

BioSense Platform Administration Tool

Requirements Discussion

Michael A. Coletta, MPH

Max Worlund, MA

October 22, 2015

Center for Surveillance, Epidemiology and Laboratory Services

Division of Health Informatics and Surveillance



Agenda

- **Overview**
 - BioSense Governance Group Data-Sharing Suggestions
 - The “Site” Concept
 - Admin Tool Goals
- **Collaborative Requirements Development Methodology**
 - Context Diagram
- **Admin Tool Functions**
 - Log In
 - Managing Users and Updating Profiles
 - Managing Data Access and Data Sharing
 - Reporting
- **Conclusion and Next Steps**

Overview

- **Need for an Admin Tool**
 - Results of pilot with ESSENCE
- **Goal of this Webinar**
 - Orientation to CRDM and associated artifacts
 - Orientation to a few key issues
 - Identify 6 to 9 participants who can help refine our requirements

BGG Data-Sharing Suggestions

Role	Suggested Functionality
Local Health Department (LHD)	<ul style="list-style-type: none"> ▪ State-affiliated LHDs need access to individual patient record-level data in jurisdiction (county, city, regional) ▪ Independent LHDs (no oversight or coordination with state administrators) need access to individual patient record-level data ▪ BioSense users must export data to analytic tool before sending to local health departments (e.g., local health department is subset of state jurisdiction)
Hospital	<ul style="list-style-type: none"> ▪ Hospitals need access to patients record seen at their facility despite county of residence ▪ Current users cannot share data with hospitals via BioSense
Region (Customizable – State, City, County, ZIP)	<ul style="list-style-type: none"> ▪ Regions need individual patient record-level access based on patient residence of the patient ▪ Regions need ability to share regional aggregate data across borders ▪ BioSense provides visit-level access ▪ Regions need ability to view patients in same jurisdiction seen in another state facility (without sharing visit-level data with entire jurisdiction)
Fully Customizable Role	<ul style="list-style-type: none"> ▪ Need for ad hoc user-defined roles (would override other roles) ▪ Need to constrain role by age, time, syndrome, and geography
Department of Defense (DoD)	<ul style="list-style-type: none"> ▪ Individual patient record-level data limited to jurisdictions with military treatment facilities ▪ DoD has option to share data
Health System	<ul style="list-style-type: none"> ▪ Facilities (e.g., Kaiser) need access to line-level patient data, despite geography

The “Site” Concept

Purpose and definition of Site

- Jurisdiction is unclear to many
- Jurisdiction is associated with geopolitical boundaries
- “Site” describes the entity (state, local, etc.) that stewards the relationship with a facility
- Facilities can be associated with a Site outside jurisdictional boundaries
- Propose that every Facility must have a primary steward, even if shared with other sites

Admin Tool Goals

The tool will allow Site Admins to

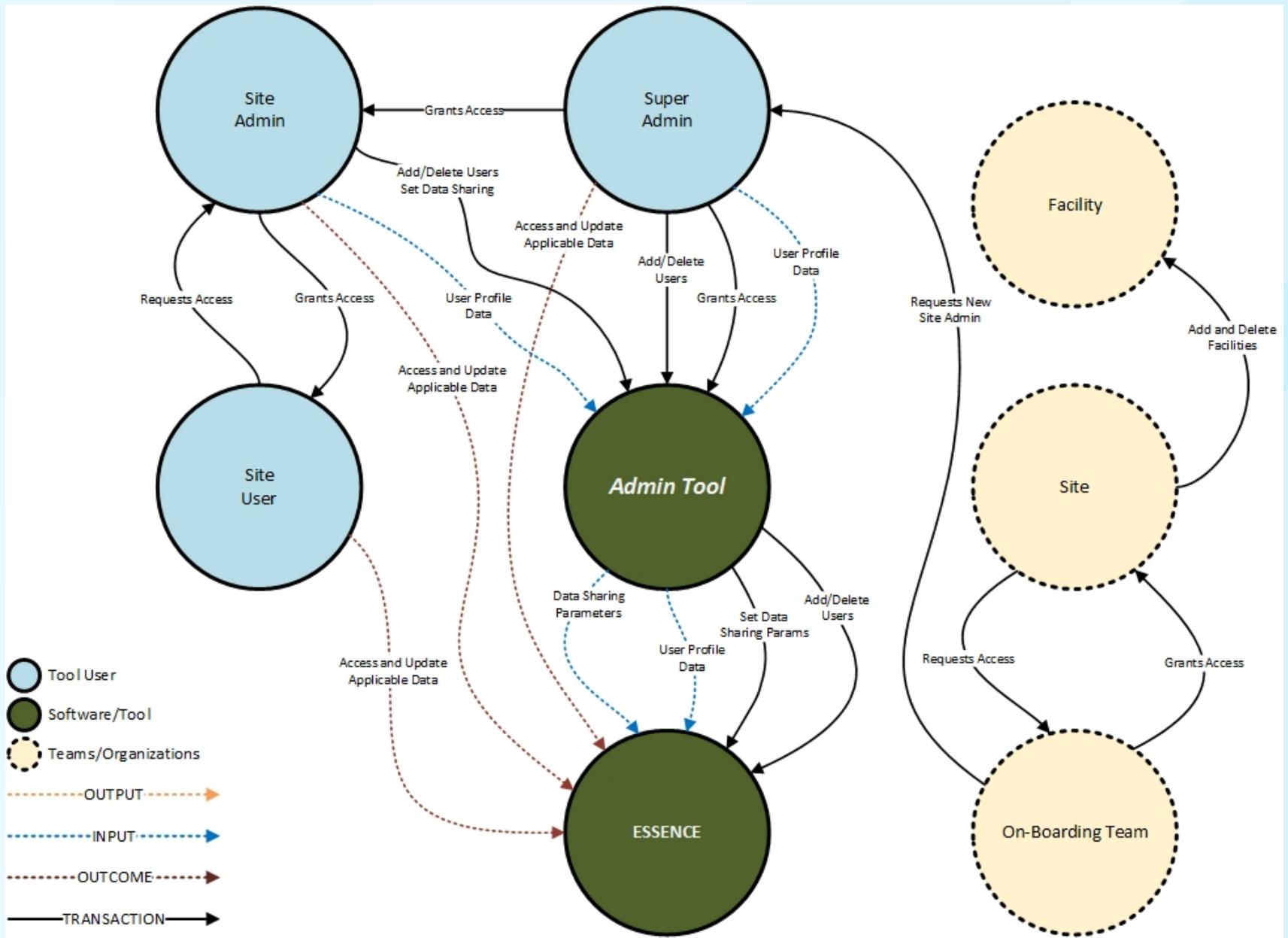
- **Manage their user groups**
- **Manage who has access to their data and what data can be viewed**
- **Share data with other Sites and users**
- **Generate user management and data access reports**

