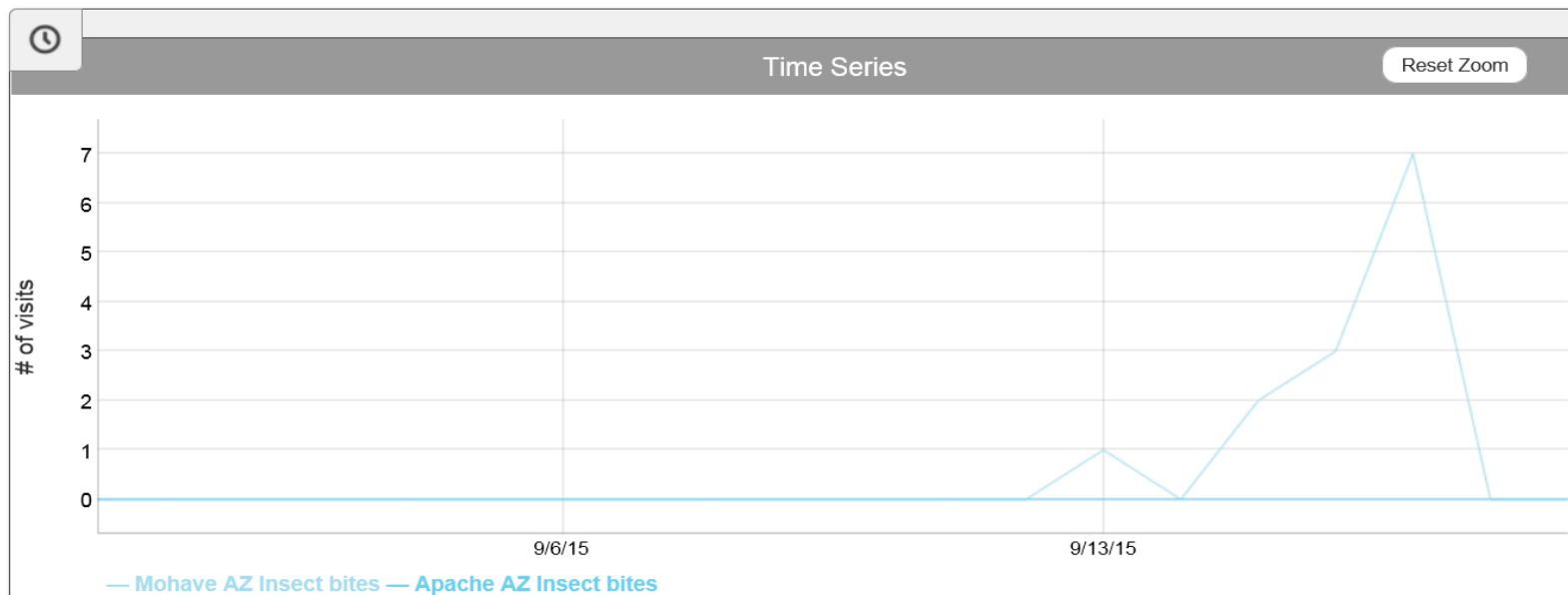
Viewing **119** visits for **1** syndrome in **2** locations from **8/31/2015 - 9/19/2015**? from **1** source for **Male, Female, and Unk**



Viewing **56** visits for **1** syndrome in **2** locations from **8/31/2015** - **9/19/2015**? from **1** source for **Male, Female, and Unknown**



Viewing **13** visits for **1** syndrome in **2** locations from **8/31/2015** - **9/19/2015**? from **1** source for **Male, Female, and Unknown**



Summary so far...

