

**Version**

**1**

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NEVADA OFFICE OF PUBLIC HEALTH INFORMATICS AND  
EPIDEMIOLOGY (OPHIE) TRAINING PROGRAM

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Training Course Materials



Handbook for the  
*'BioSense 2.0 Training Course'*

OPHIE TRAINING COURSE MATERIALS

# **Handbook for the *'BioSense 2.0 Training Course'***

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# Administrative Handling Instructions

1. The title of this document is:
  - a. Handbook for the *BioSense 2.0 Training Course*
2. The information gathered in this handbook is classified as “For Official Use Only”, (FOUO), and should be handled as sensitive information not to be disclosed. This document should be safeguarded, handled, transmitted, and stored in accordance with appropriate security directives. Reproduction of this document, in whole or in part, without prior approval from the Nevada Division of Public and Behavioral Health is prohibited.
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## Welcome to the Online 'BioSense 2.0 Training Course'

*This online accessible training course is intended to be done at the employee's own pace. The intent of this course is to create a common foundation of knowledge to build off of during future trainings, exercises and real-world activations of the BioSense 2.0 system.*

In this ongoing grant climate of 'do more with less', we here at the Nevada Division of Public and Behavioral Health's (DPBH), Office of Public Health Informatics and Epidemiology (OPHIE) training and exercise program, are working on ways to continue bringing you training opportunities, but with little to no travel expenses associated with those trainings.

One of the strategies we have come up with is to provide training opportunities through an online format using a internet-accessible system called **Prezi**. For those of you who have never heard of Prezi, it is basically a more dynamic version of the old standby: *Microsoft (MS) Power Point*. Rather than transitioning from slide-to-slide like we have in the past on MS Power Point; with Prezi you 'fly' through the transitions seamlessly. You'll see what I mean in a few moments.

Today's online training course should take about **45 minutes** to complete.

### System Requirements to Run Today's Training Course

**Basic Computers Will Work Fine:** The technical support team at Prezi has posted the following on their Prezi Basics web page:

*The Prezi editor runs well on most contemporary computers, even netbooks. You can easily determine if your computer meets system requirements to watch prezis by:*

1. *Checking out any prezzi from [www.Prezzi.com/explore](http://www.Prezzi.com/explore) to see if it plays back smoothly on your computer.*
2. *Checking if you can play back YouTube videos while in full screen mode when in any prezzi.*

*High End Usage: If you would like to play a very large prezzi (with many videos, animations, high resolution images, etc.), Prezzi uses Adobe Flash technology to render prezzi in real time, therefore you can create very high resolution presentations, but your playback performance will rely on the hardware. Here are some hardware recommendations:*

1. *Fast processors and lots of memory will help more than a strong graphics card.*
2. *It can help to play a prezzi through once, it will play more smoothly the second time (do not restart the prezzi).*

*Website: The [www.Prezzi.com](http://www.Prezzi.com) website supports all major modern browsers (Internet Explorer 9 and above, Mozilla Firefox 3 and above, Google Chrome, Safari) but for the best experience we recommend using the most standard compliant browsers available (Firefox 3.6+, Chrome 4+, Safari 4+). Flash version 11.1 is required.*

*Prezzi for Windows /Mac: For users who would like to access Prezzi through Microsoft Windows:*

- *2.33GHz or faster x86-compatible processor, or Intel Atom™ 1.6GHz or faster processor for netbook class devices*
- *Microsoft® Windows® XP, Windows Server 2003, Windows Server 2008, Windows Vista® Home Premium, Business, Ultimate, or Enterprise (including 64 bit editions) with Service Pack 2, Windows 7, or Windows 8 Classic*
- *512MB of RAM (1GB recommended)*

*For users who would like to access Prezzi through a Mac Operating System (OS):*

- *Intel® Core™ Duo 1.83GHz or faster processor*
- *Mac OS X v10.6, v10.7, or v10.8*
- *512 MB of RAM (1GB recommended)*

**High-Speed Internet Connection:** In order to access today's training course, you will need access to a computer with a high-speed internet connection. We realize that for many of you in our rural counties, such a connection may be an issue. So in an effort to ensure that you can at least read along with what the audio recordings for each transition, we have provided a complete transcript of what those audio recordings cover.

**Software Requirements:** In addition to this internet connection requirement, we ask that your computer also have *Windows Player* installed. This will allow your personal computer (PC) to run the audio portions of the Prezi presentation.

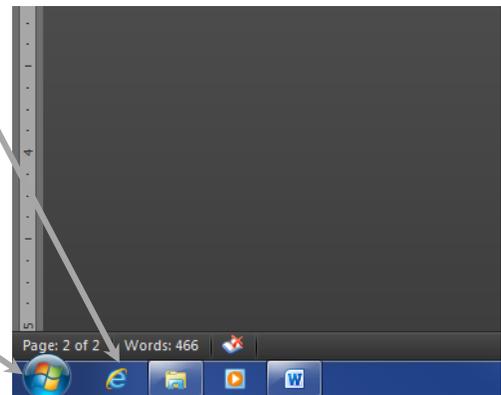
**Sound Speaker(s):** In order to listen to the presenter's recordings for each transition in today's course, please ensure that your PC has a speaker (or speakers) that are working, and as basic as this sounds: make sure the volume is turned on and up. If your system does not have a speaker, then you can follow along in this course handbook and read through each recording's content.

**How to Access, Open and Watch the Prezi Presentation:** Open the internet browser for your PC by double clicking on that browser's icon in the bottom-left corner of your screen like this:

If your computer is setup with a shortcut to your browser, like this, then click here:

If your computer does not have that shortcut, then click here:

When that opens, look for the Internet browser and double click on that.



Once your internet browser opens, you will need to copy/paste this web address into your browser. Please ensure that each letter/digit/symbol is copied into your browser; otherwise the presentation will not open for you.

By clicking on this **hyperlinked** web address below, it should automatically open the *Prezi* presentation for you. If not, then please copy and paste this web address into your PC's internet browser.

[http://prezi.com/fvaa9kdvojr9/?utm\\_campaign=share&utm\\_medium=copy](http://prezi.com/fvaa9kdvojr9/?utm_campaign=share&utm_medium=copy)

Depending on your computer and the strength of its internet connection, it may take up to a minute for the online presentation to fully load; so please be patient while the website loads the online course.

Depending on your internet connection, this presentation may take a few seconds, to a few minutes, to load; so please be patient. Once the presentation does load, you can watch the course as it displays, on a portion of your PC's screen; or, you can expand it to fill your computer's entire screen by clicking on this symbol in the bottom-right corner of your screen:



Either way you choose to watch the Prezi presentation, in full screen mode or not, you can advance the presentation at your own pace, one transition at a time, by clicking the right-arrow at the bottom-center of the screen (circled above); or you can also play this online training course like a video, by clicking this “Play” button in the bottom-left corner of the window

Note: If you opt to watch the course in the full-screen mode, the software will pop-up a question about “*Allow full screen with keyboard controls?*” Just click on the **Allow** button.

From that point on, you will watch and listen at your own pace. If you need to go back and redo a previous slide (or as Prezi calls them: Path), then simply click that left-facing arrow at the bottom-center of your screen. Adjust your PC's volume and enjoy the course!

# Full Transcript of the *'BioSense 2.0 Training Course'*

Path #1: Before we get going, please adjust your computer's volume control so you can hear the audio component of this training course. You can advance the presentation at your own pace, by clicking that right-facing arrow at the bottom of your screen, or by clicking that 'Play' button in the bottom-left corner of the screen. For anyone who is taking this course, we ask that you please complete your Pre-test before beginning this online presentation.

Path #2: Hello, and welcome to today's presentation titled: *'Nevada's Online Training Course for BioSense 2.0.'* My name is **Max Wegener**, and I work for the state's Office of Public Health Informatics and Epidemiology (OPHIE) program. I will be presenting today's material for this online-accessible training course for something called, **BioSense 2.0**. If you have been asked to take this online training course, then that means you have been pre-designated to serve as your agency's BioSense coordinator. Today's training course is intended to explain how BioSense works, and what skills you will need in order to serve as a BioSense coordinator.