Collaborative Requirements Development Methodology (CRDM)

- **Used to describe the scope and framework and identify issues that need discussion with community**
- **Produces artifacts**
 - Context Diagram
 - Business Process Matrix
 - Business Process Task Flow Diagrams
 - Functional Requirements Table
- **For more information, visit the [Public Health Informatics Institute](#) website**

CRDM Context Diagram

- **Context Diagram**
 - Determines users, actors, and systems involved in a process
 - Details interactions between listed entities
- **Definitions**
 - Site—Entity stewarding Facility relationship
 - User—Individual accessing the BioSense Platform
 - Must be assigned to a Site
 - Site Admin—Lead role at Site, responsible for users and data access/sharing
 - A Site may have one or more Site Admins
 - Super Admin: Perform high-level set-up of Admin Tool
 - Super Admins can perform Site Admin functions upon request
 - ESSENCE—Johns Hopkins University syndromic surveillance system
 - On-boarding and Support Team—Helps Sites and users connect and use tools on the BioSense Platform



Admin Tool Functions

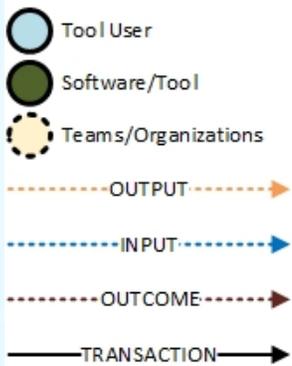
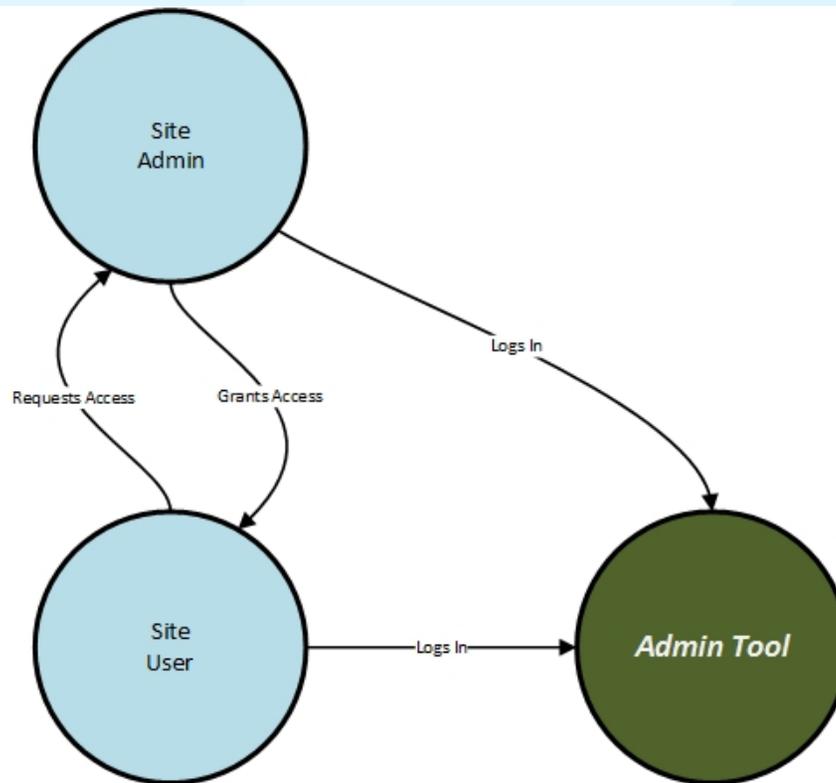
- **Log In and Authentication**
 - Process and technical considerations
- **User Management**
 - Add new users
 - Search for user
- **Data Access and Sharing Permissions**
 - Create rules governing access for BioSense Platform users
 - Define user groups by role
 - Define data collections via templates
- **Reporting**
 - Summarize data any given user may view
 - Generate reports based on user statistics