- 6,000+ messages
- 2,200+ visits
- Most syndromes viewed in the Stage front end matched quite well (have not checked them all yet).
- Areas for more investigation (ICD-9 vs. ICD-10):
 - Insect bites (13 vs. 0)
 - septicemia and bacteremia (54 vs. 1)
 - coma (14 vs. 2)
 - Alteration of consciousness (41 vs. 24), may be partially due to coma
- ILL numbers too low for good comparison (1 vs. 1)

Analysis

... there exist
 $N \in \mathbb{N}$, $\forall n > N$
For all $n, m > N$
 $|a_n - a_m| < \epsilon$
 $|a_n - a_m| < \epsilon$
 $\forall n, m > N$

BioSense Locker
Guide



Training

Tools

Reports



BioSense Visualization

Arizona BioSense Work Group Meeting

Data

BioSense Data Dictionary

SyndromicSurveillance@azdhs.gov

Syndrome Definitions

ILI

Data

Heat Related Illness

Data

Chief Complaint



Thank you!



Expand Public Health use of the System



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Commons: Cathlon

ADHS is Focused on

Onboarding



Monitoring
Data Quality

- Statewide enhanced surveillance for **arboviruses** from the database
- (2 counties so far)
- Maricopa County and Pima County

Some **routine** (weekly?) monitoring of front end?
-Maricopa

Specific **event/outbreak** monitoring of front end

- Super Bowl (database and front end)
- Measles (front end)
- Salmonella outbreak (front end)
- Heat surveillance (front end)
- others?

Is anyone producing routine or event/outbreak **reports** on BioSense data for Public Health, or public?

Exploratory Analysis Subgroup



EXPLORE
EXPLORE

- Arboviral Syndromic Surveillance Project
- Discussing future projects

Reminder for Sharing BioSense Data



Data Use Agreement (DUA) for Local Public Health Jurisdictions (LPHJs)

- Check with ADHS before using data in presentations, reports or publications

Page 5 of 9, Section 15. **Data Set Access and Use.**

15.1.2 Shared Space or Visualization Site. To facilitate the sharing of views of Data, which shall not contain PHI or IIHI, for public health and surveillance purposes. ADHS can share, at minimum, aggregate views of their Data at a level determined by ADHS. ADHS acknowledges such use, access and publication shall be between jurisdictions holding BioSense 2.0 data use agreements with ASTHO (Participating Public Health Agencies), *provided, however*, that such use, access and sharing of its Data shall be determined solely by ADHS. Selected aggregate Data in the shared space may also be available for public use and publication, but only with ADHS's knowledge of such use and publication. To the extent that ADHS does not wish to share its Data Set or have access to other Participating Public Health Agencies' Data Sets, ADHS may still access BioSense 2.0 for purposes of accessing the information technology tools and infrastructure available in BioSense 2.0

DUA for Local Public Health Jurisdictions (LPHJs)

- Purpose of monitoring and assessing public health activity
- Do not share data set with PHI outside of approved PH users

- Page 7 of 9, Section 20. **Ownership of Data.**
- **Ownership of Data.** ADHS retains ownership of any Data Sets contributed to BioSense 2.0 by Arizona Providers and is responsible for managing data sharing with Local Public Health Jurisdictions. ADHS and **{LPHJ}** may use Data contributed to BioSense 2.0 for the purpose of monitoring and assessing public health activity within its jurisdiction. No Individually Identifiable Health Information or Protected Health Information can be shared by **{LPHJ}** with outside parties without prior approval by ADHS.