Path #3: This course will be broken up into five modules, which will each look something like this. This first module will provide an overview of the system, followed by modules that will cover how jurisdictions can join BioSense 2.0, then there will be a module on how to use BioSense 2.0, followed by a module that explains the Data Use Agreement (DUA) form, and finally we will cover frequently asked questions (FAQs) in the last module.

Path #4: Alright, as promised, here in Module one. I will provide a brief overview of the BioSense 2.0 system.

Path #5: I begin with what BioSense 2.0 is.

Path #6: So what exactly is this system? BioSense 2.0 is a **syndromic surveillance system** developed by the Centers of Disease Control and Prevention which allows public health practitioners to track health problems around the United States as they evolve. BioSense 2.0 is designed to improve response coordination to emerging diseases by providing public health practitioners with improved data and information along with the appropriate tools. BioSense 2.0 is also the only system that allows public health practitioners to view what is currently happening in the country with any health condition. BioSense 2.0 officially launched in November 2011 and has

made several changes that have improved upon the previous version of the system. The new and improved BioSense 2.0 system includes data that is more collaborative which gives public health practitioners the ability to track health issues as they develop. The new system's interface resembles that of a search engine for user friendly navigation to make it both enjoyable and easy to use. Like other syndromic surveillance systems, BioSense 2.0 analyzes syndromic surveillance using a method to detect sudden changes in temporal data. This method is called the **C2 method** and is important to the data analysis of BioSense 2.0 data for calculating threshold lines.

Path #7: Ok, now that you have an idea of what the system is supposed to do, now we'll look at who participates in the system.

Path #8: As the saying goes: *a picture says a thousand words*. So to help explain this better, I have inserted this screen shot of a map provided by the U.S. Centers for Disease Control and Prevention (aka: the CDC). The map shows which states and local jurisdictions have signed a Data Use Agreement (DUA) with BioSense, are reviewing the DUA, or have not taken any action regarding BioSense and their DUA. The map also shows if a jurisdiction has completed the BioSense 2.0 cooperative agreement allowing states and local jurisdictions to share lessons learned in order to improve the system and help users with the system. Looking at the map, you can see that Nevada has a signed DUA with BioSense 2.0 along with the cooperative agreement.

Path #9: A few moments ago, when I was describing what BioSense 2.0 is, I used the term 'Syndromic Surveillance.' Here is where I will explain what that term means.

Path #10: In order to do that properly, I will explain what syndromic surveillance is within three parts.

Path #11: What is syndromic surveillance? This is a fairly new public health tool intended to increase the early detection of disease outbreaks due to either natural occurrences or bioterrorism. Syndromic surveillance has also been shown to be helpful in following outbreaks as they occur and to monitor their size, spread, and tempo. Another important aspect of syndromic surveillance is to assure both public health practitioners and the general public an outbreak has not occurred. Syndromic surveillance has the ability to monitor health outcomes in near-real time using automated electronic computer programs. Syndromic surveillance data is collected from several different sources to include data on school and work absentees, data on over the counter medications, and chief complaints from emergency rooms and other health facilities.

Path #12: What is the history of syndromic surveillance? Following the attacks on the United States in 2001, the syndromic surveillance system saw a great expansion

in their use. After the attacks, the focus of syndromic surveillance shifted from the early detection of infectious diseases to include the detection of possible terrorist related outbreaks of rare diseases such as anthrax. It is clear that the main driving force in the development of syndromic surveillance systems is the possibility of detecting terrorist threats; it can also serve in the detection of other illnesses to include seasonal diseases such as the flu.

Path #13: What is the theory of use behind syndromic surveillance? The theory behind syndromic surveillance is clear in that it aims to detect emerging infections sooner to implement timelier interventions to prevent the spread of diseases. In order for syndromic surveillance systems to detect an increase in syndromes that are higher than expected; the systems uses a number of different analytical methods. These various analytical methods are used to create threshold lines to better identify an increase in syndrome trends.

Path #14: OK, now that we have the basics down, next I will transition to something called Meaningful Use. Once again, I will break this into three components.

Path #15: We begin with: what is Meaningful Use? This is an incentives program which was conceived through the American Reinvestment and Recovery Act in 2009. The Act calls for the modernization of America's infrastructure to include public and clinical health agencies. Meaningful Use is directly supported by the Health Information Technology for Economic and Clinical Health (HITECH) Act that encourages the implementation of electronic health records. The purpose of switching the nation's healthcare infrastructure to electronic based records keeping is to increase the quality of care for Americans. The concept of Meaningful Use is rested on the "5 pillars" of health outcomes policy priorities:

1. Improving quality, safety, efficiency, and reducing health disparities
2. Engage patients and families in their health
3. Improve care coordination
4. Improve population and public health
5. Ensure adequate privacy and security protection for personal health information

Path #16: Next we have something called the stages of meaningful use. Meaningful Use spans three different stages in three different time frames. **Stage 1**, completed in 2011, encompassed data capturing and sharing to include readiness in Immunization Information Systems (IIS), Electronic Laboratory Reporting (ELR), and Syndromic Surveillance (SS). **Stage 2**, which was completed in 2013, includes advanced clinical processes and two requirements set by the Centers for Medicare and Medicaid that

states hospitals and healthcare providers must meet in order to collect incentives through the Meaningful Use program. The requirements call for health professionals to meet 17 core objectives and 3 of 6 menu objectives; then for hospitals, they must meet 16 core objectives and 3 of 6 menu objectives. **Stage 3** objectives, to be measured by 2015, will emphasize improved outcomes to make quality of care better.

Path #17: That third bullet down, asks about how BioSense 2.0 relates to meaningful use. If a state or local health department chooses to use BioSense 2.0 as the receiver for syndromic surveillance data, hospitals may send data directly to the BioSense 2.0 system. However, the data will go into a designated, jurisdiction-controlled area, where health department representatives can then determine how to share the data with the BioSense 2.0 community. In this scenario, if the data coming to the jurisdiction-controlled area meets the criteria for Meaningful Use, then the hospitals will be eligible for certification regardless of how data is shared with the larger BioSense 2.0 community. The health department will always act as the attesting body, as CDC is not currently considered an authorizing public health authority under Meaningful Use regulations for syndromic surveillance.

Path #18: Finally, I have added this part, which provides some examples of how BioSense is being used.

Path #19: That first bullet points us to the **2009/2010 H1N1 Flu Pandemic**:

- From the beginning of the H1N1 pandemic in April 2009, BioSense provided vital information from emergency departments, laboratories, and pharmacies to the CDC Emergency Operations Center, CDC's Influenza Division, as well as state and local public health departments to help them make decisions about immunization recommendations, school and public building closures, and other response steps.
- As demonstrated in the H1N1 pandemic, BioSense is currently the only source of data that can assess the severity of illness in emergency rooms.

The second bullet lists the 2010 **Deepwater Horizon** Gulf Oil Spill:

- The BioSense program worked with state and local jurisdictions in Alabama, Florida, Louisiana, Mississippi, and Texas; the Department of Veterans Affairs; and the Department of Defense to monitor 21 specific syndromes to identify potential disease outbreaks or harmful effects of exposure to oil or the chemicals used for cleanup and to monitor several mental health conditions from 86 coastal healthcare facilities. BioSense produced daily situation awareness reports for state and local responders in affected areas, which allowed responders to assure Gulf Coast residents that the immediate negative health effects from the oil spill were limited.

That third bullet lists the **2011 U.S. Heat Wave**:

- Data collected by BioSense between May and August 2011 were used to monitor levels of heat-related illness during this period. Data were shared with state health departments in parts of the country most affected by the heat wave so they could implement preventive and responsive protocols.

And finally that fourth bullet lists the **2012 Dengue Detection** Project in Florida and Hawaii

- Data from BioSense were used to enhance surveillance for dengue by identifying people presenting with dengue-like symptoms (including fever and rash) at VA facilities and referring likely cases of dengue for further investigation by local health officials in Florida and Hawaii and the CDC Dengue Branch.

Path #20: OK, that's it for Module One of today's online training. If you have any questions on what I have covered thus far, you can contact Brian Parrish directly by either phone or through e-mail. Brian's work phone number is area code (775) 684-5967, and his state e-mail address is [bparrish@health.nv.gov](mailto:bparrish@health.nv.gov).

