Introduction

Louisiana Emergency Response Network’s (LERN) vision and mission statement reflect the intent of our enabling legislation and the Board’s commitment to building a comprehensive statewide trauma system that meets national model standards and requirements established by the American College of Surgeons Committee on Trauma (ACS COT).

Our Vision

To build and oversee a comprehensive trauma system for the State of Louisiana

Our Mission

To defend the public health, safety, and welfare by protecting the people of the state of Louisiana from unnecessary deaths and morbidity due to trauma and time-sensitive illnesses.
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Louisiana State Trauma Registry Bridge User and Instructional Training Manual for Non Facility Based Image Trend Trauma Registry Users

This manual will explain: HOW TO ENTER DATA INTO THE WEB BASED STATEWIDE TRAUMA REGISTRY APPLICATION

INTRODUCTION TO THE LOUISIANA STATE BRIDGE WEB APPLICATION

The Louisiana State Bridge (LSB) is an automated web based system called Image Trend Patient Registry and it is used to collect and analyze information on the incident, severity, cause, and outcomes of trauma patients to evaluate factors and the health system’s response. The goal of the Image Trend Patient Registry is to gather information more efficiently in order to better analyze treatment methods to reduce morbidity and mortality.

The Image Trend Patient Registry is a database driven web application based on Microsoft SQL Server allowing for secure access from anywhere at any time to authorized persons. Information gained through research has significantly contributed to evidence-based medicine which has helped providers improve procedures and outcomes. The management process of trauma is complex, involving both the pre-hospital and in hospital phases and many medical disciplines.

The Facility Based Image Trend Patient Registry user will benefit from the quality assurance tools provided. Quality patient care requires involvement of all levels of the system in monitoring the relationship and process of care. This system incorporates quality assurance / quality improvement tools to support peer review monitoring within a secure environment. This discretion promotes confidence, understanding, and patience for change. This confidential information is ONLY seen and accessible by the individual facility, and not by LERN, or other LSB employees.

SUBMISSION GUIDELINES

Hospitals that have been approved and given access to the “UPLOAD” function for the LSB should submit on a quarterly basis at a minimum. The time between a trauma patients discharge from the reporting facility until entry into the LSB shall NOT be longer than six (6) months. An example of a yearly reporting schedule is provided below in Table 1.

<table>
<thead>
<tr>
<th>Calendar Year Quarter</th>
<th>Submission Deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>January - March Admissions</td>
<td>June 1</td>
</tr>
<tr>
<td>April - June Admission</td>
<td>September 1</td>
</tr>
<tr>
<td>July - September Admissions</td>
<td>December 1</td>
</tr>
<tr>
<td>October - December Admission</td>
<td>March 1</td>
</tr>
</tbody>
</table>
LERN State Registry Trauma Patient Inclusion Criteria

Definition:

To ensure consistent data collection across the State into the LERN State Registry, a trauma patient is defined as a patient sustaining a traumatic injury and meeting the following criteria:

At least one of the following injury diagnostic codes defined as follows:

**International Classification of Diseases, Tenth Revision (ICD-10-CM):**
- S00-S99 with 7th character modifiers of A, B, or C ONLY. *(Injuries to specific body parts – initial encounter)*
- T07 *(unspecified multiple injuries)*
- T14 *(injury of unspecified body region)*
- T20-T28 with 7th character modifier of A ONLY *(burns by specific body parts – initial encounter)*
- T30-T32 *(burn by TBSA percentages)*

**Excluding the following isolated injuries:**

**ICD-10-CM:**
- S00 *(Superficial injuries of the head)*
- S10 *(Superficial injuries of the neck)*
- S20 *(Superficial injuries of the thorax)*
- S30 *(Superficial injuries of the abdomen, pelvis, lower back and external genitals)*
- S40 *(Superficial injuries of shoulder and upper arm)*
- S50 *(Superficial injuries of elbow and forearm)*
- S60 *(Superficial injuries of wrist, hand and fingers)*
- S70 *(Superficial injuries of hip and thigh)*
- S80 *(Superficial injuries of knee and lower leg)*
- S90 *(Superficial injuries of ankle, foot and toes)*

Late effect codes, which are represented using the same range of injury diagnosis codes but with the 7th digit modifier code of D through S, are also excluded.


- Hospital admission as defined by your trauma registry inclusion criteria; OR
- Patient transfer via EMS transport (including air ambulance) from one hospital to another hospital; OR
- Death resulting from the traumatic injury (independent of hospital admission or hospital transfer status)

*LERN adopts and supports the American College of Surgeon’s National Trauma Data Standards (ACS, NTDS)*
PURPOSE OF THE STATE TRAUMA REGISTRY

The purpose of the state trauma registry is to mine the data for what it can tell us – registry data can be coded, compiled, analyzed, and reported. A trauma registry is an important management tool that is used for performance management and improvement, research, and injury prevention.

Individual trauma centers that are verified by the Committee on Trauma, American College of Surgeons (COT ACS) must develop and maintain their own trauma registries and submit their data to the National Trauma Data Bank (NTDB). In Louisiana, hospitals must successfully complete the COT ACS verification process as a condition of state certification as a trauma center.

Louisiana’s statewide trauma registry was authorized by the Louisiana Legislature in 2010. The legislation charges the LERN Board to “establish and maintain a statewide trauma registry to collect and analyze data on the incidence, severity, and causes of trauma, including traumatic brain injury. The registry shall be used to improve the availability and delivery of pre-hospital or out-of-hospital care and hospital trauma care services.”

SYSTEM REQUIREMENTS:

The following system specifications and recommendations are for all EDS Web-based solutions.

Network Requirements
Networking: Any TCP/IP Network may be used, including wired and wireless technologies. An Internet connection to the server may be required for remote access and remote data posting.

Operating Systems Supported
Windows 2003 Server with IIS version 6.0 (minimum)
Windows 2008 Server R2 with IIS version 7.5 (recommended)
**Windows 2008 Server RTM not supported

Web Server Hardware (not required if hosted by ImageTrend)
Required:
1 GHz Processor or better
3 GB RAM
20 GB Available Hard Disk Space

Recommended:
Dual 2 GHz Processors or better
4 GB RAM or more
50 GB Available Hard Disk Space
RAID 5 SCSI Hard Drives

ImageTrend Hosted:
Quad 2 GHz Processors
8 GB RAM
100 GB Available Hard Disk Space
RAID 5 SCSI Hard Drives

**Server Database (not required if hosted by ImageTrend)**
Microsoft SQL Server 2005 (minimum)
Microsoft SQL Server 2008 R2 (recommended)
Required:
Dual 2 GHz Processors or better
4 GB RAM or more
50 GB Available Hard Disk Space
RAID 5 SCSI Hard Drives

**Additional Software Required (not required if hosted by ImageTrend)**
Adobe ColdFusion 8 Standard or Enterprise Server (minimum)
Adobe ColdFusion 9 Standard (smaller services) or Enterprise Server (50,000+ annual incidents) (recommended)
Microsoft .NET Framework 3.5 SP1
Microsoft Tablet PC SDK

**Internet Browser Requirements for End Users**
Microsoft Internet Explorer 6.0 and above
Other browsers that support Mozilla 4.0 and above
Adobe Flash 8 or higher (recommended)
Adobe Reader 8 or higher
Microsoft Silverlight 4.0

**USER ASSISTANCE AVAILABILITY**

LERN and its staff will serve as Louisiana’s system administrator. The actual on-line web application contains a user’s guide which can be accessed by clicking on the “HELP” button in the upper right corner. This will bring the user to the Image Trend University. You will find materials for administrators, users, and trainers to use including: Here you will find a complete user’s guide, as well as several short educational videos on the Image Trend Patient Registry.