LOG IN AND AUTHENTICATION

Log-In Process Overview

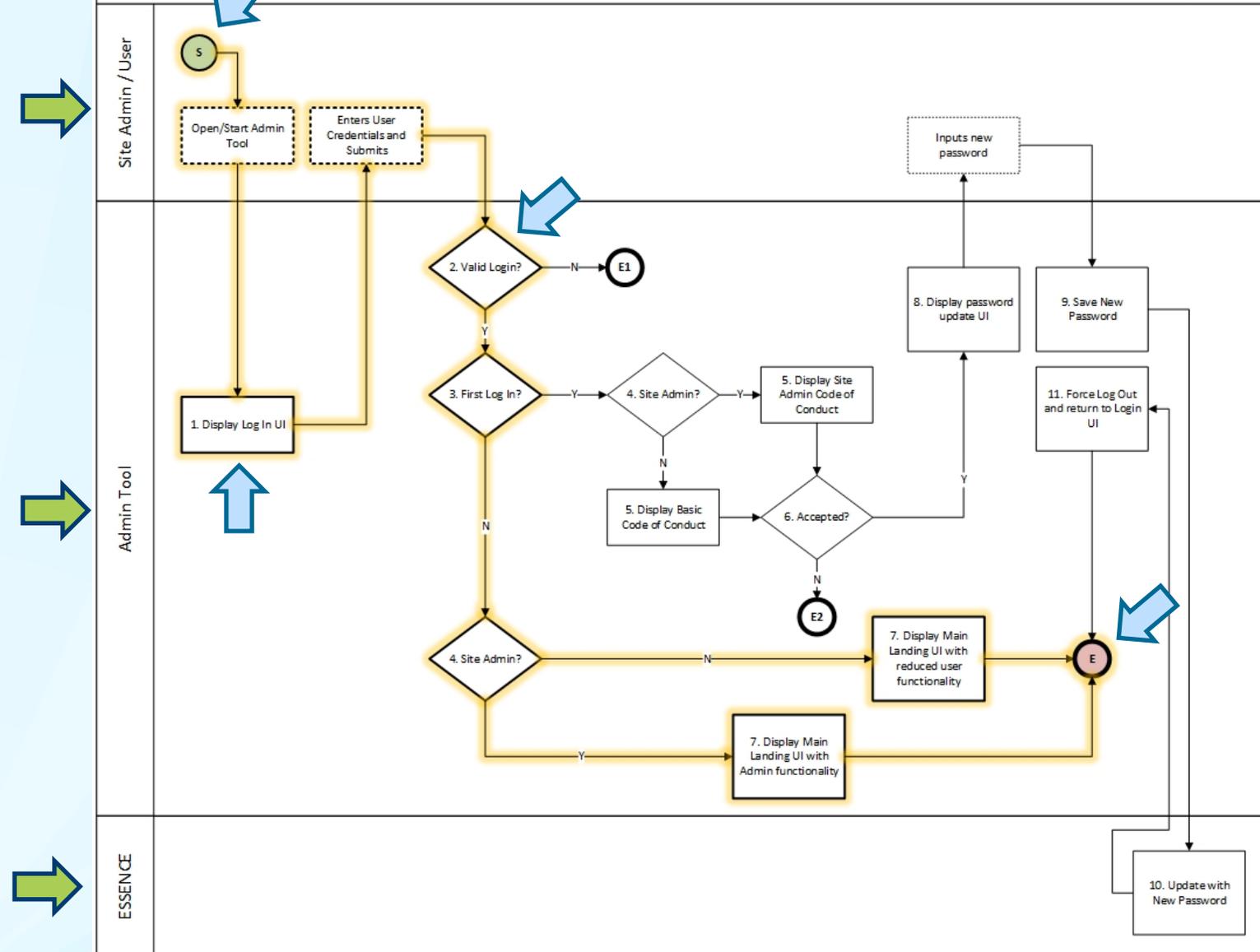
- **Users will need to log in to the system**
 - Users may have one or more usernames
 - Usernames and passwords will sync to ESSENCE
- **The Admin Tool implements rules to ensure users accept a code of conduct and follow good password management procedures**
- **Users will use their credentials to log in to the Admin Tool and the ESSENCE application**

Log In and Authentication



Use Case – Log in Process

Minimally Viable Product



Simplified
Flow



Wireframe



Log In

BioSense Platform – Admin Tool

The BioSense Platform Admin Tool supports User Management for ESSENCE. Please log-in.

Username

Password

Forgot Password? Click to reset.

If you do not have a username and password but would like to join, please contact our helpdesk at <helpdesk>

Context



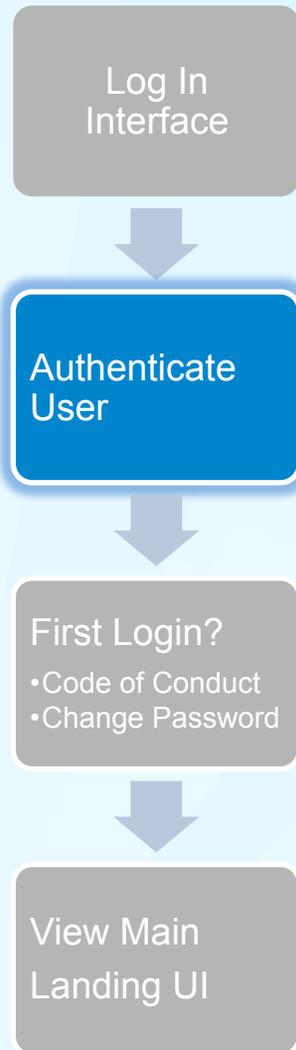
Users must enter username and password

- **Log-in information for BioSense Platform Admin Tool will be synchronized with ESSENCE**
- **Users may have one or more Admin Tool and ESSENCE log ins for different projects**
- **Passwords will follow CDC/FISMA security guidelines**



Functional
Requirements

Authentication



The system will

- Verify that username and password are correct
- Check for first login, if yes
 - User must change generated password
- User must accept the Code of Conduct on first log in and annually
- Appropriate functionality will be displayed on Main Landing UI

If username or password are incorrect, then the system will

- Display an error message
- Return user to log-in screen
- Request user to log in again
- Multiple failed log-in attempts will lock account

Accept Code of Conduct

Log In
Interface



Authenticate
User



First Login?
•Code of Conduct
•Change Password



View Main
Landing UI

The Code of Conduct outlines proper practices and responsibilities for the BioSense Platform User Community

Users must accept the Code of Conduct under the following conditions:

- **First time logging in**
- **Annually on June 1**
- **The privilege level has changed from user to Site Admin**

Site Admins will have additional Code of Conduct language to review and accept

Password Management

Log In Interface



Authenticate User



First Login?
•Code of Conduct
•Change Password



View Main Landing UI

CHANGE MY PASSWORD

User Name (DISPLAY ONLY)

Current Password

New Password

Confirm New Password

<<Password Rules>>

Save Cancel

- Username and passwords are the same across the Admin Tool and ESSENCE applications
- Users may change their password at any time and **MUST** change password if it is their first time logging in
- Passwords can only be changed via the Admin Tool
- Once a password is changed
 - System automatically logs out of Admin Tool
 - User must log back in with new password

Log In Interface



Authenticate User



First Login?
•Code of Conduct
•Change Password



View Main Landing UI

MY INFORMATION

Change Password

Change your password

Update Profile

Change my personal information (e.g., name and email)

View My Permissions

View a list of the data you have permission to access in ESSENCE.