Path #21: Building upon what I covered previously, now we transition over to Module 2.

Path #22: In this second module, we will look at how jurisdictions can join BioSense 2.0.

Path #23: We begin with this: jurisdictions may join BioSense 2.0 at no cost. Staff time will be necessary for the initial setup of BioSense 2.0 for tasks such as signing data use agreements (DUAs) and working with entities that will provide data to the system (e.g., hospitals, ambulatory care providers, etc.).

Path #24: The diagram below summarizes the general steps that jurisdictions would need to follow in order to join BioSense 2.0. Each step is described in more detail below as well. Note that the two processes can occur simultaneously. Once a jurisdiction has verbally committed to joining BioSense 2.0 and has received the model DUA, jurisdictions can begin discussions with the BioSense 2.0 team about the technical aspects of establishing a data feed into the BioSense 2.0 system as the DUA is being finalized and the level of cross-jurisdictional access is being determined.

Path #25: Tailor the Data Use Agreement:

Representatives from the Association of State and Territorial Health Officials (ASTHO) and the Council of State and Territorial Epidemiologists (CSTE) will work with each jurisdiction to tailor a DUA for BioSense 2.0. A model DUA has been

created to facilitate this process. The model DUA was developed based on input from ASTHO, CSTE, National Association of County and City Health Officials (NACCHO), International Society for Disease Surveillance (ISDS), as well as a review of experiences in Distribute, BioSense 1.0, and other data-sharing models. CDC and ASTHO signed off on the final version. Jurisdictions can customize the DUA based on their jurisdiction's laws and preferences for data submission and data sharing. The signed DUA will reflect an agreement between the jurisdiction and ASTHO, who is leading the task of procuring and overseeing the BioSense 2.0 environment in the internet cloud as well as ensuring it meets strict security, Health Insurance Portability and Accountability Act (HIPAA) compliance regulations and National Institute of Standards and Technology (NIST) requirement(s) for moderate impact information.

Path #26: Designate a User Manager and a Data Manager.

Each jurisdiction must designate a User Manager and a Data Manager. The User Manager is a designated individual from the jurisdiction who will authorize user access within the jurisdiction to BioSense 2.0. This individual is responsible for holding the jurisdiction's approved users to the terms and conditions of data use and security standards, deactivate jurisdictional users from BioSense 2.0 if authorized by the jurisdiction, and receive and relay requests or complaints regarding users within their respective jurisdiction. The Data Manager will control the level of data to be shared with other participating jurisdictions, monitor and conduct ongoing quality assurance of data feeds to BioSense 2.0, and when requested, establish and remove data sharing connections between jurisdictions. Designated User Managers and Data Managers will have access to a secure Web dashboard tool for designating access control specifications and managing the jurisdiction's user accounts. While some local public health agencies have chosen to sign their own DUA for BioSense 2.0, in other areas, local public health is choosing to contribute data to BioSense 2.0 via the umbrella of their county or state public health agency which holds a DUA for BioSense 2.0. If a DUA-holding jurisdiction plans to have any local health agencies contribute data to BioSense 2.0 under the umbrella of the jurisdiction's DUA, they have the option to manage User and Data management on their own, or delegate the Manager roles for those agencies to members of the relevant agencies.

Path #27: Determine Level of Cross-Jurisdictional Access.

Jurisdictions can elect to share views of their de-identified data with other jurisdictions at the level they choose (i.e., city, county, state, regional, or national). BioSense 2.0 is built to aggregate line listing data. It also helps make them available for jurisdictions to share in the shared space area at the level of aggregation with which a jurisdiction is comfortable sharing its information. Similarly, CDC can only view data in a

jurisdiction's environment if invited as a collaborator. CDC cannot remove or publish data without express consent and notification, as outlined in the DUA. BioSense 2.0 is designed to be a collaborative system, so the more detailed the data that are shared, the better the information within the system. We anticipate jurisdictions will elect to share aggregate syndromic data with the larger BioSense 2.0 community while working with more detailed data within their own secure area of the BioSense environment. More information about data sharing within BioSense 2.0 can be found in the Principles of Data Sharing in BioSense 2.0 document (also available on the BioSense Redesign site).

Path #28: Identify Data Sources.

If jurisdictions collect data from hospitals and health providers using their own technology, they can simply send data to BioSense 2.0 through an automated feed. For jurisdictions using BioSense 2.0 as a “catcher’s mitt” for Meaningful Use, hospitals and health providers will submit data directly to BioSense 2.0. However, the data will go into a designated, jurisdiction-controlled area, where the designated data steward can then determine how to share the data with the BioSense 2.0 community. The system can transform line-level de-identified data submitted from providers to any format that a jurisdiction wants to use. Jurisdictions may need to sign DUAs with health providers to gain access to data. BioSense 2.0 has provided a model DUA to assist with this process; however, since the agreement will exist between the jurisdiction and the data provider, BioSense 2.0 will not be directly involved in this process. Jurisdictions will be responsible for coordinating and managing relationships directly with their data providers. The November 2011 rollout of BioSense 2.0 addressed only line listing submission of data from providers or health departments, but in the future the BioSense 2.0 development team hopes to accommodate submissions of aggregate-level data from health departments. In addition, during the initial rollout, the focus will be to ensure that jurisdictions using BioSense 2.0 as a Meaningful Use “catcher’s mitt” will be able to receive data elements outlined in the CDC and ISDS Recommendation for Core Processes and EHR Requirements for Public Health Syndromic Surveillance. The development team will begin to evaluate additional data feeds to integrate in future versions of the system this year.

Path #29: Identify Data Transmission Methods.

The BioSense team will work with each jurisdiction to determine the most appropriate data transmission method. BioSense 2.0 was designed to use low-cost, standardized, and widely available technologies to support syndromic surveillance data sharing and analysis. BioSense 2.0 bridges features such as automated feeds from partners/users that flow into secure space through universal data transport tools like

secure FTP and secure HTTP. Other transport mechanisms will be supported as needed, such as NHIN Direct and CONNECT, PHIN MS, or across a VPN. The BioSense team is also working with electronic health records (EHR) vendors to share information openly so vendors can integrate reporting capabilities into their offerings.

Path # 30: Test and Verify the Data Feed.

Once data sources and transmission method have been identified and agreed upon, the BioSense team will assist the jurisdiction to:

1. Securely connect their system to the BioSense environment,
2. Test the data feed to ensure that the transmission mechanism is working properly,
3. Verify that the correct data are being transmitted, and
4. Answer any technical questions related to managing the data feed.

Note: Test data can be utilized for testing and verification purposes.

Path #31: Ok, once your jurisdiction gets through all of those steps, then the jurisdiction feed is available. Once the DUA has been finalized and signed and the BioSense team has successfully tested the data feed, the jurisdiction's data steward will be notified that their data feed is available in BioSense 2.0. BioSense 2.0 will provide tools to enable jurisdictions to easily determine which data sources are contributing to their daily data feed. A data dashboard will be available to those jurisdictions using BioSense 2.0 as a "catcher's mitt" for Meaningful Use. For jurisdictions collecting data directly from hospitals and health providers using their own technology, similar analytics tools will be provided, based on the data feed provided by the jurisdiction. The system will indicate what sources are supplying data, how many records they are transmitting, and recent activity. Jurisdictions will be able to set custom alerts, such as "notify me if no data are transmitted from this provider for 24 hours." However, in all cases, jurisdiction officials will manage the relationships directly with their providers. While BioSense 2.0 will provide useful IT tools, coordinating with data providers and responding to notifications will be the jurisdiction's responsibility.

Path #32: OK, that's it for Module Two of today's online training. If you have any questions on what I have covered thus far, you can contact Brian Parrish directly by phone or e-mail. Again, his work phone number is area code (775) 684-5967, and his state e-mail address is [bparrish@health.nv.gov](mailto:bparrish@health.nv.gov).

Path #33: Now that your jurisdiction is a user of the system, now we will go into the step-by-step processes on how to use the system.

Path #34: This module is the core of today's training, so please pay particular attention to the details that I will be going over in this third module.