- Educational Videos
- Downloadable Manuals
- Downloadable Quick Guides
- Downloadable Workbooks
- Education-oriented PowerPoint
- Presentations

Common symbols, buttons, and shortcuts are available in the downloadable manual, as well as clear directions on log on / log off / and password changes.
At anytime the individual facility may also contact LERN at 225-756-3440 for questions. Additionally, under the Image Trend contract with LERN facilities may also contact their support center at: 1-888-730-3255 or support.imagetrend.com.

You can go to the LERN website at: www.LERN.la.gov and Click on Contact us on the left side under ABOUT US. This link lists phone numbers, fax numbers, and email addresses for obtaining help related to the web based LSB. LERN’s contact information is below:

Louisiana Emergency Response Network
14141 Airline Hwy, Building 1, Suite B
Baton Rouge, LA 70817
225-756-3440
Lern.la.gov

COMPUTER SECURITY AWARENESS REQUIREMENTS FOR LSB APPLICATION – USERS:

A. All application-users are required to read the below computer security awareness best practices policies and agree to abide by them when signing the LERN LSB application user Access and Confidentiality agreement.

B. All application-users must be aware that:
   1. Application-users are not permitted to share passwords except for web page saver passwords and then only when management documents, in writing, that it is necessary to share.
   2. Application-users must locate their desktops / laptops in a direction that does not permit unauthorized individuals to view client information.
   3. Application-users must use password-protected desktops / laptops when accessing personal health information (PHI) of clients.
   4. Application-users must ensure that Virus Protection is implemented on all desktops / laptops.
   5. Application-users must log out of the LERN LSB trauma application when their terminal or computer is going to be left idle and unattended for a significant period of time.

IMAGE TREND SPECIFIC SECURITY INFORMATION

Image Trend applications meet or exceed state and federal data privacy requirements and the HIPAA guidelines. Secure logins are an industry standard process and are part of the HIPAA guidelines for data protection. These are implemented throughout the application with the use of the hierarchical security access features of the ImageTrend security module, which provides the environment for controlling the access necessary to provide data protection. The application also provides for security breach notifications and audit trails.
Application Securities

**Secure User Login**
The application adheres to business standard practices for security to ensure only authorized access to the system.

**Password Encryption**
- Hash function implementation
- For sessions failing to successfully login after three tries
- Check access log for sequential unsuccessful logins
- Set session logout variable

**Password Requirements**
- Length and Complexity Enforcement
- Validate Password for Case, Length (8 characters), and Composition

**Login Expirations**
- Validate for expired logins
- Force password changes on expired logins and restrict site access until new, valid password is created

**Page Access Checking**
- Page Access checking to make sure user has properly logged in and is not entering the site via an external link.

**SSL Server Certificate**
- 128-bit encryption Security Certificate

**User Status**
- Users can be inactivated to restrict access to the site but still maintain data integrity.

User Securities

**View Patient Identifiable Information**
- On each user record permissions can be set to view or not view patient identifiable information.

**Staff Runs Restriction**
- Agency staff can be restricted to only see the runs that they have entered or were one of the crew members on that run.

**Access to Run Report**
- The ability to view, add, change, or delete runs are also controlled on an individual basis.

**Export Security**
- Exports are maintained and controlled by system administrators.
Permissions Administration

Manage Users and Groups
The application employs a hierarchical based password administration as a series of group policies to control application entry and level of access within the application. With the system administrator being the highest level of security, groups can be created below that to encompass all other group needs, which may include:

- Director – Access to view all runs within their service.
- Multiple Service Administrators – User access and administration to multiple services.
- Hospitals – Access to all runs delivered to their facility.

Permissions and Rights
Permission and rights are governed by the ability of what the user can see and do. At the global level, rights are typically based on the following criteria:

- County
- City
- Service
- Hospital

On the service level, there are typically two levels:

- Administrator
- User

Service administrators can control and edit all the functions within their own service.

Procedural Securities

Personnel
All Image Trend employees are subjected to background checks and are required to attend and successfully complete HIPAA training. The Image Trend Project Management System gives us a facility to track any HIPAA Security Incidents or Information Disclosure Incidents for reporting purposes.

Only those certified Image Trend employees that work with either hardware or software related to the specified application or project will access the data center and interact with our servers. These employees have worked with our hardware as part of our IT support staff or are part of our Implementation team as software developers. Authorization is granted from the management.

Hosting Environment
Image Trend's Web applications are hosted in their state-of-the-art 4,500 square foot data center. Built in a vault with 21" concrete walls, their facilities offer the maximum level of security and stability for hosting needs. The data center features triple redundant, high-speed internet connections over fiber optic trunk lines. Only authorized personnel have access to the
The data center is monitored electronically, as well as a log book to monitor and record individuals accessing the server room.

Image Trend's production network consists of application/web and database servers. The databases are on a private network with access control managed through the firewall permitting only authorized administrators or approved VPN access.

Applications are monitored for availability and performance from multiple locations to ensure an accurate measure of current system health. Slow application pages and long running database queries are logged for analysis by server administrators and development staff. Serious errors and performance degradation trigger email alerts which are sent to support staff and cell phone alerts to Image Trend's 24/7 X-Team Support staff. Their X-Team support employees have VPN access to our production servers to ensure accessibility and security when accessing our servers from outside of our network.
Auditing
The Patient Registry’s audit trail tracks user information when accessing the secure portion of the application. The IP address, User ID, date/time, browser information, and information on each file accessed is all tracked within a separate database, which is kept for a period of time for reporting purpose and audit trails.

Any security breaches are logged within our Project Management system for any HIPAA disclosures related to security breaches or information disclosers. If a security breach happens, the security module currently sends an email to their Director of Development and the Security Officer, who in turn notifies the designated customer contact.

This setup can be controlled at the Facility Administrator level. When the “Track all changes after completed” is active a “Mark as Complete” button will appear on the top of the form. Once a registrar has completed entering the information for an incident they can click this button to lock the form and enable field level audit tracking. Audit information is displayed on the “History” record that is associated with each incident. This information can be accessed from the Incident History page or directly from the incident form.
SYSTEM ADMINISTRATOR:

LERN or its representative will serve in the capacity of system administrator. In this role, all of the facility will be enrolled in the LSB upon completion of Access/Security User Logon Request Forms. A facility profile including hospital pertinent information will be completed and a facility administrator will be named. The LERN system administration will maintain the highest level of access into the LSB as allowed by Image Trend and will be able to review data in compliance with the Data Users Agreement for all facilities.

FACILITY ADMINISTRATOR:

A facility administrator is the lead contact at an individual hospital. This position will typically be the trauma program manager or trauma administrator. The facility administrator will then be responsible for enrolling their own local staff for access into the LSB. The facility administrator will be able to grant different levels of access to these staff members depending on their job titles and responsibilities. The facility administrator will be allowed full access to their individual facility data, but will be unable to view any other facility information in the LSB.

EMPLOYEE ACCESS:

Employee access is granted to an employee or staff member at an individual hospital by the facility administrator. This access will be limited related to their job title and responsibilities, and will be for their individual facility data only. The facility administrator has the right and authority to limit or terminate access as established by their facility. The LERN system administrator will not have the authority to set up facility employees, which will be the responsibility of the facility administrator.

USER LOGON REQUEST FORMS:

Please see Appendix C for Access and Confidentiality of Records agreement and User Logon Request Forms. These forms are to be completed by the facility administrator to gain access and privileges to the LSB and returned to the LERN System Administrator. All employee requests will be completed and returned to the Facility Administrator.

NOTE: Each user must complete both forms.