USER ACCESS

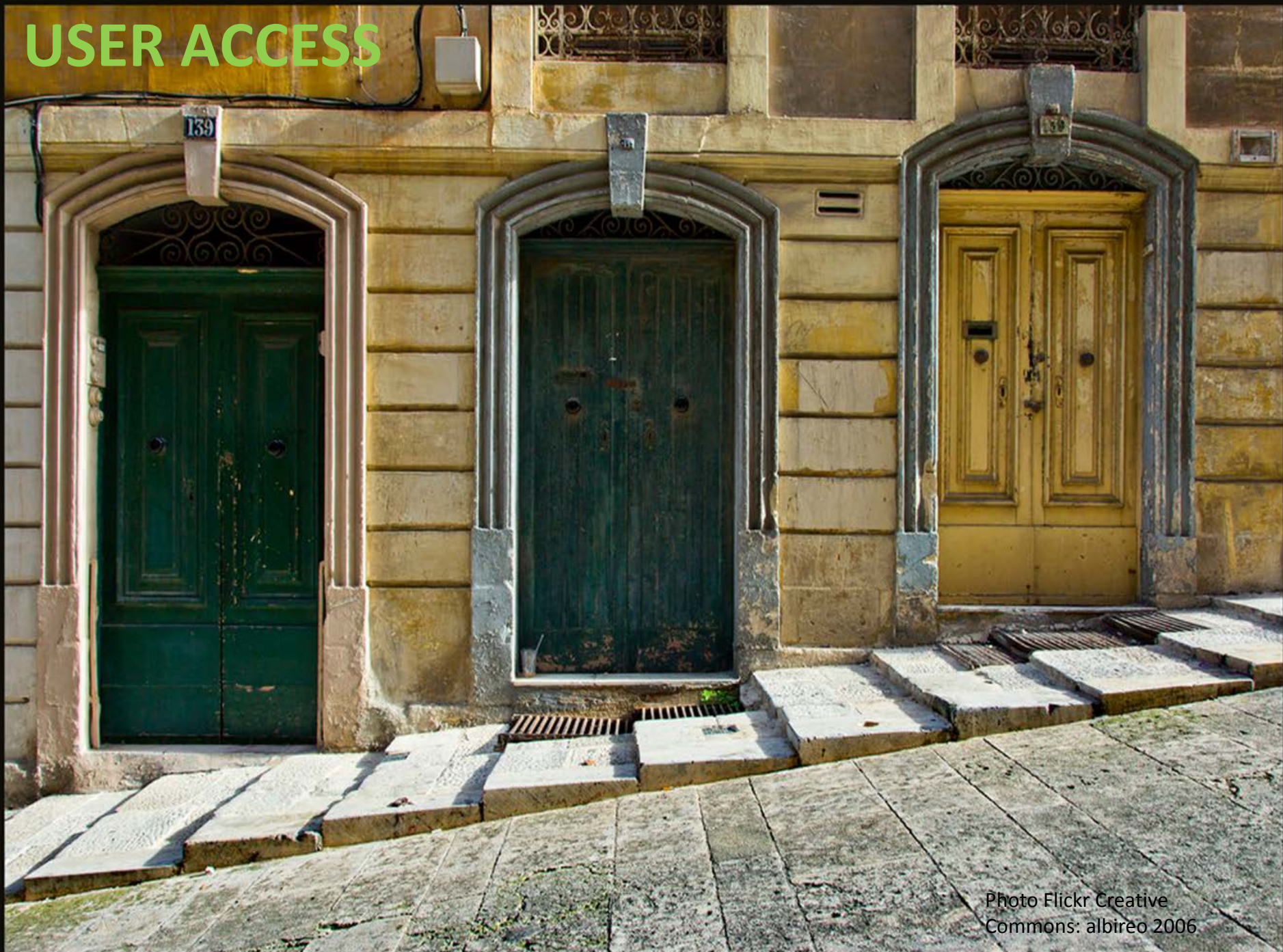