Path #35: As with any online accessible system, we'll begin with user registration, and how to create a login.

Path #36: First you will need to go to this website: <https://biosen.se/> and click the "Register" link. Once you arrive at that screen, next you will need to fill in appropriate fields in the Register page.

Path #37: Once you've got all of that information entered, then you will need to click the check box stating "I have read, and I accept, the terms of the BioSense User Login Agreement". After that, click the "Go" button on the bottom of the screen and go back to the login page at <https://biosen.se/login.php>

Path #38: Once you are at the login page, enter the email address you used to register with BioSense 2.0 and enter the password you created for the system. Then click the "Go" button.

Path #39: Once you have your registration completed and you have logged in, then you will need to understand how the 'Search Page' is used.

Path #40: In the box to the far LEFT titled "Disease Syndrome", the user can type in a syndrome they would like to investigate.

Path #41: Once the user sees the syndrome of interest, they can click on it and it will be selected. The user can also type and select other syndromes and they will see options appear that ask if the user wants to combine the syndromes or compare them.

Path #42: To see what syndromes are available to search in the system, the user can click the little question mark next to the word "What" and then click "Syndromes".

Path #43: Once on this page, the user can search chief complaints, diagnostic terms, and ICD-9 codes that accompany each available search term. A quick tip to search faster is to use the "CTRL-F" function on the keyboard to search the page faster. It is also important to note that ICD-9 codes are sometimes available to more than one syndrome and some ICD-9 codes are misrepresented on purpose to account for human error when inputting codes into the system.

Path #44: Next, we will need to look for that box in the center titled "Region, State, County" under the heading "Where."

Path #45: The user can type in the location they want to use to investigate the syndrome chosen earlier. Once the user sees their location, they can click on it and it will be selected. If the user chooses more than one location, they will have the option

to combine the locations or compare them. Please note that for now, the BioSense 2.0 system will only allow users to search by county, state, region, or national levels.

Path #46: In that box off to the right, in the box titled “Time Period” under the heading “When”; the user can choose a time frame by clicking the box.

Path #47: The time frames that can be chosen are a week, a month, or a year from the current date. If the user does not want to choose the predetermined length of time, they can choose specific dates they want to use to investigate the syndrome(s) of interest. To make choosing a time frame easier, the BioSense 2.0 systems gives the user a calendar to choose a specific date or day of the week they want to start and end their inquiry.

Path #48: Clicking the “Advanced Options” button below the “Time Period” box (as indicated by that **green arrow** I’ve added), allows the user to choose various sources of data, filter the search queries by different demographics (Gender and Age Range only), and choose different analytic methods to create threshold lines (to be explained later). To clear all three inquiry boxes (What, Where, and When), the user can simply click the “Clear Search” button located to the left of the “Advanced Options” button.

Path #49: After clicking the “Go” button the BioSense 2.0 output screen will appear.

Path #50: The Output Page is one of the key features that you will be using with this system.

Path #51: After coming to the BioSense 2.0 output page, the first option the user has is to choose how they want to view the output data. The user has three options in which they can change their view located on the upper right side of the output screen: how the visits are represented, a time distribution of the visits, and if they want to compare the current data to past data.

Path #52: The visits can be presented by number of visits in the specified time frame, the percent of all visits for a specific syndrome and time frame, and the population rate represented per one million. The time distribution option gives the user the ability to see the distribution of a syndrome either per day, week, or month. Next, the “Compare With” option gives the user the ability to compare currently viewed data to past data. It’s important to note that data will only go as far back as the amount of historical data available for the specified syndrome. Some syndromes have more historic data available which means they can go back in time further than others.

Path #53: The next option is the show reporting details selection. Once this is selected a graph will appear which shows the user how many hospitals reported to BioSense for a specific date. The final option is the “Show Tabular Data” Selection.

Selecting this option gives the user the ability to compare the distribution of the variables available (sex, age group, geographic unit, and data sources) with each other for the time periods selected and historically using the previous year. These can be done using the univariate 1-D or 2-D in the selection box titled “Type”. The bivariate option allows the user to combine two variables and combine their distribution that way.

Path #54: The next option is the show reporting details selection. Once this is selected a graph will appear which shows the user how many hospitals reported to BioSense for a specific date.

Path #55: The final option is the “Show Tabular Data” Selection. Selecting this option gives the user the ability to compare the distribution of the variables available (sex, age group, geographic unit, and data sources) with each other for the time periods selected and historically using the previous year. These can be done using the univariate 1-D or 2-D in the selection box titled “Type”. The bivariate option allows the user to combine two variables and combine their distribution that way.

Path #56: The next option the user has is to save their search. After clicking the “Save” tab on the left side of the screen, the user can give the search inquiry a name and brief description. The user can also choose if they want to save the inquiry as a specific snapshot in time or as a progressing inquiry. The time range is based on the previous search page’s “Time Period” box. If the user wants to have a week, month, or yearlong snap shot or progression from current date, the user can do this by choosing one of the three predetermined date options. It is important to note that in order to perform other tasks within the output page (Notes, Share, Export, and Alerts only), the search must be saved first.

Path #57: The third option the user has is to modify their search. After clicking the “Modify” tab on the left side of the screen, the user will see the “Modify this View” window. The new window will look similar to the “Advanced Options” window from the previous Search Page. The modify option will allow the user to add or change a syndrome, add or change the location of where they want to search, change the time frame of the search, change the sources of data used, and change the demographic data used to refine the search.

Path #58: The user can choose from various gap days, shifts, and baseline days to refine their threshold line. By default, the gap days option is set at 2, the shift at 3.9, and baseline days at 28 days. For information on these values click the question mark next to the “Method” section and a document explaining the statistic and its values will appear in a new window. The fourth option the user has on the output page is to choose the type of analysis they want to use to interpret the data. The “Analytics” tab on the left side of the page will allow the user to choose a statistic to use to create

threshold lines. The threshold line will be created once the user clicks the “on/off” slider button.

Path #59: To create threshold lines, the user must select “% of total visits” and “By Day” in the different view options on the right side.

Path #60: The next option on the output page the user can use is located in the “Notes” tab on the left side of the screen. This option allows the user to add any notes they want concerning the data presented in the output page. Once the user types their note in the text box in the “Notes” window, they can click the “Save” button to keep it. After saving their note, the user has three additional options to choose from.

Path #61: The first option is to add an additional note going through the steps mentioned above. The next option is editing their note by click the icon that resembles an eye (see **green arrow**). After clicking the icon, a text box will appear and the user can edit the note anyway they want. After the user is done editing their note, they can simply click the “Save” button below the text box to keep their updated note. The last option the user has is to delete a note they have typed. To do this, the user needs to just click the “X” icon located next to the “Eye” icon mentioned previously (see that **red arrow**).

Path #62: Another option the user can use is the “Share” function located on the left side of the output screen. This function gives the user the option to share the saved output page with any notes written and analytics applied with either the user’s current organization or every person who has access to BioSense 2.0. Other choices in the “Share” option include the subject of the shared information and an optional message.

Path #63: Another option the user is able to choose is the “Export” option that allows the user to save an inquiry on their computer or print it. After the user clicks the “Export” tab on the left side of the screen, a window will appear titled “Export this View”. The user can then add a title to the file they want to export and choose the file type they want to use. After the user has chosen a file name and file type, they can click the export button where they will have the option to open or save the document. It is important to note that the only file type currently available to export is a PDF. BioSense 2.0 has stated that there will be more file types available in the future.

Path #64: The alerts option is another the user is able to choose that allows the BioSense 2.0 system to update the user on anomalies that take place concerning the syndrome or group of syndromes chosen. After clicking the “Alert” tab on the left side of the screen, the user is presented with two alert options. The first alert option looks at the number or percent of visits for patients seeking care for the chosen syndrome(s) (see **green arrow**). After the user chooses either the number of visits or

percent of visits from the drop down box, the user can then choose a time frame in which the system can look from the next drop down box (see yellow arrow). The next thing the user can do to complete the first alert option is type a value in the box next to the word “Exceeds” (see grey arrow). This allows the BioSense 2.0 system to notify the user once the syndrome of interest exceeds a predetermined value set by the user. The next alert option uses the information from the “Analytics” tab on the left side of the output screen. It is important to note that in order to use this alert option, the analytics option must be turned on. With this option, the alerts are triggered in BioSense 2.0 when the percent of total visits exceed the threshold line set for the specified syndrome (see red arrow).