PASSWORD REGULATIONS:

HIPAA PASSWORD REGULATIONS:

The Health Insurance Portability and Accountability Act (HIPAA) is a comprehensive piece of legislation passed by the United States Congress. In 2003 a section was added known as the Security Rule, which establishes national standards for protecting the privacy of individuals who partake in electronic healthcare transactions. The HIPAA Security Rule also includes regulations for password management by the healthcare provider. The act gives database administrators flexibility in establishing password regulations, but it does require them to take certain basic steps.
TRAINING

The act requires that administrators of healthcare databases train their employees in password management and how to create a strong password. The act does not make specific requirements on the length of the password that employees create.

INITIAL PASSWORDS

When healthcare employees are originally given access to a password, the password must be randomly generated.

CHANGING PASSWORDS

Employees must change their passwords every 90 to 120 days, and they also must change their passwords after they initially log in with the randomly generated password. Database administrators must clearly define to users the procedure for resetting passwords.

OVERSIGHT

Administrators must create a system that logs computer usage and automatically flags attempts to access healthcare databases. Additionally, even after logging in with their passwords, employees shall have no expectation of privacy when using a healthcare database.

IMAGE TREND PASSWORD SET UP

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Suspend:</td>
<td>120</td>
<td>Number of days without login to the application before the user’s account is suspended</td>
</tr>
<tr>
<td>Password Attempts:</td>
<td>4</td>
<td>Number of attempts a user can attempt to login before their account is placed on temporary suspend</td>
</tr>
<tr>
<td>Numeric Characters:</td>
<td>1</td>
<td>Number of numeric characters required in the user’s password</td>
</tr>
<tr>
<td>Special Characters:</td>
<td>0</td>
<td>Number of special characters required in the user’s password</td>
</tr>
<tr>
<td>Change Password Time:</td>
<td>0</td>
<td>Time in hours that a user cannot change their password after last change</td>
</tr>
<tr>
<td>Account Password:</td>
<td>10</td>
<td>Number of past passwords stored in the log table for a user</td>
</tr>
<tr>
<td>Password Compare:</td>
<td>10</td>
<td>Number of passwords in the log table to be compared with the newest password to see if the same password is being used</td>
</tr>
<tr>
<td>Password Length:</td>
<td>7</td>
<td>Minimum number of characters in the password</td>
</tr>
</tbody>
</table>
SECURITY MEASURES RELATED TO APPLICATION SYSTEM BACKUP

Code Backups
Application code is backed up daily; at least a daily backup exists for all applications hosted in Image Trend’s production environment and is included in hosting costs. These backups are retained for particular customers as needed on a weekly, monthly, quarterly, or annual basis as agreed to by contract. Daily backups are retained for longer as unallocated storage permits but not guaranteed to be available beyond the previous calendar day. All backup routines execute after peak hours to minimize the effect on users, typically between 11 PM and 4 AM Central Time. Backups are stored on hard disks, with a copy being taken offsite on a monthly basis, and tape cassettes which are rotated on a daily basis. Data synchronization is run across a secure network connection back to Image Trend’s offices in Lakeville, MN, on an irregular basis for both application code and database files.

Database Backups
Database files are backed up daily; at least a daily backup exists for any database hosted in Image Trend’s production environment and is included in hosting costs. Daily backups are retained for several days as unallocated storage permits but not guaranteed to be available beyond three previous calendar days. Database backups are retained for particular customers as needed on a weekly, monthly, quarterly, or annual basis as agreed to by contract. All backup routines execute after peak hours to minimize the effect on users, typically between 11 PM and 4 AM Central Time. Backups are stored on hard disks, with a copy being taken offsite on a monthly basis, and tape cassettes which are rotated on a daily basis. Data synchronization is run across a secure network connection back to Image Trend’s offices in Lakeville, MN, on an irregular basis for both application code and database files.

Restore Procedures
Daily backup files are stored uncompressed to facilitate quick recovery of one or more files as needed. Archive copies are compressed to conserve disk space. All database files are compressed to conserve disk space and must be uncompressed and reattached for restoration. When restoring a file the newer file, if it exists, is renamed and kept before replacing with the backup version. When restoring an entire database file, the copy being replaced is itself backed up before being modified. When restoring part of a database file, the current file is first backed up and the backup database is mounted with a different name, then the needed tables are restored and the backup file is detached. If restoring a complete backup of application code over a corrupted install, a copy of the bad files is kept to maintain any new user-added files since the backup was created.
LOUISIANA STATE BRIDGE DATA ELEMENTS:

LERN in conjunction with state and national stakeholders has adopted the National Trauma Data Standards (NTDS) as its LSB data elements. The NTDS is a dataset defining standardized data elements collected by the American College of Surgeons within the National Trauma Data Bank (NTDB). This standardized dataset includes only core variables that would prove useful if aggregated on a state level.

Each individual hospital trauma registry will likely collect additional variables important to patient care. However, the LSB data elements should be collected by all hospitals.

LSB Data Elements: *for full definitions PLEASE go to [http://www.ntdsdictionary.org/dataElements/datasetDictionary.html](http://www.ntdsdictionary.org/dataElements/datasetDictionary.html) and download a copy of the National Trauma Data Standards for the current year of admission*

Demographic Information

- PATIENT’S HOME ZIP CODE/POSTAL CODE
- PATIENT’S HOME COUNTRY
- PATIENT’S HOME STATE
- PATIENT’S HOME COUNTY
- PATIENT’S HOME CITY
- ALTERNATE HOME RESIDENCE
- DATE OF BIRTH
- AGE
- AGE UNITS
- RACE
- ETHNICITY
- SEX

Injury Information

- INJURY INCIDENT DATE
- INJURY INCIDENT TIME
- WORK-RELATED
- PATIENT’S OCCUPATIONAL INDUSTRY
- PATIENT’S OCCUPATION
- ICD-10 PRIMARY EXTERNAL CAUSE CODE
- ICD-10 PLACE OF OCCURRENCE EXTERNAL CAUSE CODE
- ICD-10 ADDITIONAL EXTERNAL CAUSE CODE
- INCIDENT LOCATION ZIP/POSTAL CODE
- INCIDENT COUNTRY
- INCIDENT STATE
- INCIDENT COUNTY
- INCIDENT CITY
- PROTECTIVE DEVICES
- CHILD SPECIFIC RESTRAINT
- AIRBAG DEPLOYMENT
REPORT OF PHYSICAL ABUSE
INVESTIGATION OF PHYSICAL ABUSE
CAREGIVER AT DISCHARGE

Pre-hospital Information

EMS DISPATCH DATE
EMS DISPATCH TIME
EMS UNIT ARRIVAL DATE AT SCENE OR TRANSFERRING FACILITY
EMS UNIT ARRIVAL TIME AT SCENE OR TRANSFERRING FACILITY
EMS UNIT DEPARTURE DATE FROM SCENE OR TRANSFERRING FACILITY
EMS UNIT DEPARTURE TIME FROM SCENE OR TRANSFERRING FACILITY
TRANSPORT MODE
OTHER TRANSPORT MODE
INITIAL FIELD SYSTOLIC BLOOD PRESSURE
INITIAL FIELD PULSE RATE
INITIAL FIELD RESPIRATORY RATE
INITIAL FIELD OXYGEN SATURATION
INITIAL FIELD GCS - EYE
INITIAL FIELD GCS - VERBAL
INITIAL FIELD GCS - MOTOR
INITIAL FIELD GCS - TOTAL
INTER-FACILITY TRANSFER
TRAUMA CENTER CRITERIA
VEHICULAR, PEDESTRIAN, OTHER RISK INJURY
PRE-HOSPITAL CARDIAC ARREST