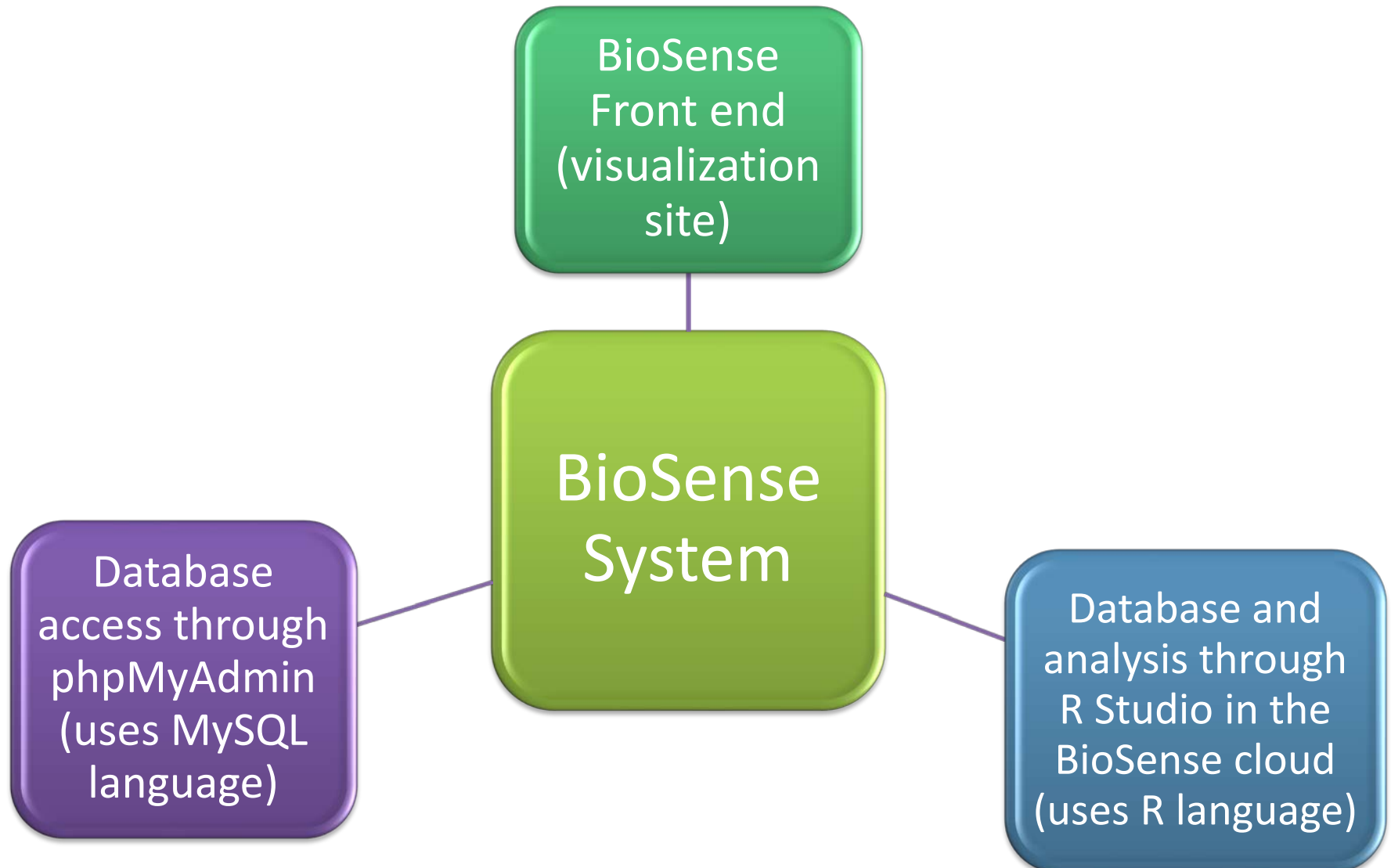