Request New Data

Request access to data you would like to view in ESSENCE.

MANAGE MY SITE USERS

Add User

Add a new user to your site

Search for User

Search for a user within your site - you can then modify their user account (deactivate user, unlock account, reset passwords)

MANAGE DATA SHARING PERMISSIONS

Create New Rule

Create a rule to assign data permissions to a user(s) for specified data.

View Existing Rules

View existing rules that set data sharing permissions.

MANAGE MY DATA TEMPLATES

Create Data Template

Create a "group" or template of related data.

View Current Templates

View current data templates, modify/delete as needed.

VIEW REPORTS

Create Reports

Create and view reports related to user information and data sharing permissions.

Log Out

All Users

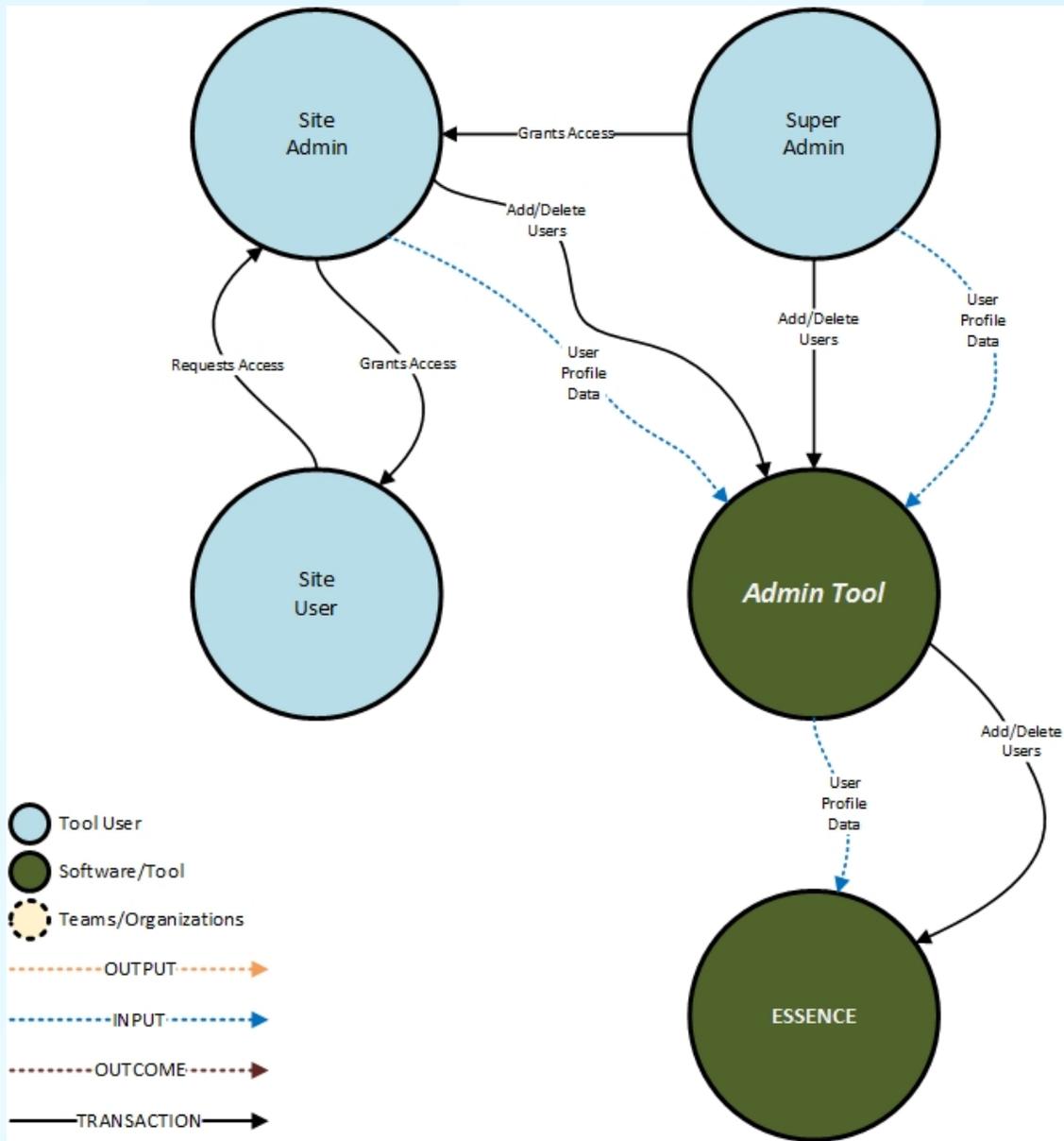
Site Admins ONLY

USER MANAGEMENT

User Management Overview

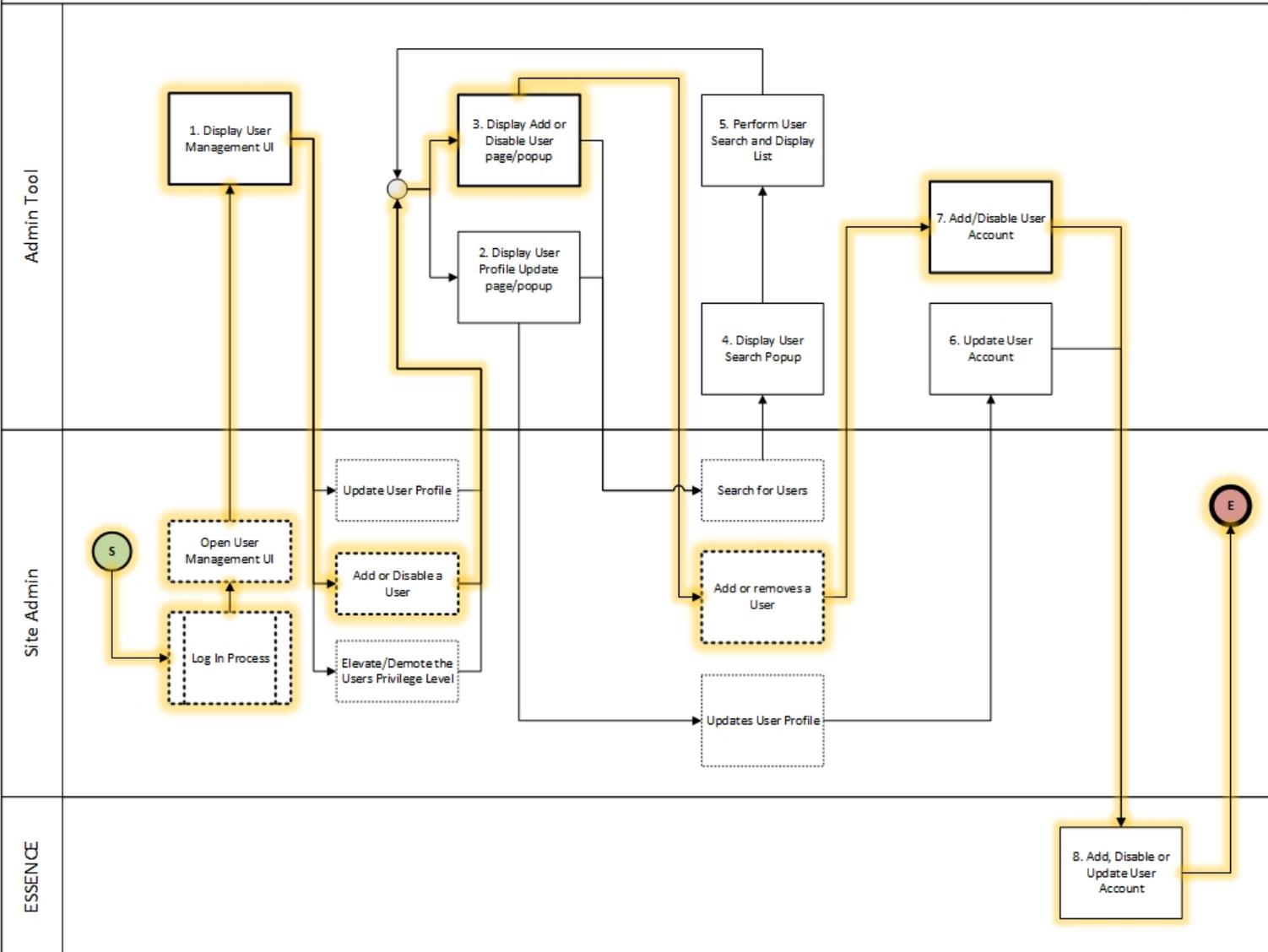
- **Site Admins are responsible for creating and managing their site's user accounts**
- **Account management responsibilities for Site Admins include**
 - Deactivating/reactivating user accounts
 - Unlocking user account as needed
 - Resetting passwords at user's request
 - Modifying contact information
- **Users may have multiple accounts within the Admin Tool if that user is part of multiple sites**

User Management



Use Case – Manage Users

Minimally Viable Product



Add New Users

Adding
New
Users

User
Search

USER INFORMATION	
User Name (DISPLAY ONLY)	<input type="text"/>
First Name	<input type="text"/>
Last Name	<input type="text"/>
Email Address	<input type="text"/>
Office Phone	<input type="text"/>
Role	<input type="text" value="Select..."/>
Site Affiliation*	<input type="text"/>