Emergency Department Information

ED/HOSPITAL ARRIVAL DATE
ED/HOSPITAL ARRIVAL TIME
INITIAL ED/HOSPITAL SYSTOLIC BLOOD PRESSURE
INITIAL ED/HOSPITAL PULSE RATE
INITIAL ED/HOSPITAL TEMPERATURE
INITIAL ED/HOSPITAL RESPIRATORY RATE
INITIAL ED/HOSPITAL RESPIRATORY ASSISTANCE
INITIAL ED/HOSPITAL OXYGEN SATURATION
INITIAL ED/HOSPITAL SUPPLEMENTAL OXYGEN
INITIAL ED/HOSPITAL GCS - EYE
INITIAL ED/HOSPITAL GCS - VERBAL
INITIAL ED/HOSPITAL GCS - MOTOR
INITIAL ED/HOSPITAL GCS - TOTAL
INITIAL ED/HOSPITAL GCS ASSESSMENT QUALIFIERS
INITIAL ED/HOSPITAL HEIGHT
INITIAL ED/HOSPITAL WEIGHT
DRUG SCREEN
ALCOHOL SCREEN
ALCOHOL SCREEN RESULTS
ED DISCHARGE DISPOSITION
SIGNS OF LIFE
ED DISCHARGE DATE
ED DISCHARGE TIME

Hospital Procedure Information

ICD-10 HOSPITAL PROCEDURES
HOSPITAL PROCEDURE START DATE
HOSPITAL PROCEDURE START TIME

Diagnoses Information

CO-MORBID CONDITIONS
ICD-10 INJURY DIAGNOSES

Injury Severity Information

AIS PREDOT CODE
AIS SEVERITY
ISS BODY REGION
LOCALLY CALCULATED ISS

Outcome Information

TOTAL ICU LENGTH OF STAY
TOTAL VENTILATOR DAYS
HOSPITAL DISCHARGE DATE
HOSPITAL DISCHARGE TIME
HOSPITAL DISCHARGE DISPOSITION

Financial Information

PRIMARY METHOD OF PAYMENT

Quality Assurance Information

HOSPITAL COMPLICATIONS

Measures for Process of Care (TQIP)

HIGHEST GCS TOTAL
HIGHEST GCS MOTOR
GCS ASSESSMENT QUALIFIER COMPONENT OF HIGHEST GCS TOTAL
INITIAL ED/HOSPITAL PUPILLARY RESPONSE
MIDLINE SHIFT
CEREBRAL MONITOR
CEREBRAL MONITOR DATE
<table>
<thead>
<tr>
<th>Time/Measurement</th>
<th>Description</th>
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<tbody>
<tr>
<td>Cerebral Monitor Time</td>
<td></td>
</tr>
<tr>
<td>Venous Thromboembolism Prophylaxis Type</td>
<td></td>
</tr>
<tr>
<td>Venous Thromboembolism Prophylaxis Date</td>
<td></td>
</tr>
<tr>
<td>Venous Thromboembolism Prophylaxis Time</td>
<td></td>
</tr>
<tr>
<td>Transfusion Blood (4 Hours)</td>
<td></td>
</tr>
<tr>
<td>Transfusion Blood (24 Hours)</td>
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<tr>
<td>Transfusion Blood Measurement</td>
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<td>Transfusion Blood Conversion</td>
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<td>Transfusion Plasma (4 Hours)</td>
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<td>Transfusion Plasma (24 Hours)</td>
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<tr>
<td>Transfusion Plasma Measurement</td>
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<td>Transfusion Plasma Conversion</td>
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<td>Transfusion Platelets (4 Hours)</td>
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<td>Transfusion Platelets (24 Hours)</td>
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<tr>
<td>Transfusion Platelets Measurement</td>
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<tr>
<td>Transfusion Platelets Conversion</td>
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<td>Cryoprecipitate (4 Hours)</td>
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<td>Cryoprecipitate (24 Hours)</td>
<td></td>
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<tr>
<td>Cryoprecipitate Measurement</td>
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<tr>
<td>Cryoprecipitate Conversion</td>
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<tr>
<td>Lowest ED/Hospital Systolic Blood Pressure</td>
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</tr>
<tr>
<td>Angiography Site</td>
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<tr>
<td>Angiography Time</td>
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<tr>
<td>Surgery for Hemorrhage Control Type</td>
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</tr>
<tr>
<td>Surgery for Hemorrhage Control Date</td>
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<td>Surgery for Hemorrhage Control Time</td>
<td></td>
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<tr>
<td>Withdrawal of Life Supporting Treatment</td>
<td></td>
</tr>
<tr>
<td>Withdrawal of Life Supporting Treatment Date</td>
<td></td>
</tr>
<tr>
<td>Withdrawal of Life Supporting Treatment Time</td>
<td></td>
</tr>
</tbody>
</table>

**PLEASE GO TO: 2018 NTDB Data Dictionary** and download a copy of the National Trauma Data Standards for the current year of admission.
**DATA SUBMISSION PROCESS:**

**DATA SUBMISSION:**
The System Administrator sets up non Image Trend users under the facility profile page. The System Administrator will replace AHA number with facilities NTDB Facility number. This number MUST be obtained from the individual hospital as ACS will not give this information out.

1. Each non Image Trend Hospital will run their NTDB export from their individual software
2. Correct Level 1 and Level 2 errors – same as NTDB
3. Rerun NTDB export
4. Go to State Image Trend Site [www.lerntrauma.com](http://www.lerntrauma.com) and log in with your credentials
5. Click Data Exchange → Import → NTDB Import
6. Click the green IMPORT button in the upper right side of the page
7. Name the file, use the BROWSE button to navigate to the file you wish to import.
8. After you have verified that the Channel and Form Type are correct, click UPLOAD AND VALIDATE button to start the file transfer. Depending on the number of incidents, this step may take a moment. Be patient and when it is complete you will be notified.
9. The system will automatically run the data importing, processing, and validation routines. Changes will be reflected in the system within 24 hours.
APPENDIX A: ACS COMORBID DEFINITIONS

Advanced Directive Limiting Care: The patient had a written request limiting life sustaining therapy, or similar advanced directive, present prior to arrival at your center.

Alcohol Use Disorder: *(Consistent with the American Psychiatric Association (APA) DMS 5, 2013.)* Diagnosis of alcohol use disorder documented in the patient’s medical record, present prior to injury.

Angina Pectoris: *(Consistent with the American Heart Association (AHA), May 2015.)* Chest pain or discomfort due to Coronary Heart Disease, present prior to injury. Usually causes uncomfortable pressure, fullness, squeezing or pain in the center of the chest. Patient may also feel the discomfort in the neck, jaw, shoulder, back or arm. Symptoms may be different in women than men. A diagnosis of Angina or Chest Pain must be documented in the patient’s medical record.

Anticoagulant Therapy: Documentation in the medical record of the administration of medication (anticoagulants, antiplatelet agents, thrombin inhibitors, thrombolytic agents) that interferes with blood clotting, present prior to injury. Exclude patients who are on chronic Aspirin therapy. Some examples are:

<table>
<thead>
<tr>
<th>ANTICOAGULANTS</th>
<th>ANTIPLATELET AGENTS</th>
<th>THROMBIN INHIBITORS</th>
<th>THROMBOLYTIC AGENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fondaparinux</td>
<td>Tirofiban</td>
<td>Bevalirudin</td>
<td>Alteplase</td>
</tr>
<tr>
<td>Warfarin</td>
<td>Dipyridamole</td>
<td>Argatroban</td>
<td>Reteplase</td>
</tr>
<tr>
<td>Dalteparin</td>
<td>Anagrelide</td>
<td>Lepirudin, Hirudin</td>
<td>Tenacteplase</td>
</tr>
<tr>
<td>Lovenox</td>
<td>Eptifibatide</td>
<td>Drotrecogin alpha</td>
<td>Kabikinase</td>
</tr>
<tr>
<td>Pentasaccaride</td>
<td>Cilostazel</td>
<td>Dabigatran</td>
<td>tPA</td>
</tr>
<tr>
<td>APC</td>
<td>Clopidogrel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ximelagatran</td>
<td>Abciximab</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pentoxifyline</td>
<td>Ticlopidine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rivaroxaban</td>
<td>Pragugrel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heparin</td>
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<td></td>
</tr>
</tbody>
</table>

Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder (ADD/ADHD): A disorder involving inattention, hyperactivity, or impulsivity requiring medication for treatment, present prior to ED/Hospital arrival. A diagnosis of ADD/ADHD must be documented in the patient’s medical record.