Photo Flickr Creative
Commons: albireo 2006

User Access

3 places = 3 usernames/passwords



BioSense Visualization Site/ Front End Application

BETA
BioSense 2.0



What is
BioSense?

[Register for a BioSense
account »](#)

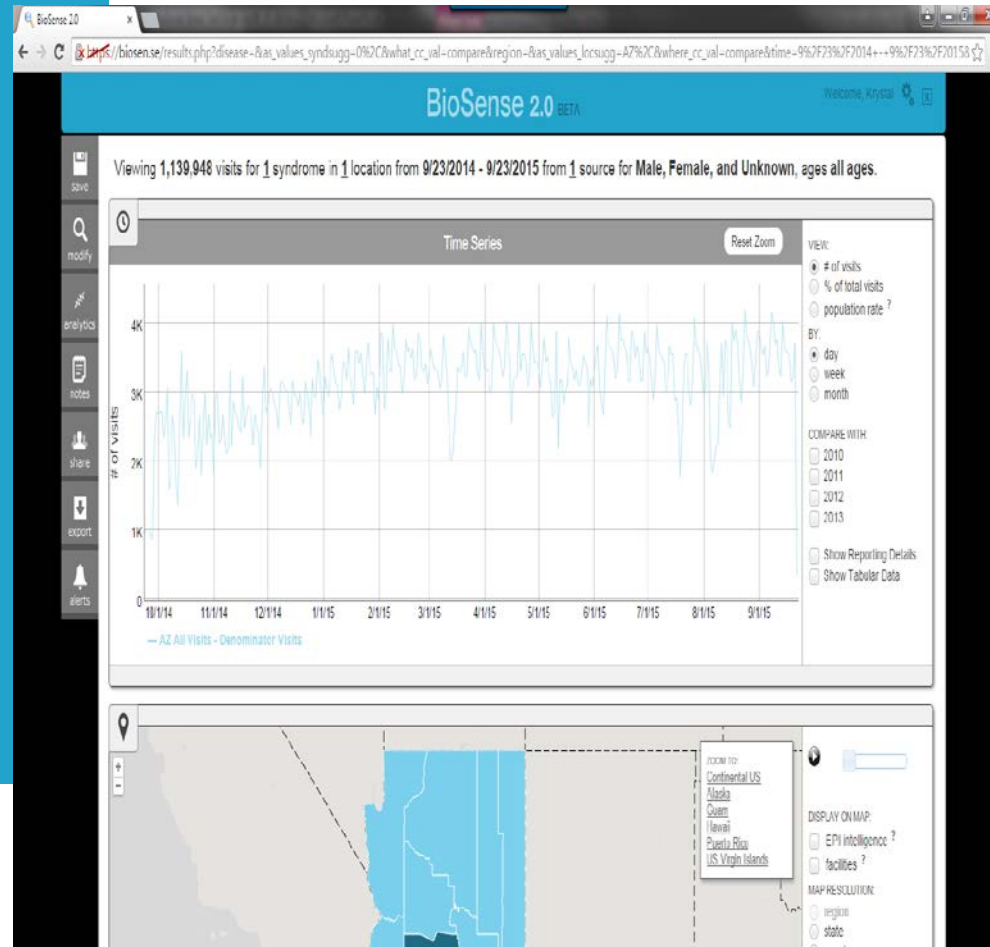
Your Email

Password

GO

[Register](#) [Forgot password](#)

By logging in, you accept the BioSense User Login Agreement



phpMyAdmin/Lockers

The image displays two screenshots of the phpMyAdmin web interface, showing the configuration and database structure for a system named 'Lockers'.

Top Screenshot: General Settings

The browser address bar shows the URL: `https://adm.biosen.se/dbadmin/index.php?server=3&token=ab39d70c96def2414b9f0cdc912d9eef`.

The interface shows the 'General Settings' page for the server 'data3.biosen.se'. The 'Current Server' is set to 'data3.biosen.se'. The 'MySQL connection collation' is set to 'utf8_general_ci'. The 'MySQL' status panel on the right displays the following information:

- Server: data3.biosen.se via TCP/
- Server version: 5.5.44-Oubuntu0.1
- Protocol version: 10
- User: skoteyAZ@adm.biosen.se
- MySQL_charset: UTF-8 Unicode

Bottom Screenshot: LockerDB Database Structure

The browser address bar shows the URL: `https://adm.biosen.se/dbadmin/index.php?db=LockerDB&server=3&token=ab39d70c96def2414b9f0cdc912d9eef`.