Privilege Level	<input type="text"/>

**If your site affiliation has changed, please contact <<helpdesk>>*

Admins will add information for each new user

- All fields are required
- Can only add users to your site
- Must select a Role

Within a Site, users are unique by email address

- Users may have the same email for accounts that exist in other Sites

Once an account is created

- System will generate a username for each new user
 - User receives an email with username and temporary password
 - Site Admin is copied on this email
- Site Admin will add data permissions to the user account as applicable

Search for User

Adding
New
Users

User
Search

SEARCH FOR USERS

Last Name

First Name

Email

Role ▼

Select	Last Name	First Name	Site	Role	Email
<input type="checkbox"/>	John	Snow	AL	Epi	xx@xx.com
<input type="checkbox"/>	xx	xx	xx	xx	xx
<input type="checkbox"/>					

- The Admin Tool provides a search UI to allow Site Admins to find specific users
- A list will be displayed with results
- Admin can open a user record to perform other user management activities (e.g., password reset)

DATA ACCESS AND DATA SHARING PERMISSIONS

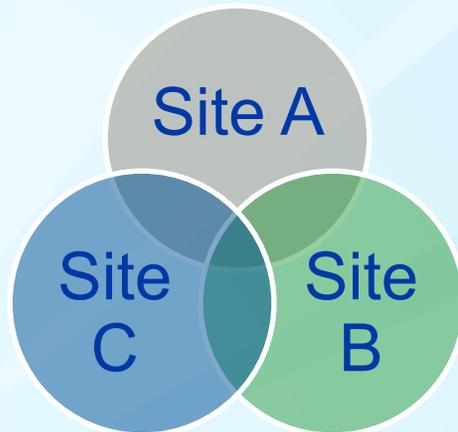
Data Access and Data Sharing Permissions Overview

- **Concept: First determine the “who” and then the “what”**
- **Site Admins will be able to create Rules that will**
 - Select WHO can access their Site data in ESSENCE
 - Select WHAT Site data is to be shared in ESSENCE
 - Simplify Rule creation by enabling data templates

Understanding User Accounts

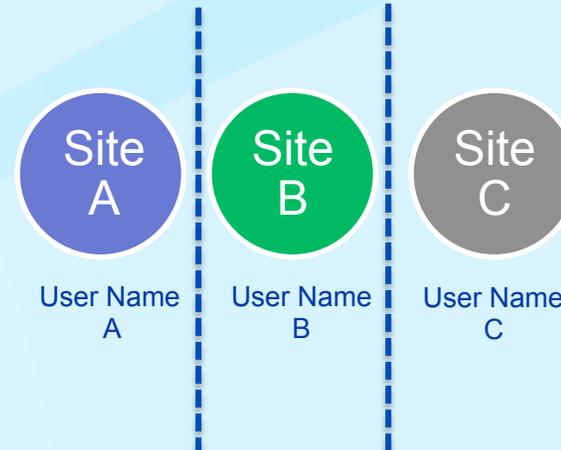
- Bob is an epidemiologist with the CDC. He is providing expertise to several different projects across sites.
- What are things to consider when creating Bob's account?