Bleeding Disorder: *(Consistent with the American Society of Hematology, 2015.)* A group of conditions that result when the blood cannot clot properly, present prior to injury. A Bleeding Disorder diagnosis must be documented in the patient’s medical record (e.g., Hemophilia, von Willenbrand Disease, Factor V Leiden.)

Cerebral Vascular Accident (CVA): A history prior to injury of a cerebrovascular accident (embolic, thrombotic, or hemorrhagic) with persistent residual motor sensory or cognitive dysfunction (e.g., hemiplegia, hemiparesis, aphasia, sensory deficit, impaired memory). A diagnosis of CVA must be documented in the patient's medical record.
Chronic Obstructive Pulmonary Disease (COPD): (Consistent with World Health Organization (WHO), 2015.) Lung ailment that is characterized by a persistent blockage of airflow from the lungs, present prior to injury. It is not one single disease but an umbrella term used to describe chronic lung diseases that cause limitations in lung airflow. The more familiar terms "chronic bronchitis" and "emphysema" are no longer used, but are now included within the COPD diagnosis and result in any one or more of the following:

- Functional disability from COPD (e.g., dyspnea, inability to perform activities of daily living [ADLs]).
- Hospitalization in the past for treatment of COPD.
- Requires chronic bronchodilator therapy with oral or inhaled agents.
- A Forced Expiratory Volume in 1 second (FEV1) of < 75% or predicted on pulmonary function testing.

A diagnosis of COPD must be documented in the patient’s medical record. Do not include patients whose only pulmonary disease is acute asthma, and/or diffuse interstitial fibrosis or sarcoidosis.

Chronic Renal Failure: Chronic renal failure prior to injury that was requiring periodic peritoneal dialysis, hemodialysis, hemofiltration, or hemodiafiltration, present prior to injury. A diagnosis of Chronic Renal Failure must be documented in the patient's medical record.

Cirrhosis: Documentation in the medical record of cirrhosis, which might also be referred to as end stage liver disease, present prior to injury. If there is documentation of prior or present esophageal or gastric varices, portal hypertension, previous hepatic encephalopathy, or ascites with notation of liver disease, then cirrhosis should be considered present. A diagnosis of Cirrhosis, or documentation of Cirrhosis by diagnostic imaging studies or a laparotomy/laparoscopy, must be in the patient's medical record.

Congenital Anomalies: Documentation of a cardiac, pulmonary, body wall, CNS/spinal, GI, renal, orthopedic, or metabolic anomaly, present prior to injury. A diagnosis of a Congenital Anomaly must be documented in the patient's medical record.

Congestive Heart Failure (CHF): The inability of the heart to pump a sufficient quantity of blood to meet the metabolic needs of the body or can do so only at an increased ventricular filling pressure, present prior to injury. To be included, this condition must be noted in the medical record as CHF, congestive heart failure, or pulmonary edema with onset of increasing symptoms within 30 days prior to injury. Common manifestations are:

- Abnormal limitation in exercise tolerance due to dyspnea or fatigue
- Orthopnea (dyspnea or lying supine)
- Paroxysmal nocturnal dyspnea (awakening from sleep with dyspnea)
- Increased jugular venous pressure
- Pulmonary rales on physical examination
- Cardiomegaly
- Pulmonary vascular engorgement

Current Smoker: A patient who reports smoking cigarettes every day or some days within the last 12 months, prior to injury. Exclude patients who smoke cigars or pipes or smokeless tobacco (chewing
Currently Receiving Chemotherapy for Cancer: A patient who is currently receiving any chemotherapy treatment for cancer, prior to injury. Chemotherapy may include, but is not restricted to, oral and parenteral treatment with chemotherapeutic agents for malignancies such as colon, breast, lung, head and neck, and gastrointestinal solid tumors as well as lymphatic and hematopoietic malignancies such as lymphoma, leukemia, and multiple myeloma. A3.3

Dementia: Documentation in the patient's medical record of dementia including senile or vascular dementia (e.g., Alzheimer's) present prior to injury.

Diabetes Mellitus: Diabetes mellitus that requires exogenous parenteral insulin or an oral hypoglycemic agent, present prior to injury. A diagnosis of Diabetes Mellitus must be documented in the patient's medical record.

Disseminated Cancer: Patients who have cancer that has spread to one or more sites in addition to the primary site AND in whom the presence of multiple metastases indicates the cancer is widespread, fulminant, or near terminal, present prior to injury. Other terms describing disseminated cancer include: "diffuse", "widely metastatic", "widespread", or "carcinomatosis". Common sites of metastases include major organs, (e.g., brain, lung, liver, meninges, abdomen, peritoneum, pleura, and/or bone). A diagnosis of Cancer that has spread to one or more sites must be documented in the patient’s medical record.

Functionally Dependent Health Status: Pre-injury functional status may be represented by the ability of the patient to complete age appropriate activities of daily living (ADL). Activities of Daily Living include: bathing, feeding, dressing, toileting, and walking. Include patients whom prior to injury, and as a result of cognitive or physical limitations relating to a pre-existing medical condition, was partially dependent or completely dependent upon equipment, devices or another person to complete some or all activities of daily living.

Hypertension: History of persistent elevated blood pressure requiring medical therapy, present prior to injury. A diagnosis of Hypertension must be documented in the patient's medical record.

Mental/Personality Disorder: (Consistent with American Psychiatric Association (APA) DSM 5, 2013.) Documentation of the presence of pre-injury depressive disorder, bipolar disorder, schizophrenia, borderline or antisocial personality disorder, and/or adjustment disorder/post-traumatic stress disorder. A diagnosis of Mental/Personality Disorder must be documented in the patient's medical record.

Myocardial Infarction: History of a MI in the six months prior to injury. A diagnosis of MI must be documented in the patient's medical record.

Peripheral Arterial Disease (PAD): (Consistent with Centers for Disease Control, 2014 Fact Sheet.) The narrowing or blockage of the vessels that carry blood from the heart to the legs, present prior to injury. It is primarily caused by the buildup of fatty plaque in the arteries, which is called atherosclerosis. PAD can occur in any blood vessel, but it is more common in the legs than the arms. A diagnosis of PAD must be documented in the patient's medical record.
Prematurity: Infants delivered before 37 weeks from the first day of the last menstrual period, and a history of bronchopulmonary dysplasia, or ventilator support for greater than 7 days after birth. A diagnosis of Prematurity, or delivery before 37 weeks gestation, must be documented in the patient's medical record.

Steroid Use: Patients that require the regular administration of oral or parenteral corticosteroid medications within 30 days prior to injury for a chronic medical condition. Examples of oral or parenteral corticosteroid medications are: prednisone and dexamethasone. Examples of chronic medical conditions are: COPD, asthma, rheumatologic disease, rheumatoid arthritis, and inflammatory bowel disease. Exclude topical corticosteroids applied to the skin, and corticosteroids administered by inhalation or rectally.