Path #65: The display options on the lower right side of the screen next to the map display are the last of the options the user can choose from. Within the display options, there are four areas in which the user can modify the output screen. The first area the user can use to manipulate the map is the time lapse function. Pressing the small play button to the right of the map allows the user to see the change in syndrome numbers/percentages over a specified time frame. The time frame for this option can be controlled in the search page of BioSense 2.0 in the “Time Period” box where the user can choose either to see a time lapse from the past week, month, or year. The user can also choose their time frame by typing two dates in the box or using the calendar function. The user can do the same thing in the output screen by clicking the “Modify” tab on the left side of the output screen and selecting “When” and follow the same steps as above.

Path #66: The next area the user can use are the two options under the “Display on Map” section. The first option is the “EPI Intelligence” button where pins are dropped on the entire map of the United States once the button is selected.

Path #67: The user can select a pin by clicking on it; a text box will appear containing links to websites outside of the BioSense 2.0 system. These helpful links offer the user news updates on public health issues occurring in the area the pin is in and around the country.

Path #68: The next option is the “Facilities” option where pins are dropped in the specified area which the user chooses in either the search page’s “Region, State, County” box or under the “Where” option in the “Modify” tab in the output screen.

Path #69: The pins will show the reporting facilities in the area of inquiry; by clicking on the pin it will show the name of the facility.

Path #70: The third area the user can use is the “Map Resolution” section which allows the user to manipulate the map so that it will show specific areas of interest.

Path #71: When the entire country is selected for inquiry, the user has the option to choose if they want to see the map regionally by clicking the region button or per-state by selecting the state button. By looking at the map regionally, the user can see how many visits each region has for a specific syndrome or group of syndromes in the chosen timeframe by moving their cursor over a defined region on the map. The user will see the number of visits for each individual state for a syndrome or group of syndromes in a specific timeframe when they select the state button and move their cursor over a state on the map.

Path #72: When a state is selected for inquiry, the user has the option to look at the number of visits for a specific syndrome or group of syndromes in a given time period for the whole state by selecting the state button.

Path #73: Here are examples of when the state view option is selected. The screen shot on the left shows when a state is selected for inquiry and the state view option is also selected. The screen shot on the right shows when the entire country is selected for inquiry and the state view option is selected.

Path #74: To look at the number of visits for each county, the user can select the county button.

Path #75: With this option, the user can view the number of visits per county in the state. To look at each county's number, the user can simply move the cursor above the county of interest and a dialogue box will appear showing the information for the syndrome selected.

Path #76: The last area the user can use to manipulate the map is located under the two options "Poly Color" and "Water Color" on the lower right side of the screen.

Path #77: The "Poly Color" option gives the user a choice between five different color schemes they want represented on their maps. The color schemes include blue, orange, muted green, green, and gold.

Path #78: The "Water Color" option gives the user a choice between five different colors to make the water on the map.

Path #79: The five colors are grey, light blue, white, dark blue, and black.

Path #80: That was a lot of information to cover, and is a big part of what you'll be using the BioSense 2.0 system for. As always: if you have any questions on what I've covered thus far, please contact Brian Parrish using the information that I provided previously.

Path #81: On to Module Four, and the Data Use Agreements or DUAs for short.

Path #82: This screen shot shows the first page of the DUA. Where the **green** arrow is pointing, the facility will put their name. Where the **orange** arrow is pointing, the facility will fill in their address.

Path #83: Now on to the next page facilities are required to fill out, Page 9.

Path #84: The **green** arrow indicates where providers are to put the following information, line-by-line:

- The name of who signed the DUA
- The person's title
- The facility's name
- The facility's mailing address
- The facility's city, state, and zip code
- And the person's email address.

This information seems repetitive but is useful to us when we are trying to send information to a facility or get a hold of the facility's point-of-contact.

Path #85: This screen shot shows the last page of the DUA. The green arrows all point to areas that are required for the facility to fill out. On the line next to "By", is where the individual who is filing the DUA out signs the document and; they then put the date of the signature on the line next to the word "Date". The individual is then required to print their name and title on line next to the words "Name" and "Title" respectively.

Path #86: That's it for DUAs, if you have any questions, please contact Brain Parrish.

Path #87: Well that covers the key learning objectives for today's online training course. Now I will go through frequently asked questions or FAQs for short.

Path #88: This list of FAQs is not exhaustive, so if you have a questions, and don't see that question in this module, fell free to contact Brian directly and he will answer your questions promptly.

Path #89: We'll begin with the basics, and go through some general questions first.

Path #90: In an effort to keep this online course under an hour, I will introduce the key questions in this presentation; but will answer them in detail in your course handbook. That way you can skip straight to the questions that concern you the most, and not get tied up with those questions you have no concern with.

**Q1: What will the new system do? What will it be like?**

A1: BioSense 2.0 will provide a simple, easy-to-use Web-based tool that health officials can use to monitor or assess syndromic activity within and beyond their jurisdictions. Health data within BioSense will be visualized at a basic, qualitative epidemiological level (i.e., person, place, and time), and authorized users will be able to access these analyses through a search engine-like interface. While the redesigned BioSense is meant to merely supplement current syndromic surveillance capabilities and not replace them, and since future development will be community-driven, commonly used systems (e.g. ESSENCE), may be incorporated into the BioSense platform based on the needs of the community.

**Q2: What will be the governance for BioSense 2.0?**

A2: The users will preside over BioSense 2.0 using a representative governance model. During FY 2012, in addition to managing the new system, ASTHO will develop a BioSense 2.0 Charter in collaboration with Council of State and Territorial Epidemiologists (CSTE), National Association of County and City Health Officials (NACCHO), and International Society for Disease Surveillance (ISDS). The Charter will specify the authorities and policies of an elected BioSense governance body. At a minimum, stakeholders will be able to comment on early iterations of this charter through the BioSense Redesign Collaboration Web Site.

**Q3: How will BioSense 2.0 add value to the work of my health department?**

A3: Initially, BioSense 2.0 will provide four main benefits to health departments, including:

1. Greater capacity for data management and storage;
2. Cost savings on information technology and infrastructure;
3. Greater and more timely access to regional and national public health surveillance information; and
4. Greater access to peers for sharing knowledge and best practices.

The BioSense 2.0 will have a menu of services with tremendous capacity to receive, process, and store data. Moreover, it's entirely possible to participate even if you do not use BioSense 2.0 for primary data collection from Meaningful Use clinical providers. BioSense 2.0 can also serve as your agency's "catcher's mitt" for the volume of new health data incentivized under CMS's Meaningful Use programs, thereby saving your agency from purchasing and maintaining additional servers or other infrastructure required for managing an increased data volume. Once in the BioSense 2.0 environment, your agency can choose to share your jurisdiction's aggregate or

record-level data with other local, state, or federal health officials, thereby enhancing situation awareness for public health response.

As a network of surveillance peers sharing analyses and data, we believe that BioSense 2.0 will become a focal point for professional development and peer-to-peer learning. This flexible and scalable system will likely provide many other benefits as it evolves to better meet users' needs.

**Q4: Why should we invest in syndromic surveillance when we don't have evidence that it works?**

A4: Actually, significant evidence shows that syndromic surveillance does work, both within peer-reviewed literature and as evidenced by its widespread adoption among local and state health authorities. Like any surveillance methodology, syndrome-based surveillance supports situational awareness and public health response in concert with many other information sources (see references below). It serves as an additional public health surveillance tool, with limitations that must be considered when interpreting its findings.