One Person, One User
Name in BioSense
Platform



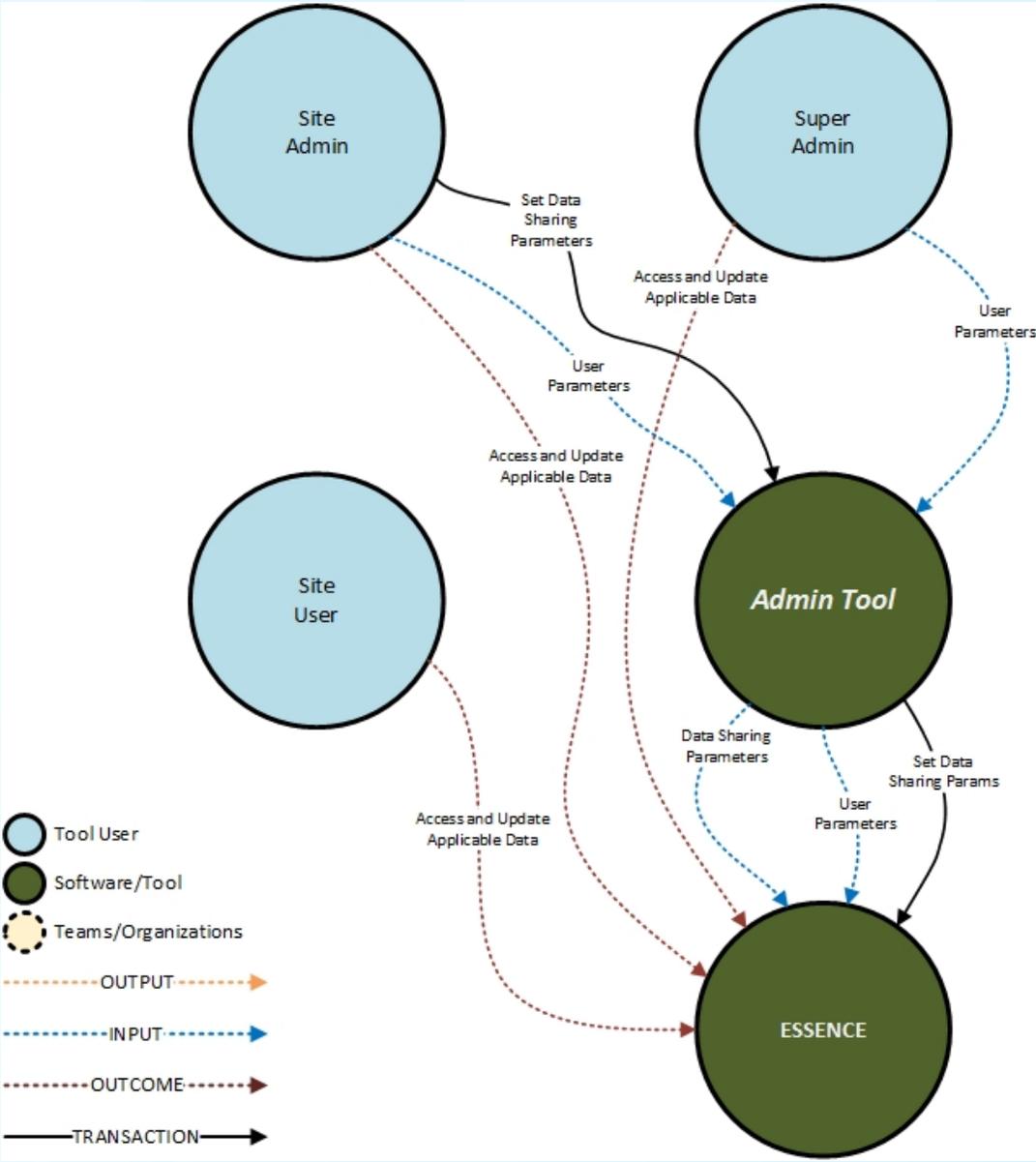
One User Name in ESSENCE

One Person, Three
User Names in
BioSense Platform



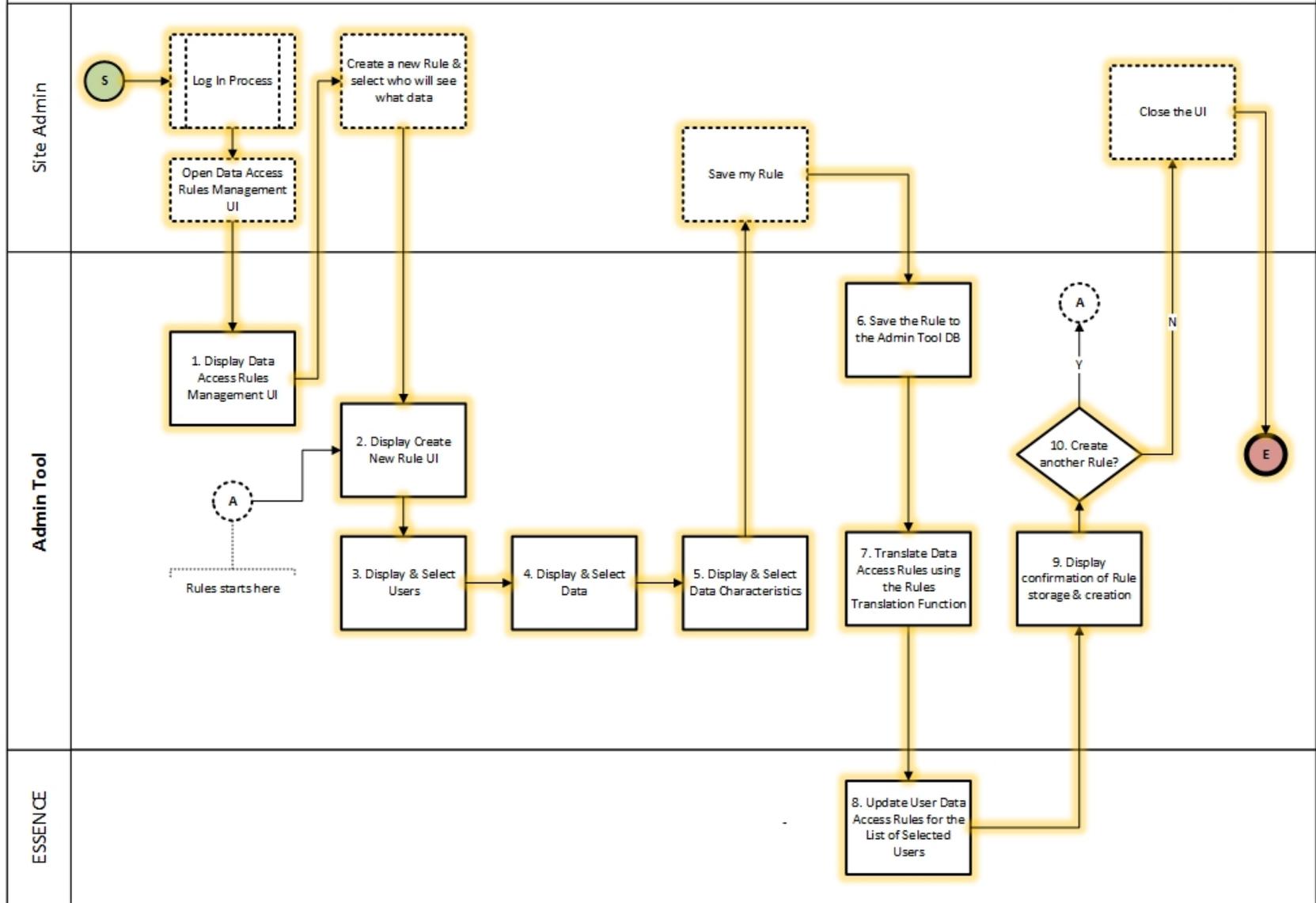
Three User Names in ESSENCE

Data Access and Sharing



Use Case – Managing Data Access Rules (Data Sharing)

Minimally Viable Product



Creating a Rule

Create a Rule

Select WHO

Select WHAT
• Data Templates

Completed Rule

Manage Rules

Rule Characteristics	
Rule Name	<input type="text" value="My First Rule"/>
Rule Description	<input type="text" value="A rule to allow users to view my Site data"/>
Selected User(s)	<input type="text"/> <i>this will display the user(s) selected through the user picker interface</i>
	<input type="button" value="Select/Edit"/>
Selected Data	<input type="text"/> <i>this will display the data and 'layer' selected through the data picker interface</i>
	<input type="button" value="Select/Edit"/>
	<input type="button" value="Save"/>

- A Rule defines WHO (user/groups) can access WHAT (all or some site) data via ESSENCE
- All fields are required before saving the rule
- Rules may be saved/applied and modified/revoked later

Select Users

Create a Rule



Select WHO



Select WHAT
• Data Templates



Completed Rule

Manage Rules

- **Site Admins select WHO can view their site data**
 - Everyone across BioSense Platform
 - Groups of users
 - Site(s)
 - Role(s)
 - Specific individuals
- **Each user selected in this step will receive the SAME access to data selected in the next step**

Select User Groups

Create a Rule

Select WHO

Select WHAT
• Data Templates

Completed Rule