Substance Abuse Disorder: (Consistent with American Psychiatric Association (APA) DSM 5, 2013.) Documentation of Substance Abuse Disorder documented in the patient medical record, present prior to injury. A diagnosis of Substance Abuse Disorder must be documented in the patient's medical record.
APPENDIX B: ACS COMPLICATION DEFINITIONS

**Acute Kidney Injury:** (Consistent with the March 2012 Kidney Disease Improving Global Outcome (KDIGO) Guideline.) Acute Kidney Injury, AKI (stage 3), is an abrupt decrease in kidney function that occurred during the patient's initial stay at your hospital.

**KDIGO (Stage 3) Table:**
- $(SCr)$ 3 times baseline
- OR
  - Increase in $SCr$ to $\geq 4.0$ mg/dl ($\geq 353.6$ $\mu$mol/l)
  - OR
  - Initiation of renal replacement therapy OR, In patients < 18 years, decrease in eGFR to <35 ml/min per 1.73 m²
  - OR
  - Urine output <0.3 ml/kg/h for > 24 hours
  - OR
  - Anuria for > 12 hours

A diagnosis of AKI must be documented in the patient’s medical record. If the patient or family refuses treatment (e.g., dialysis,) the condition is still considered to be present if a combination of oliguria and creatinine are present.

EXCLUDE patients with renal failure that were requiring chronic renal replacement therapy such as periodic peritoneal dialysis, hemodialysis, hemofiltration, or hemodiafiltration prior to injury.

**Acute Respiratory Distress Syndrome (ARDS):** (Consistent with the 2012 New Berlin Definition.)

Timing: Within 1 week of known clinical insult or new or worsening respiratory symptoms.

Chest imaging: Bilateral opacities – not fully explained by effusions, lobar/lung collage, or nodules

Origin of edema: Respiratory failure not fully explained by cardiac failure of fluid overload. Need objective assessment (e.g., echocardiography) to exclude hydrostatic edema if no risk factor present

Oxygenation: $200 < PaO2/FiO2 \leq 300$ (at a minimum) With PEEP or CPAP $\geq 5$ cmH2O

A diagnosis of ARDS must be documented in the patient's medical record, and must have occurred during the patient’s initial stay at your hospital.

**Alcohol Withdrawal Syndrome:** (Consistent with the 2016 World Health Organization (WHO) definition of Alcohol Withdrawal Syndrome.) Characterized by tremor, sweating, anxiety, agitation, depression, nausea, and malaise. It occurs 6-48 hours after cessation of alcohol consumption, and when uncomplicated, abates after 2-5 days. It may be complicated by grand mal seizures and may progress to A3.5 delirium (known as delirium tremens). Must have occurred during the patient's initial stay at your hospital, and documentation of alcohol withdrawal must be in the patient's medical record.

**Cardiac Arrest with CPR:** Cardiac arrest is the sudden cessation of cardiac activity after hospital arrival. The patient becomes unresponsive with no normal breathing and no signs of circulation. If corrective measures are not taken rapidly, this condition progresses to sudden death. Cardiac Arrest must be documented in the patient's medical record, and must have occurred during the patient's initial stay at your hospital.

EXCLUDE patients who are receiving CPR on arrival to your hospital.

INCLUDE patients who have had an episode of cardiac arrest evaluated by hospital personnel, and received compressions or defibrillation or cardioversion or cardiac pacing to restore circulation.
Catheter-Associated Urinary Tract Infection (CAUTI): *(Consistent with the January 2016 CDC defined CAUTI.)* A UTI where an indwelling urinary catheter was in place for > 2 calendar days on the date of event, with day of device placement being Day 1, AND

An indwelling urinary catheter was in place on the date of event or the day before. If an indwelling urinary catheter was in place for > 2 calendar days and then removed, the date of event for the UTI must be the day of discontinuation or the next day for the UTI to be catheter-associated.

**January 2016 CDC CAUTI Criterion SUTI 1a:**

Patient must meet 1, 2, and 3 below:

1. Patient had an indwelling urinary catheter in place for the entire day on the date of event and such catheter had been in place for >2 calendar days, on that date (day of device placement = Day 1) AND was either:
   - Present for any portion of the calendar day on the date of event, OR
   - Removed the day before the date of event

2. Patient has at least one of the following signs or symptoms:
   - Fever (>38°C)
   - Suprapubic tenderness with no other recognized cause
   - Costovertebral angle pain or tenderness with no other recognized cause

3. Patient has a urine culture with no more than two species of organisms, at least one of which is a bacteria >10⁵ CFU/ml.

**January 2016 CDC CAUTI Criterion SUTI 2:**

Patient must meet 1, 2 and 3 below:

1. Patient is ≤ 1 year of age
2. Patient has at least one of the following signs or symptoms:
   - Fever (>38.0°C)
   - Hypothermia (<36.0°C)
   - Apnea with no other recognized cause
   - Bradycardia with no other recognized cause
   - Lethargy with no other recognized cause
   - Vomiting with no other recognized cause
   - Suprapubic tenderness with no other recognized cause

Patient has a urine culture with no more than two species of organisms, at least one of which is bacteria of ≥10⁵ CFU/ml.

A diagnosis of UTI must be documented in the patient’s medical record, and must have occurred during the patient’s initial stay at your hospital.

Central Line-Associated Bloodstream Infection (CLABSI): *(Consistent with the January 2016 CDC defined CLABSI.)* A laboratory-confirmed bloodstream infection (LCBI) where central line (CL) or umbilical catheter (UC) was in place for > 2 calendar days on the date of event, with day of device placement being Day 1, AND

The line was also in place on the date of event or the day before. If a CL or UC was in place for > 2 calendar days and then removed, the date of event of the LCBI must be the day of discontinuation or the next day to be a CLABSI. If the patient is admitted or transferred into a facility with an implanted central line (port) in place, and that is the patient’s only central line, day of first access in an inpatient location is considered Day 1. "Access" is defined as line placement, infusion or withdrawal through the line. Such lines continue to be eligible for CLABSI once they are accessed until they are either discontinued or the day after patient discharge (as per the Transfer Rule.) Note that the "de-access" of a port does not result
in the patient’s removal from CLABSI surveillance.

**January 2016 CDC Criterion LCBI 1:**
Patient has a recognized pathogen identified from one or more blood specimens by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment (e.g., not Active Surveillance Culture/Testing (ASC/AST.)

AND

Organism(s) identified in blood is not related to an infection at another site.

OR

**January 2016 CDC Criterion LCBI 2:**
Patient has at least one of the following signs or symptoms: fever (>38°C), chills, or hypotension

AND

Organism(s) identified from blood is not related to an infection at another site.

AND

the same common commensal (i.e., diphtheroids [Corynebacterium spp. not C. diphtheriae], Bacillus spp. [not B. anthracis], Propionibacterium spp., coagulase-negative staphylococci [including S. epidermidis], viridans group streptococci, Aerococcus spp., and Micrococcus spp.) is identified from two or more blood specimens drawn on separate occasions, by a culture or nonculture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment (e.g., not Active Surveillance Culture/Testing (ASC/AST.) Criterion elements must occur within the Infection Window Period, the 7-day time period which includes the collection date of the positive blood, the 3 calendar days before and the 3 calendar days after.

**January 2016 CDC Criterion LCBI 3:**
Patient ≤ 1 year of age has at least one of the following signs or symptoms: fever (>38°C), hypothermia (<36°C), apnea, or bradycardia

AND

Organism(s) identified from blood is not related to an infection at another site

AND

the same common commensal (i.e., diphtheroids [Corynebacterium spp. not C. diphtheriae], Bacillus spp. [not B. anthracis], Propionibacterium spp., coagulase-negative staphylococci [including S. epidermidis], viridans group streptococci, Aerococcus spp., Micrococcus spp.) is identified from two or more blood specimens drawn on separate occasions, by a culture or nonculture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment (e.g., not Active Surveillance Culture/Testing (ASC/AST.) Criterion elements must occur within the Infection Window Period, the 7-day time period which includes the collection date of the positive blood, the 3 calendar days before and the 3 calendar days after.