The interface shows the 'LockerDB' database structure page. The 'Table' column lists the following tables:

Table	Action	Rows	Type
☐ AZDOH	Browse Structure Search Insert Empty Drop	~0	View
☐ AZDOH_Exceptions	Browse Structure Search Insert Empty Drop	~0	View
☐ AZ_AZDOH_Apache	Browse Structure Search Insert Empty Drop	~0	View
☐ AZ_AZDOH_Apache_Exceptions	Browse Structure Search Insert Empty Drop	~0	View
☐ AZ_AZDOH_Cochise	Browse Structure Search Insert Empty Drop	~0	View
☐ AZ_AZDOH_Cochise_Exceptions	Browse Structure Search Insert Empty Drop	~0	View

RStudio

Sign in to RStudio

Username:

Password:

☐ Stay signed in

Sign In

The screenshot displays the RStudio web interface in a browser window. The address bar shows <https://adm.biosen.se/rstudio/>. The interface includes a menu bar (File, Edit, View, Project, Workspace, Plots, Tools, Help), a toolbar with icons for file operations and running code, and a main editor area. The editor shows an R script with the following code:

```
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259 library(RMySQL)  
260 con<-dbConnect(dbDriver("MySQL"), user="XXXXXXX", password="XXXXXXX", dbname="LockerDB", host="data3.biosen.se")  
261 queryString <- paste("select * from AZDOH where Create_date between '2015-06-01' AND '2015-07-01'", sep = "")  
262 dfDataIn<-dbGetQuery(con, queryString)  
263 head(dfDataIn)  
264 data.frame(table(dfDataIn$Create_Date,dfDataIn$Facility_Name))  
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The console shows the output of the script, including a message about the number of rows and a large matrix of data.