Manage Rules

Select groups of users

Select User(s):

Select Site ALL is first option

Select Role ALL is first option

<<clicking "add" will write the selected geographies to the table below. Users may click 'add' as many times as needed to select data>>

Site	Role	Edit
<<populate from "add" button above>>		<input type="button" value="Edit"/>
		<input type="button" value="Delete"/>

- **Predefined groups of users may be selected (one or more)**
 - All users within a site
 - All users with a specific role across sites
 - Users with a specific site and role combination
- **Rules applied to a group will automatically be applied to new members added to a group**

Select Specific Users



Search for specific users

ENTER SEARCH PARAMETERS

Last Name

First Name

Email

Role

Site

Users enter search parameters above (can set one or many). Table will appear with search results. All columns are sort/filter enabled.

Select	Last Name	First Name	Site	Role	Email
<input type="checkbox"/>	John	Snow	AL	Epi	xx@xx.com
<input type="checkbox"/>	xx	xx	xx	xx	xx
<input type="checkbox"/>					

SELECTED USERS:

User Type	User Description	Edit
		<input type="button" value="Edit"/>
		<input type="button" value="Delete"/>

Select Users: Example

Create a Rule



Select WHO



Select WHAT
• Data Templates



Completed Rule

Manage Rules

SELECTED USER(S) AND/OR GROUP(S): EXAMPLE

User Type	User Description
<i>Individual or Group (system generated description)</i>	<i>user name OR group description</i>
Group	FL Site - All Users
Group	GA Site - Hospital Users
Group	Hospital Users - All Sites
Individual	John Snow
Individual	Pete Cat
.....	