A diagnosis of LCBSI must be documented in the patient’s medical record, and must have occurred during the patient’s initial stay at your hospital.

**Deep Surgical Site Infection: (Consistent with the January 2016 CDC defined SSI.)** Must meet the following criteria:
Infection occurs within 30 or 90 days after the NHSN operative procedure (where day 1 = the procedure date) According to list in Table 2

AND

involves deep soft tissues of the incision (e.g., fascial and muscle layers)

AND

patient has at least one of the following:
a. purulent drainage from the deep incision.
b. a deep incision that spontaneously dehisces, or is deliberately opened or aspirated by a surgeon, attending physician** or other designee and organism is identified by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment (e.g., not Active Surveillance Culture/Testing (ASC/AST) or culture or non-culture based microbiologic testing method is not performed

AND

patient has at least one of the following signs or symptoms: fever (>38°C); localized pain or tenderness. A culture or non-culture based test that has a negative finding does not meet this criterion. c. an abscess or other evidence of infection involving the deep incision that is detected on gross anatomical or histopathologic exam, or imaging test

COMMENTS: There are two specific types of deep incisional SSIs:

1. Deep Incisional Primary (DIP) – a deep incisional SSI that is identified in a primary incision in a patient that has had an operation with one or more incisions (e.g., C-section incision or chest incision for CBGB)
2. Deep Incisional Secondary (DIS) – a deep incisional SSI that is identified in the secondary incision in a patient that has had an operation with more than one incision (e.g., donor site incision for CBGB)

Table 2. Surveillance Period for Deep Incisional or Organ/Space SSI Following Selected NHSN Operative Procedure Categories. Day 1 = the date of the procedure

<table>
<thead>
<tr>
<th>30-day Surveillance</th>
<th>Code</th>
<th>Operative Procedure</th>
<th>Code</th>
<th>Operative Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAA</td>
<td>Abdominal aortic aneurysm repair</td>
<td>LAM</td>
<td>Laminectomy</td>
<td></td>
</tr>
<tr>
<td>AMP</td>
<td>Limb amputation</td>
<td>LTP</td>
<td>Liver transplant</td>
<td></td>
</tr>
<tr>
<td>APPY</td>
<td>Appendix surgery</td>
<td>NECK</td>
<td>Neck surgery</td>
<td></td>
</tr>
<tr>
<td>AVSD</td>
<td>Shunt for dialysis</td>
<td>NEPH</td>
<td>Kidney surgery</td>
<td></td>
</tr>
<tr>
<td>BILI</td>
<td>Bile duct, liver or pancreatic surgery</td>
<td>OVRY</td>
<td>Ovarian surgery</td>
<td></td>
</tr>
<tr>
<td>CEA</td>
<td>Carotid endarterectomy</td>
<td>PRST</td>
<td>Prostate surgery</td>
<td></td>
</tr>
<tr>
<td>CHOL</td>
<td>Gallbladder surgery</td>
<td>REC</td>
<td>Rectal surgery</td>
<td></td>
</tr>
<tr>
<td>COLO</td>
<td>Colon surgery</td>
<td>SB</td>
<td>Small bowel surgery</td>
<td></td>
</tr>
<tr>
<td>CSEC</td>
<td>Cesarean section</td>
<td>SPLE</td>
<td>Spleen surgery</td>
<td></td>
</tr>
<tr>
<td>GAST</td>
<td>Gastric surgery</td>
<td>THOR</td>
<td>Thoracic surgery</td>
<td></td>
</tr>
<tr>
<td>HTP</td>
<td>Heart transplant</td>
<td>THUR</td>
<td>Thyroid and/or parathyroid surgery</td>
<td></td>
</tr>
<tr>
<td>HYST</td>
<td>Abdominal hysterectomy</td>
<td>VHYS</td>
<td>Vaginal hysterectomy</td>
<td></td>
</tr>
<tr>
<td>KTP</td>
<td>Kidney transplant</td>
<td>XLAP</td>
<td>Exploratory Laparotomy</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>90-day Surveillance</th>
<th>Code</th>
<th>Operative Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRST</td>
<td>Breast surgery</td>
<td></td>
</tr>
</tbody>
</table>
A diagnosis of SSI must be documented in the patient’s medical record, and must have occurred during the patient’s initial stay at your hospital.

**Deep Vein Thrombosis (DVT):** The formation, development, or existence of a blood clot or thrombus within the vascular system, which may be coupled with inflammation. The patient must be treated with anticoagulation therapy and/or placement of a vena cava filter or clipping of the vena cava. A diagnosis of DVT must be documented in the patient's medical record. This diagnosis may be confirmed by a venogram, ultrasound, or CT, and must have occurred during the patient’s initial stay at your hospital.

**Extremity Compartment Syndrome:** A condition not present at admission in which there is documentation of tense muscular compartments of an extremity through clinical assessment or direct measurement of intracompartmental pressure requiring fasciotomy. Compartment syndromes usually involve the leg but can also occur in the forearm, arm, thigh, and shoulder. A diagnosis of Extremity Compartment Syndrome must be documented in the patient's medical record, and must have occurred during the patient's initial stay at your hospital. Only record as a complication if it is originally missed, leading to late recognition, a need for late intervention, and has threatened limb viability.

**Myocardial Infarction (MI):** An acute myocardial infarction must be noted with documentation of any of the following:

Documentation of ECG changes indicative of acute MI (one or more of the following three):
1. ST elevation >1 mm in two or more contiguous leads
2. New left bundle branch block
3. New q-wave in two or more contiguous leads

OR

New elevation in troponin greater than three times upper level of the reference range in the setting of suspected myocardial ischemia

OR

Physician diagnosis of myocardial infarction
Must have occurred during the patient’s initial stay at your hospital.

**Organ/Space Surgical Site Infection:** (Consistent with the January 2016 CDC defined SSI.) Must meet the following criteria:

Infection occurs within 30 or 90 days after the NHSN operative procedure (where day 1 = the procedure date) according to the list in Table 2

AND
infection involves any part of the body deeper than the fascial/muscle layers, that is opened or manipulated during the operative procedure

AND

patient has at least **one** of the following:

a. purulent drainage from a drain that is placed into the organ/space (e.g., closed suction drainage system, open drain, T-tube drain, CT guided drainage)

b. organisms are identified from an aseptically-obtained fluid or tissue in the organ/space by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment (e.g., not Active Surveillance Culture/Testing (ASC/AST)).

c. an abscess or other evidence of infection involving the organ/space that is detected on gross anatomical or histopathologic exam, or imaging test

AND

meets at least **one** criterion for a specific organ/space infection site listed in Table 3. These criteria are found in the Surveillance Definitions for Specific Types of Infections chapter.