**Q5: Is BioSense 2.0 going to help us be more prepared? Has there ever been a big outbreak that BioSense or another syndromic surveillance system detected before an astute clinician?**

A5: BioSense 2.0 will enhance situation awareness through greater epidemiological capability. Although state-of-the-art functions and tools will be provided in the new BioSense environment, technology alone is not enough. Data quality, data representativeness, and epidemiological competencies are critical factors that will determine the sensitivity and specificity of BioSense 2.0. Although the original goal of syndromic surveillance was rapid outbreak detection, most public health professionals now find this surveillance approach provides considerable value for situation awareness, or monitoring and projecting changes in population health (see references below). During the 2009 influenza pandemic, the Distribute project (<http://idsdistribute.org>), in collaboration with BioSense, rapidly connected existing syndromic surveillance systems across the United States to provide near real-time coverage of over 40% of emergency department visits in the country. State and local public health departments used the Distribute system to understand the progression of disease in neighboring regions, while CDC used the system to provide a timely regional or national picture.

**Q6: How will CDC use the data we contribute to BioSense 2.0?**

A6: The Centers for Disease Control and Prevention is a large organization of centers that focus on understanding and preventing infectious, chronic, workplace, and

environmental diseases and injuries. Each center will benefit from more timely and representative population health information. At a minimum, CDC will use BioSense 2.0 data help guide regional or national policy and program management decisions. Sharing BioSense 2.0 data with CDC will in no way change the collaborative relationship CDC maintains with states, wherein state and local jurisdictions speak for their population's status of health. Jurisdictions will ultimately have control of what data are shared with partners, including CDC. CDC will use the information to help provide regional or national picture for all-hazards. Under the new arrangement, CDC is one of several participants in the governance of BioSense 2.0.

Path #91: Next we get into some of the FAQs we hear about joining BioSense and Meaningful Use.

Path #92: The detailed answers to these types of questions can be found in your course handbook.

**Q1: How does BioSense 2.0 support government-led health IT efforts (and Meaningful Use requirements)?**

A1: BioSense 2.0 can serve as your agency's "catcher's mitt" for the volume of new health data under CMS's Meaningful Use programs, thereby saving your agency from purchasing and maintaining additional servers or other infrastructure required for managing an increased data volume. (Also, eligible providers (EDs or outpatient) can be incentivized and vendors can be certified when sending to this state-controlled environment—so it's a win-win.)

**Q2: I need to send a letter to providers in my state regarding Meaningful Use, and we are not currently ready to receive data. I want to join BioSense 2.0 so my state doesn't lose the opportunity to receive Meaningful Use data (providers "opt out"). What exactly do I need to tell my providers now?**

A2: Please tell your providers to begin the onboarding process and let them know they have been placed in the onboarding queue. Your agency will be able to use the new BioSense environment after you complete the onboarding process.

**Q3: Do hospitals still send data directly to BioSense 2.0? If so, does BioSense 2.0 directly approve Meaningful Use?**

A3: If a state health department chooses to use BioSense 2.0 as the receiver for syndromic surveillance data, hospitals may send data directly to the BioSense system. However, the data will go into a designated, state-controlled area, where health department representatives can then determine how to share the data with the BioSense 2.0 community. In this scenario, if the data coming to the state-controlled

area meet the criteria for Meaningful Use, then the hospitals will be eligible for certification, regardless of how data are shared with the larger BioSense 2.0 community.

**Q4: How can BioSense 2.0 help hospital providers meet Meaningful Use for syndromic surveillance?**

A4: BioSense 2.0 can help eligible hospitals meet Meaningful Use for syndromic surveillance in two ways. First, with ISDS, the BioSense 2.0 team has developed syndromic surveillance technical standards and specifications. Eligible hospitals can learn what public health jurisdictions need from emergency departments and how these data are used in the ISDS Final Recommendation, Core Processes and EHR Requirements for Public Health Syndromic Surveillance. A Public Health Informatics Network messaging guide based on this Recommendation is also in development and will be finalized soon. Second, in November 2011, state or local public health authorities will be able to designate BioSense 2.0 as their proxy for receiving syndromic surveillance test messages. Details about this program will be available from CDC later this fall.

**Q5: How much will the new system cost my state or locality?**

A5: Jurisdictions may join BioSense 2.0 at no cost. Staff time will be necessary for the initial setup of BioSense 2.0 for tasks such as signing data use agreements and working with entities that will provide data to the system (e.g., hospitals, ambulatory care providers, etc.).

**Q6: I have heard that CDC will offer Challenge Grants to facilitate BioSense 2.0 adoption. What is the timeline and requirements for these grants?**

A6: The challenge grant program is under development. We welcome any ideas you have about this program. Please contact Annette Casoglos ([acasoglos@rti.org](mailto:acasoglos@rti.org)) with your challenge grant ideas or questions. These grants will be awarded in early 2012; please come back to the site for more information.

If you would like to receive information updates on the challenge grants or other BioSense 2.0 activities, please send an e-mail to [info@biosen.se](mailto:info@biosen.se) and include your name.

Path #93: Now I will go through FAQs related to the cloud, security and data issues.

Path #94: Once again the detailed answers to these types of questions can be found in your course handbook.

**Q1: I don't know much about cloud computing, and will need to answer questions from policymakers about data security, cost, etc. Where can I find more information about it that non-informaticians will understand?**

A1: Cloud computing represents a new model for the outdated model of IT infrastructure. Under the cloud model, BioSense 2.0 will have a separate collection of servers via shared hosting providers that provide scalable, pay-per-use services at low cost. With this service model, we can avoid the expense of purchasing computer and network hardware, which must be physically housed and secured, powered, and cooled, all while rapidly becoming obsolete. By outsourcing these operations to the cloud provider, we share costs with thousands of other customers, take advantage of economies of scale, and save money. While private and confidential data are housed by the provider, professional cloud providers are very serious about protecting their customers' data. With proper security practices, cloud hosting is just as secure, and can be more secure, than traditional self-run IT operations. In order to ensure security, ASTHO screened Amazon Web Services using strict security criteria meeting the concerns of federal, state, and local stakeholders.

**Q2: How will we know our data are secure and private? Where is our data going?**

A2: Your data, along with all data from the other BioSense 2.0 participants, will be housed on servers in a secure data center facility operated by Amazon Web Services. Maintaining the security and privacy of these data is a central component of the BioSense 2.0 IT strategy. We are employing industry-standard, state-of-the-art technologies and practices to ensure that only authorized users can access the system. We are also implementing access control tools for data providers, so that you can specify who within the community can access your data, and under what conditions. Lastly, as the system evolves, we will periodically engage outside security consultants to perform security audits and testing.

**Q3: If a copy of my state's data is downloaded to CDC for analysis, it could be subject to FOIA requests. This will be problematic for policymakers in my state. Will CDC be able to do analyses with data in the cloud without downloading it?**

Q3: With the BioSense representative governance model, users can define how and what type of access CDC will have to analyze and receive data. All data/information that external organizations provide to CDC or other federal agencies, are subject to the Freedom of Information Act (FOIA) requirements. Data shared with CDC for analysis using BioSense 2.0 are no exception. Jurisdictions will ultimately have control of what data are shared with partners including CDC, and should always consider

FOIA and open records laws when they determine what and how much data they share.

**Q4: Does anyone have master access to see all data in the system?**

A4: The BioSense 2.0 systems administrators, working on behalf of ASTHO and the BioSense 2.0 governance body, will require master access to all data in the system to perform maintenance and troubleshooting and provide support to all BioSense 2.0 users. However, access will be limited to a small group of users, experienced in managing personal health information, and will not include CDC personnel as system administrators.

**Q5: What will be the process to grant or revoke access to my data?**

A5: Each jurisdiction will designate a point of contact, such as a state epidemiologist, who authorizes access to and the level of data to be shared. Your designated point of contact will have access to a secure Web dashboard tool for designating access control specifications.

Path #95: OK, now we'll move on to technical issues.

Path #96: As always, you can find the detailed answer to these types of questions in your course handbook.

**Q1: We have too many passwords to remember for multiple surveillance systems. Can the new system be a dashboard that will include multiple surveillance systems so that we only need one password?**

A1: Our development team is evaluating the integration of other surveillance analysis systems to determine the suitability and compatibility within the new BioSense environment. We hope to offer some streamlined access to other utilities for data analysis and visualization.

We are working on a solution to ensure that a single sign- on allows access to all cloud-based tools.