Next

- System stores users selected (“the WHO”) as part of the rule

Select Data



- **Site Admins select WHAT data users can see**
 - All Site data
 - Specific Site data
 - By geography
 - Facility location
 - Patient location
 - By facility
 - Use a template
- **Data can be shared at an aggregate- or data-detail level**
 - Must be specified for each selection

Select Data: Geographic Location

Create a Rule



Select WHO



Select WHAT
• Data Templates



Completed Rule



Manage Rules

Select data by geographic location (the user will have access to data from your site that covers selected state/county areas by facility location or patient location)

Select Geographies:

Select State

Select...

Facility Location Patient Location

user will select if state is defined by facility location or patient location (or both)

Select County

Select...

Facility Location Patient Location

*(filter by selected state; top selection/default should read "all counties")
user will select if county is defined by facility location or patient location (or both)*

if a single county is selected, then location is determined only by county, not by state.

Select Data Characteristics

Aggregate
 Data Details
 Data Quality

Add

<<clicking "add" will write the selected geographies to the table below. Users may click 'add' as many times as needed to select data>>

State	County	Data Characteristics	Edit
<<populate from "add" button above>>			Edit Delete

- Only apply to data from your site
- Select state(s)
- Select one, many, or all counties
- Define geographic area (and/or)
 - Patient location
 - Facility location

Select Data: Facility

Create a Rule



Select WHO



Select WHAT
• Data Templates



Completed Rule

Manage Rules

Select specific facilities

Select Facility:

Select Facility

Select...

filter by facilities managed by the admin's site

Select Data Characteristics

Aggregate

Data Details

Data Quality

Add

<<clicking "add" will write the selected geographies to the table below. Users may click 'add' as many times as needed to select data>>

Facility Name

Data Characteristics

Edit

<<populate from "add" button above>>

Edit

Delete

- **Select one or more facilities to include in the rule**
 - Facility data sent via your site will be available to the selected user accounts
 - Add each facility separately

Select Data: Apply Data Template

Create a Rule



Select WHO



Select WHAT
• Data Templates



Completed Rule

Manage Rules

Apply a Data Template

Select Template:

selecting a template will write all of the template data pieces to the 'selected data' table so you can review before saving the rule.

- Admin tool allows you save data selections made within a rule as a template to apply later
- Within a rule, you can apply a data template
 - Can still change data selections pulled from a template within a rule

Select Data: Example

Create a Rule



Select WHO



Select WHAT

• Data Templates



Completed Rule

Manage Rules

SELECTED DATA: EXAMPLE

Data Description	Data Characteristics	Edit
<i>concatenate state/county/location OR facility name</i> GA - Cobb County - by patient location	Data Details	<input type="button" value="Edit"/> <input type="button" value="Delete"/>
GA - by facility location	Aggregate Only	<input type="button" value="Edit"/> <input type="button" value="Delete"/>
Kennestone Hospital	Data Details, Data Quality	<input type="button" value="Edit"/> <input type="button" value="Delete"/>

Save Data Selections as New Template?

Template Name:

Template Description:

Completed Rule: Example

Create a Rule



Select WHO



Select WHAT
• Data Templates



Completed Rule

Manage Rules

Rule Characteristics

Rule Name	<input type="text" value="My New Rule"/>
Rule Description	<input type="text" value="Example Rule for Admin Tool Discussion"/>
Selected User(s)	<input type="text" value="Site X (All); Site Y - Epidemiologists (All); Site Z - John Smith"/> <input type="button" value="Select/Edit"/>
	<i>this will display the user(s) selected through the user picker interface</i>
Selected Data	<input type="text" value="Site X (Facility A, Aggregate); Site X (Facility B, Data Details); Site X (County 1, Aggregate); Site X (County 2, Aggregate)"/> <input type="button" value="Select/Edit"/>
	<i>this will display the data and 'layer' selected through the data picker interface</i>
	<input type="button" value="Save"/>

- After selecting users and data, save the rule
- Rule will be saved in the Admin Tool and translated to ESSENCE
 - Users will be able to view data assigned to their user accounts in ESSENCE

Manage Rules

Create a Rule



Select WHO



Select WHAT
• Data Templates



Completed Rule

Manage Rules

My Rules			
Rule Name	Rule Description	Rule Status	Options
xxxx	xxxxx	Active / Suspended	<input type="button" value="Edit"/> <input type="button" value="Suspend"/> <input type="button" value="Delete"/>
xxxx	xxxxx		<input type="button" value="Edit"/> <input type="button" value="Suspend"/> <input type="button" value="Delete"/>

- **Site Admins can view all rules created by their site**
- **Rules may be suspended or reactivated**
 - If active, button for “suspend”
 - If suspended, button for “activate”
- **Rules may be deleted**
 - System will remember a given user account had permission to view certain data
 - User will no longer be able to view that data
 - Rule will not appear in My Rules screen

REPORTING

Requirements

- **User Reports**
 - View existing data permissions
- **Admin Reports**
 - User and usage statistics
 - Data access/sharing summaries and reports
- **General requirements**
 - Export data to csv, html, or pdf
 - Allow filter criteria (by date/range, site, etc.)

CONCLUSION AND NEXT STEPS

Conclusion

- **Recap of Goals**
 - Orientation to CRDM
 - Log In
 - User Management
 - Data Access and Data Sharing Permissions
 - Reporting
- **Key Topics**
 - Multiple user names
 - Inherited permissions within groups
 - Customizable roles

Next Steps

- **Review example CRDM Artifacts**
 - Context Entity Diagram
 - Business Process Flow Diagram (“Swim lanes”)
 - Functional Requirements tied to swim lane processes
- **How can you help?**
 - Email msum@astho.org
- **Resources available through the Nssp Doc Review Group in the ISDS Forum**

For more information please contact Centers for Disease Control and Prevention

1600 Clifton Road NE, Atlanta, GA 30329-4027

Telephone: 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348

Visit: www.cdc.gov | Contact CDC at: 1-800-CDC-INFO or www.cdc.gov/info

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Center for Surveillance, Epidemiology and Laboratory Services

Division of Health Informatics and Surveillance