```
> write.csv(dfDataIn, file="Yuma9.17", row.names = FALSE)  
>  
> P<-rnorm(100, mean = 0, sd = 0.04)  
> P  
[1] 0.0289785294 -0.0370083144 0.0299247358 -0.0103458416 -0.0720946409 0.0017302060  
[7] 0.0022379321 -0.0137651791 -0.0109777640 -0.0174182958 0.0750477076 0.0038608228  
[13] -0.0150147087 0.0447570788 0.0351392225 0.0312913228 0.0212812867 0.0115339070  
[19] -0.0352675379 0.0502859938 0.0311918466 0.0171693760 -0.0478989094 0.0364669970  
[25] -0.0273446526 0.0138808204 0.0274899427 -0.0638759822 0.0005129188 0.0156723470  
[31] -0.0133706052 0.0650924243 0.0090685962 0.0615829858 0.0120897909 0.0736382659  
[37] -0.0159540492 -0.0082653716 0.0680866495 -0.0215799825 -0.0257984278 0.0048610721  
[43] 0.0026193027 -0.0376626803 -0.0296064375 -0.0244649241 -0.0331317405 0.0260213086  
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[61] 0.0180667871 -0.0539623610 -0.0095342572 -0.0282842918 0.0082863599 0.0455940911  
[67] 0.0127006082 -0.0544379169 -0.020278325 0.0323161599 0.0362122355 0.0622432991  
[73] 0.0289194585 0.0722361976 -0.0530008799 -0.0263260662 0.0137994853 0.0181800090
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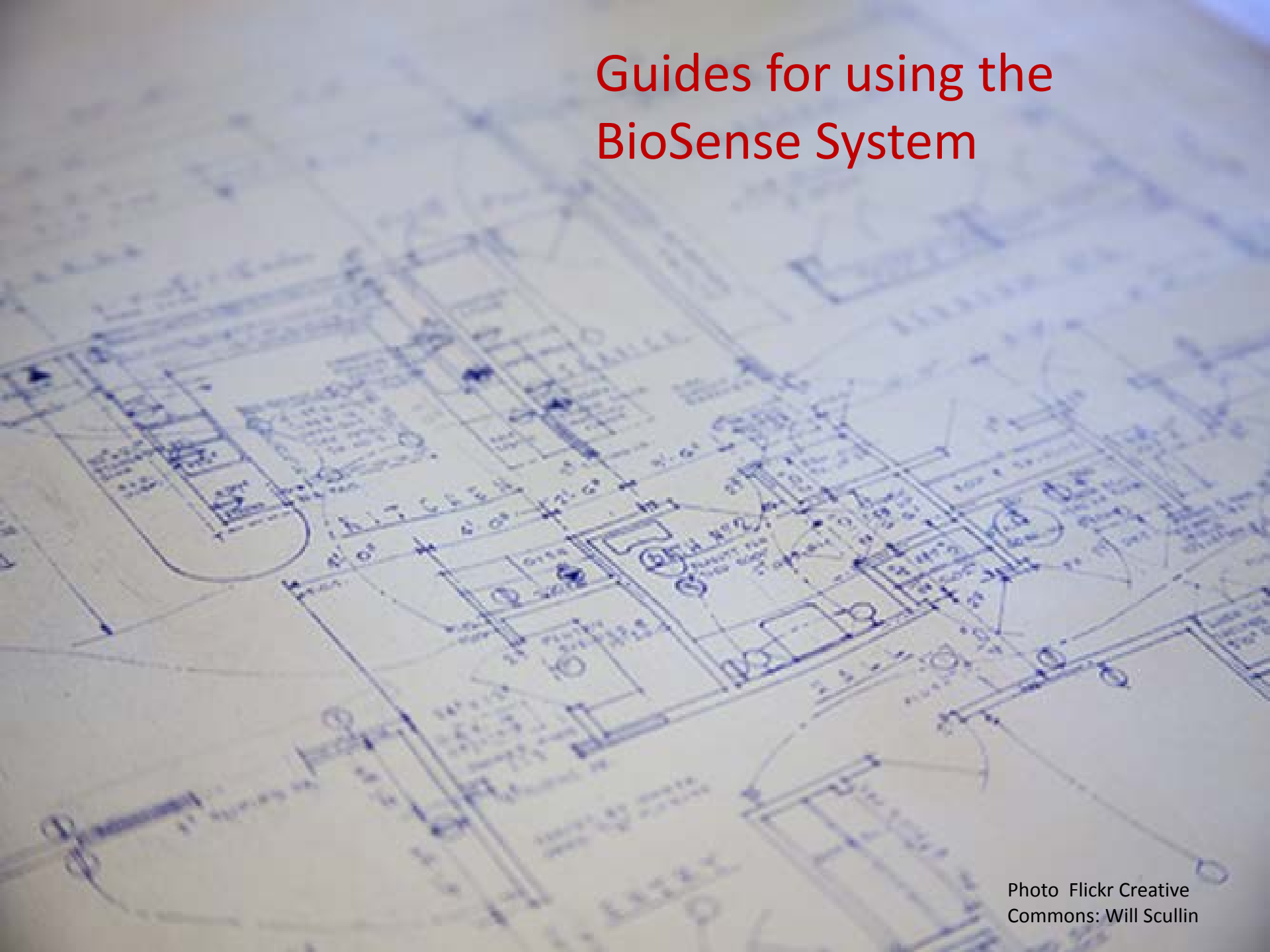
The workspace panel on the right shows the following objects:

Object	Size
dfDataIn	2470 obs. of 83 variables
dfDataInBanr	0 obs. of 83 variables
dfDataInCQn	0 obs. of 83 variables
dfDataInCarndelt	0 obs. of 83 variables
dfDataInLpz	0 obs. of 83 variables
dfDataInStJW	0 obs. of 83 variables
dfDataInTMC	0 obs. of 83 variables
dfDataInYav	0 obs. of 83 variables
dfDataInYuma	2470 obs. of 83 variables
output	53 obs. of 3 variables
sublpz	2470 obs. of 83 variables