**Q2: Will additional CDC surveillance systems be included in the new system, like notifiable disease reporting?**

A2: The BioSense 2.0 is designed to be extensible, to grow in order to incorporate additional data feeds that would support the requirements of the system beyond syndromic surveillance. We are focused on syndromic surveillance for the initial release in November 2011. After that date, the BioSense Redesign team and the

governance body will continue to work with the public health community to improve the system to meet users' needs.

**Q3: In what format should data be sent to BioSense 2.0?**

A3: Our development team is currently evaluating a variety of messaging options (i.e., PHINMS, secure FTP, and Direct/Connect), that will be supported in the BioSense 2.0 environment. Our goal is to make the provision of data as easy as possible for contributors to the system, so we expect to be able to accept a variety of data formats from simple to complex. If a state or local health department collects data from hospitals and health providers using their own technology, they can simply send data to BioSense 2.0 through an automated feed. For states using BioSense 2.0 as a “catcher’s mitt” for Meaningful Use, hospitals and health providers will submit data directly to BioSense 2.0 (into their own private secure area in the environment), which is controlled by a health department representative. Please view “What special hardware/software will our hospitals need to transmit the data to the new BioSense?” for additional information.

**Q4: How will other data streams be handled, such as school absentee data, pharmacy data, foodborne outbreaks, etc.?**

A4: In order to be “open for business” by November 2011, the BioSense 2.0 development team is focusing first on establishing data feeds from current contributors to the new environment, and ensuring that new jurisdictions using BioSense 2.0 as a Meaningful Use “catcher’s mitt” will be able to receive data elements, outlined in the ISDS Recommendation for Core Processes and EHR Requirements for Public Health Syndromic Surveillance. The development team will begin to evaluate additional data feeds to integrate in future versions of the system in 2012. If you have any specific suggestions, please submit your feedback to [info@biosen.se](mailto:info@biosen.se).

**Q5: Can we get census data included?**

A5: We intend to include census data, to some extent. We're focused right now on being up and running with the 32 Meaningful Use [or ED data] data elements by November 2011. Our development team will begin to evaluate addition data feeds to integrate in future versions of the system in early 2012. If you have any specific suggestions, please send your feedback to [info@biosen.se](mailto:info@biosen.se).

**Q6: The VA and DoD contributed the majority of data for the original BioSense, how will these data sources be integrated into BioSense 2.0?**

A6: We are currently working with DoD and VA to ensure a seamless transition of feeds into the new BioSense environment in line with our November 2011 release date.

**Q7: Are there any limitations to the type and/or level of data that my jurisdiction provides to BioSense 2.0?**

A7: The type and detail of the data used in the shared BioSense 2.0 Web application is specified by the jurisdiction. The new BioSense application is designed to be a collaborative system, so the more detailed the data that are shared, the better the information within the system. The system will be able to send and accept both record-level and aggregate data. Users will be able to select an option to store and analyze data locally or sharing data with the larger BioSense 2.0 community. We anticipate jurisdictions will elect to share syndromic data within the community members they authorize while working with more detailed data within their own secure area of the BioSense environment.

**Q8: How will the system adapt to ongoing technological changes as well as work to shape them?**

A8: The initial launch of the BioSense 2.0 system in November 2011 represents an early release of the system. The BioSense 2.0 development team is focusing first on establishing data feeds from current contributors to the new environment, and ensuring that new jurisdictions using BioSense 2.0 as a Meaningful Use “catcher’s mitt” will be able to receive data elements, outlined in the ISDS Recommendation for Core Processes and EHR Requirements for Public Health Syndromic Surveillance. Our design and development team will continue upgrading and enhancing the application throughout the life of the project. Our intent is to continue working with end-users to update the system to reflect new potential uses, respond to user needs as they emerge, and adapt to an evolving technical landscape, going forward.

**Q9: How do we establish data use agreements (DUAs) to participate in BioSense 2.0?**

A9: CSTE will have a DUA template that your jurisdiction can tailor to your individual policies and practices. This DUA is established between the environment and your individual jurisdiction.

If you would like additional guidance for your individual jurisdiction, please send an e-mail to [info@biosen.se](mailto:info@biosen.se).

Path #97: Now we will look at Functioning of the BioSense Application and Program.

Path #98: Detailed Answers are once again listed in your course handbook.

**Q1: How can BioSense 2.0 provide a complete public health surveillance picture with incomplete data?**

A1: Like all information systems, BioSense 2.0 analyses and maps are only as good as the data entered into the system. Any interpretation of prediagnostic data (syndromic data) should be done with the strengths and limitations of the data streams and the surrounding context in mind. Part of the value of BioSense 2.0 is the ability to share data and insights among jurisdictions, so the more state and local health departments that share data, the better the coverage and resulting analysis, or "picture" will be. Likewise, the utility of BioSense 2.0 will increase with the number and distribution of hospitals providing data.

**Q2: Why is there so much focus on including SAS with the new application?**

A2: Many health department staff prefer to use SAS to analyze data, but its cost can be prohibitive. SAS is only one package being considered as an offering with BioSense. Users will be able to export data from BioSense 2.0 into their preferred data analysis program.

**Q3: What happens if BioSense 2.0 makes a mistake and you issue a false alert?**

A3: The BioSense 2.0 application is intended primarily as a situational awareness tool. While the system will allow for automated, customized alerting based on specific criteria, these alerts will serve as an entry point into the system for expert analysts. Analysts can then use BioSense 2.0 tools to examine the data with varying methodologies, create reports, and gain an overall situational awareness picture.

**Q4: What happens if the BioSense system goes down?**

A4: As part the BioSense 2.0 cloud deployment, we are working to create a highly reliable system. Failures of individual system components are inevitable over time, but we have designed the architecture with redundancies and backups in place. When something goes wrong, we plan to be able to either restore service rapidly (for example, within 20 minutes) or even adapt automatically and sustain normal service without any interruption. As part of the process of bringing individual data providers on board, we will discuss different failure scenarios and put in place measures to adapt accordingly. As with any IT system, we expect some amount of downtime or service interruption, both planned and unplanned. However, in the event of a public health situation, where the system is likely to see a spike in utilization and any downtime is undesirable, with our cloud-based hosting, we can allocate more resources instantly to increase both performance and redundancy.

**Q5: Who can help us if we have a problem with BioSense 2.0?**

A5: Problems related to using and analyzing data in the BioSense environment should be directed to Tonya Farris, a member of the RTI BioSense Redesign team. She will work with you to pinpoint your specific needs and provide you with the resources to address your issue or problem (e: [tfarris@rti.org](mailto:tfarris@rti.org) ; p: 202-974-7823).

Technical problems related to the application itself can be directed to Adam Vincent, also a member of the RTI BioSense Redesign team. He will be working closely with information technical specialist at ASTHO to manage and resolve technical problems and questions (e: [psoper@rti.org](mailto:psoper@rti.org); p: 781-370-4009).

**Q6: Will BioSense 2.0 help me easily determine which hospitals are contributing to my daily data pool?**

A6: Yes, a data dashboard will be part of the “catcher’s mitt” for those health departments who elect to participate. For health departments collecting data themselves directly from their hospitals, we will provide similar analytics tools, based on the data feed provided by the department. The system will indicate what sources are supplying data, how many records they are transmitting, and recent activity. You will be able to set custom alerts, such as “notify me if no data are transmitted from this provider for 24 hours.” However, in all cases, health department officials will manage the relationships directly with their providers. While we hope to provide useful IT tools, coordinating with data providers and responding to notifications will be the health department’s responsibility.

**Q7: What are some of the bells and whistles that make BioSense's 2.0 data visualization capabilities different from other systems?**

- Easy-to-use interactive mapping and time series visualization tools.
- At-a-glance dashboard functionality allows you to rapidly check your stats daily; rich visualization, sharing, discussion, and export tools allow you to take a deeper dive.
- Animated views showing how syndromic activity changes over time

Path #99: Here is when we'll cover data providers.

Path #100: Answers are to be found in your course handbook.