The Files panel shows the following files:

File	Size
scrap.R	4.3 KB
DataQcks.R	37.6 KB
Yuma9.17	2.9 MB
Prod_all9.17p	253.8 MB
BanmtypesAdmit	7.7 KB
exception	2.8 KB
Datapull.R	4.7 KB
Paz_DH9.10	738.4 MB
Prod_all9.9p	225.8 MB
Drpd_Days_Beta.R	3 KB
Yuma9.3	30.4 MB
Prod_all9.2p	220.1 MB
core	2 GB
Prod_all8.27	2 GB
Prod_all8.26p	163.5 MB
TMC8.25	26.9 MB
cc	700 bytes
Yuma9.21	20.6 MB

Guides for using the BioSense System





Arizona BioSense 2.0 Visualization Guide
Version 1.1 | September 2014

Health and Wellness for all Arizonans

Created by Arizona
Syndromic
Surveillance
Program



phpMyAdmin & R Studio

Feb 23, 2015

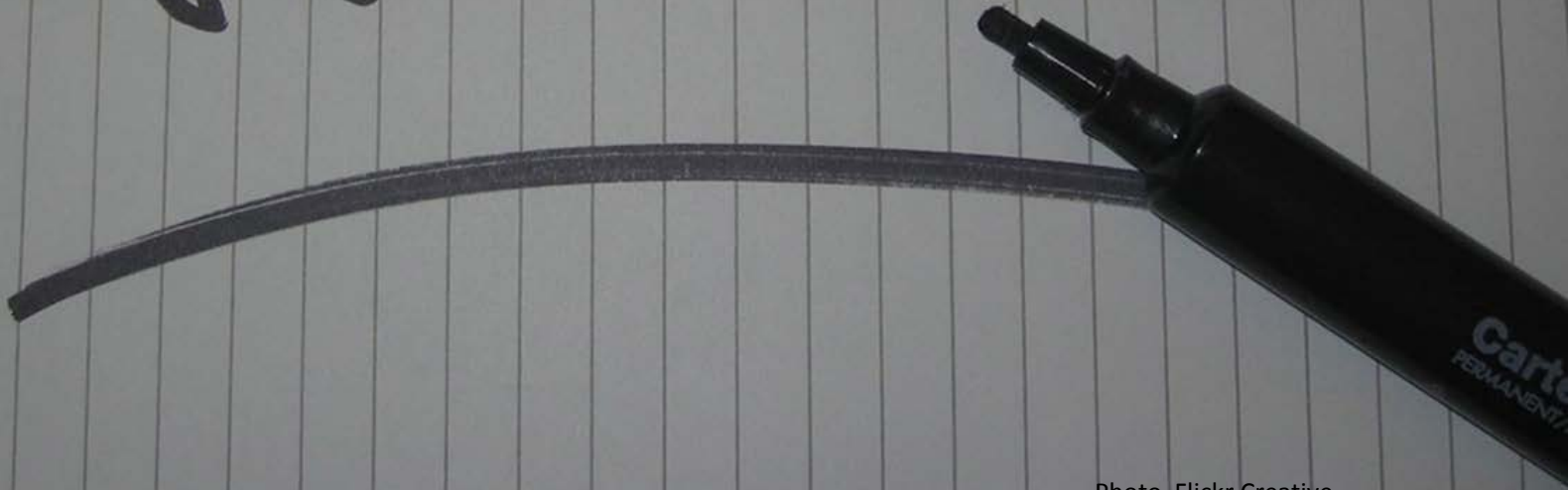


Created by National
Syndromic
Surveillance
Program

SURVEYS



Questions?



Upcoming Meetings