**Q1: What special hardware/software will our hospitals need to transmit the data to the new BioSense?**

A1: The BioSense 2.0 team is working to reduce or eliminate the need for any special hardware or software requirements for hospitals and health departments. BioSense 2.0 is designed to make it easy for hospitals and health departments to share data. State health departments can direct their hospitals to report data directly to them so that the state/local health department can pre-process (filter, de-identify, etc.) the data and then forward data to the BioSense 2.0 environment. Or they can direct their hospitals to send data directly to the secure space they own in the BioSense 2.0 environment where they will be labeled as state-owned data until the jurisdiction decides how much and what type of data to share. A number of transport mechanisms are supported within the BioSense 2.0 environment. Data can be sent using PHINMS, Secure HTTP, SFTP, or across a VPN. Other transport mechanisms will be supported as needed. The BioSense team is also working with EHR vendors to openly share information so that EHR vendors can integrate reporting capabilities into their offerings.

Path #101: And for anything we may have missed, I am adding this “Other” category.

Path #102: Finally, as you know by now, answers are in your course handbook.

**Q1: Have the cost estimates of the cloud done by CDC assumed space and processing time only for the current rendition of the Redesigned BioSense? If we're able to get a more robust system like ESSENCE in the cloud, will the costs become prohibitive?**

A1: The current cloud cost estimates are designed with significant room for expansion beyond the initial implementation of BioSense 2.0 in November 2011. The cloud hosting solution will offer cost-effective infrastructure that will support very high user adoption and heavy traffic for the BioSense 2.0 system. The BioSense 2.0 governance team is working with ESSENCE representatives to discuss the details of deploying ESSENCE in the cloud environment. Additional details regarding the service and resource requirements will be shared as they become available.

**Q2: What happens if states/locals go to the cloud to take advantage of the potential financial savings by not having to maintain their own systems, and CDC decides not to fund the local system any longer? Or asks states to pay into the cloud? Doesn't this mean potentially same or higher costs with less control of data/system? Is this sustainable?**

A2: CDC is committed to supporting the nation's public health surveillance infrastructure, and believes that state and local health departments are the foundation of that infrastructure. While every effort will be made to maintain financial support for the distributed data model for public health surveillance, it is impossible to predict future budgets or the future cost to maintain the BioSense 2.0 cloud environment. At

this time, the cloud environment is the most cost-effective solution, but technology changes rapidly. With the BioSense 2.0 representative governance model, users will be able to determine how the cloud is funded and whether or not to accept federal support if it is available. Users will also be able to migrate to a different solution if more cost-effective technology becomes available.

Centers of Disease Control and Prevention. (2013). BioSense FAQs. BioSense 2.0, Retrieved from <https://sites.google.com/site/biosenseredesign/biosense-faqs>

Path #103: That's it for the fifth and final module for today's online training course. Now we'll go through a course wrap-up.

Path #104: OK, we covered a lot of ground in today's course, and I'm sure that some of you may have some questions.

Path #105: For those of you who may have any questions, I have listed Brian Parrish's contact information here for you. Please don't hesitate to reach out and contact him if you have any questions or concerns with the BioSense 2.0 system.

Path #106: On behalf of our Division Administrator, Richard Whitley, and our Chief Medical Officer, Dr. Tracey Green; I would like to thank each of you for participating in Nevada's BioSense 2.0 program.

Path #107: That is the end of today's online training course. Each of you will need to go into the course handbook and complete the **Post-test** for today's training. Please scan or fax your Pre-test and your Post-test to the state OPHIE program at (775) 684-5999. Once your tests are graded, and you pass, the state OPHIE program will send you a course certificate via e-mail. Thank you for taking the **"BioSense 2.0"** training course! If you have any feedback on the content and/or the format to this course, please fax those comments to the state OPHIE program at 775-684-5999.

## **Pre-Test to the** ***'BioSense 2.0 Training Course'***

Prior to viewing today's online training course, please take a few moments to fill out this pre-test of 20 equally weighted questions. At the completion of today's training course you will be taking a post-test. Once the Pre-test and the Post-Test are completed, we ask that you please fax them to the State OPHIE program at **775-684-5999**. Please write **ATTN: State OPHIE BioSense Systems Administrator** on the fax cover page.

Please fill out this information so we know who completed this test:

<b>First Name:</b>	
<b>Last Name:</b>	
<b>Telephone Number:</b>	(      )
<b>E-mail Address:</b>	

1. What prompted the expansion of syndromic surveillance?
  - A. H1N1 pandemic in 2009
  - B. US Wave in 2010
  - C. New regulations from the Affordable Care Act
  - D. The 2001 terrorist attacks
  
2. Which demographic information can you filter a search query in BioSense 2.0?
  - A. Gender
  - B. Age
  - C. Ethnicity
  - D. A and B
  - E. None of the above

3. Which option allows you to see news updates on various areas of the map?
  - A. Facilities option
  - B. Epi Intelligence option
  - C. Share Information option
  - D. Helpful Links option
  
4. How much does it cost for a jurisdiction to join BioSense 2.0?
  - A. No cost at all
  - B. A yearly fee of \$200
  - C. A monthly fee of \$200
  - D. One-time fee of \$200 per user per jurisdiction
  
5. When did BioSense 2.0 officially launch?
  - A. May 2009
  - B. November 2011
  - C. March 2010
  - D. June 2012
  
6. What is the “Eye” icon used for in the “Notes” section of the output page?
  - A. Sharing the note
  - B. Deleting the note
  - C. Saving the note
  - D. Editing the note
  
7. To access the BioSense 2.0 system, which of these web addresses must you use?
  - A. <http://www.biosense.com>
  - B. <https://www.biosense.gov>
  - C. <http://www.biosense.org>
  - D. <http://www.biosen.se>
  
8. Once you arrive at the website, what is the first thing you are recommended to do?
  - A. Click the Register link
  - B. Click the Login link
  - C. Click the Go button
  - D. Click the Accept button
  
9. The C2 method is the only analytic method available for BioSense 2.0?

- A. True
  - B. False
10. In the general steps jurisdiction follow to join BioSense 2.0, which is the fourth step?
- A. Identify Data Sources
  - B. Test and Verify the Data Feed
  - C. Tailor Data Use Agreement
  - D. Designate User/Security and Data Managers
11. How many colors schemes are available to you on BioSense 2.0?
- A. 3
  - B. 4
  - C. 5
  - D. 6
12. The overall goal of syndromic surveillance is to what?
- A. Detect emerging infections sooner
  - B. Allow for timelier interventions
  - C. To prevent the spread of disease
  - D. All of the above
13. Which of the following best describes Nevada?
- A. Nevada has an established DUA
  - B. Nevada has an established cooperative agreement
  - C. Both A and B
  - D. None of the above
14. You can only create alerts based on the percent of a syndromes per day?
- A. True
  - B. False
15. What is the data manager's primary duty?
- A. Designates individuals from jurisdiction as user of the system
  - B. Deactivate users from BioSense 2.0
  - C. Answer system specific technical questions
  - D. Conduct quality assurance of data

16. Who is to sign the last page of the DUA?
  - A. The person filling out the DUA
  - B. The Data manager only
  - C. The CEO only
  - D. A representative from the jurisdiction
  
17. What is one thing syndromic surveillance used for?
  - A. Assure the public an outbreak has not yet occurred
  - B. Predicting weather patterns
  - C. Help law enforcement conduct criminal investigations
  - D. Both A and C
  
18. Clicking the question mark (?) next the word “What” on the search page provides you a link to which of the following:
  - A. History of BioSense 2.0
  - B. Background information on BioSense 2.0
  - C. Syndromes available in BioSense 2.0
  - D. Where the data from BioSense 2.0 is coming from
  
19. In order to create a threshold line in BioSense 2.0, you have to select the “By Day” option and “Number of Visits.”
  - A. True
  - B. False
  
20. The BioSense model DUA was developed with input from the following organizations EXCEPT:
  - A. ISDS
  - B. CSTE
  - C. ASTHO
  - D. FDA
  - E. NACCHO

## **Post-Test to the** ***'BioSense 2.0 Training Course'***

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<b>Telephone Number:</b>	(     )
<b>E-mail Address:</b>	
<b>License Type (with state) and License Number</b>	
<b>Date:</b>	

**Note:** Each of these questions are weighted equally, and are worth five points each. In order to receive the CEU credit for completing this course, you can score no less than a minimum of 70% on this Post-test. To meet this minimum score, you can miss no more than six questions.

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