**Table 2. Surveillance Period for Deep Incisional or Organ/Space SSI Following Selected NHSN Operative Procedure Categories. Day 1 = the date of the procedure.**

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</tr>
<tr>
<td>COLO</td>
<td>Colon surgery</td>
<td>SB</td>
<td>Small bowel surgery</td>
</tr>
<tr>
<td>CSEC</td>
<td>Cesarean section</td>
<td>SPLE</td>
<td>Spleen surgery</td>
</tr>
<tr>
<td>GAST</td>
<td>Gastric surgery</td>
<td>THOR</td>
<td>Thoracic surgery</td>
</tr>
<tr>
<td>HTP</td>
<td>Heart transplant</td>
<td>THUR</td>
<td>Thyroid and/or parathyroid surgery</td>
</tr>
<tr>
<td>HYST</td>
<td>Abdominal hysterectomy</td>
<td>VHYS</td>
<td>Vaginal hysterectomy</td>
</tr>
<tr>
<td>KTP</td>
<td>Kidney transplant</td>
<td>XZAP</td>
<td>Exploratory Laparotomy</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Operative Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRST</td>
<td>Breast surgery</td>
</tr>
<tr>
<td>CARD</td>
<td>Cardiac surgery</td>
</tr>
<tr>
<td>CBGB</td>
<td>Coronary artery bypass graft with both chest and donor site incisions</td>
</tr>
<tr>
<td>CBGC</td>
<td>Coronary artery bypass graft with chest incision only</td>
</tr>
<tr>
<td>CRAN</td>
<td>Craniotomy</td>
</tr>
<tr>
<td>FUSN</td>
<td>Spinal fusion</td>
</tr>
<tr>
<td>FX</td>
<td>Open reduction of fracture</td>
</tr>
<tr>
<td>HER</td>
<td>Hemiorrhaphy</td>
</tr>
<tr>
<td>HPRO</td>
<td>Hip prosthesis</td>
</tr>
<tr>
<td>KPRO</td>
<td>Knee prosthesis</td>
</tr>
<tr>
<td>PACE</td>
<td>Pacemaker surgery</td>
</tr>
<tr>
<td>PVBY</td>
<td>Peripheral vascular bypass surgery</td>
</tr>
<tr>
<td>VSHN</td>
<td>Ventricular shunt</td>
</tr>
</tbody>
</table>
Table 3. Specific Sites of an Organ/Space SSI.

<table>
<thead>
<tr>
<th>Code</th>
<th>Site</th>
<th>Code</th>
<th>Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>BONE</td>
<td>Osteomyelitis</td>
<td>LUNG</td>
<td>Other infections of the respiratory tract</td>
</tr>
<tr>
<td>BRST</td>
<td>Breast abscess mastitis</td>
<td>MED</td>
<td>Mediastinitis</td>
</tr>
<tr>
<td>CARD</td>
<td>Myocarditis or pericarditis</td>
<td>MEN</td>
<td>Meningitis or ventriculitis</td>
</tr>
<tr>
<td>DISC</td>
<td>Disc space</td>
<td>ORAL</td>
<td>Oral cavity (mouth, tongue, or gums)</td>
</tr>
<tr>
<td>EAR</td>
<td>Ear, mastoid</td>
<td>OREP</td>
<td>Other infections of the male or female reproductive tract</td>
</tr>
<tr>
<td>EMET</td>
<td>Endometritis</td>
<td>PJI</td>
<td>Periprosthetic Joint Infection</td>
</tr>
<tr>
<td>ENDO</td>
<td>Endocarditis</td>
<td>SA</td>
<td>Spinal abscess without meningitis</td>
</tr>
<tr>
<td>EYE</td>
<td>Eye, other than conjunctivitis</td>
<td>SINU</td>
<td>Sinusitis</td>
</tr>
<tr>
<td>GIT</td>
<td>GI tract</td>
<td>UR</td>
<td>Upper respiratory tract</td>
</tr>
<tr>
<td>HEP</td>
<td>Hepatitis</td>
<td>USI</td>
<td>Urinary System Infection</td>
</tr>
<tr>
<td>IAB</td>
<td>Intraabdominal, not specified</td>
<td>VASC</td>
<td>Arterial or venous infection</td>
</tr>
<tr>
<td>IC</td>
<td>Intracranial, brain abscess or dura</td>
<td>VCUF</td>
<td>Vaginal cuff</td>
</tr>
<tr>
<td>JNT</td>
<td>Joint or bursa</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A diagnosis of SSI must be documented in the patient’s medical record, and must have occurred during the patient’s initial stay at your hospital.

**Osteomyelitis:** (*Consistent with the January 2016 CDC definition of Bone and Joint infection.*)

Osteomyelitis must meet at least one of the following criteria:

1. Patient has organisms identified from bone by culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis and treatment (e.g., *not* Active Surveillance Culture/Testing (ASC/AST)).
2. Patient has evidence of osteomyelitis on gross anatomic or histopathologic exam.
3. Patient has at least two of the following localized signs or symptoms: fever (>38.0°C), swelling*, pain or tenderness*, heat*, or drainage*

And at least one of the following:

a. organisms identified from blood by culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis and treatment (e.g., *not* Active Surveillance Culture/Testing (ASC/AST)) in a patient with imaging test evidence suggestive of infection (e.g., x-ray, CT scan, MRI, radiolabel scan [gallium, technetium, etc.]), which if equivocal is supported by clinical correlation (i.e., physician documentation of antimicrobial treatment for osteomyelitis).

b. imaging test evidence suggestive of infection (e.g., x-ray, CT scan, MRI, radiolabel scan [gallium, technetium, etc.]), which if equivocal is supported by clinical correlation (i.e., physician documentation of antimicrobial treatment for osteomyelitis).

* With no other recognized cause

A diagnosis of Osteomyelitis must be documented in the patient’s medical record, and must have occurred during the patient’s initial stay at your hospital.

**Pulmonary Embolism:** A lodging of a blood clot in a pulmonary artery with subsequent obstruction of blood supply to the lung parenchyma. The blood clots usually originate from the deep leg veins or the pelvic venous system. Consider the condition present if the patient has a V-Q scan interpreted as high probability of pulmonary embolism or a positive pulmonary arteriogram or positive CT angiogram and/or a diagnosis of PE is documented in the patient’s medical record. Must have occurred during the patient’s initial stay at your hospital.

**Pressure Ulcer:** (*Consistent with the National Pressure Ulcer Advisory Panel (NPUAP) 2014.*) A localized injury to the skin and/or underlying tissue usually over a bony prominence, as a result of
pressure, or pressure in combination with shear. A number of contributing or confounding factors are also associated with pressure ulcers; the significance of these factors is yet to be elucidated. Equivalent to NPUAP Stages II-IV, Unstageable/Unclassified, and Suspected Deep Tissue Injury. Documentation of Pressure Ulcer must be in the patient's medical record, and must have occurred during the patient's initial stay at your hospital.

**Severe Sepsis:** (Consistent with the American College of Chest Physicians and the Society of Critical Care Medicine October 2010.)

- Severe sepsis: sepsis plus organ dysfunction, hypotension (low blood pressure), or hypo perfusion (insufficient blood flow) to 1 or more organs.
- Septic shock: sepsis with persisting arterial hypotension or hypo perfusion despite adequate fluid resuscitation.

A diagnosis of Sepsis must be documented in the patient's medical record, and must have occurred during the patient's initial stay at your hospital.

**Stroke/CVA:** A focal or global neurological deficit of rapid onset and NOT present on admission. The patient must have at least one of the following symptoms:

- Change in level of consciousness
- Hemiplegia
- Hemiparesis
- Numbness or sensory loss affecting on side of the body
- Dysphasia or aphasia
- Hemianopia
- Amaurosis fugax
- Other neurological signs or symptoms consistent with stroke

AND:

- Duration of neurological deficit ≥24 h

OR:

- Duration of deficit <24 h, if neuroimaging (MR, CT, or cerebral angiography) documents a new hemorrhage or infarct consistent with stroke, or therapeutic intervention(s) were performed for stroke, or the neurological deficit results in death

AND:

- No other readily identifiable non-stroke cause, e.g., progression of existing traumatic brain injury, seizure, tumor, metabolic or pharmacologic etiologies, is identified

AND:

- Diagnosis is confirmed by neurology or neurosurgical specialist or neuroimaging procedure (MR, CT, angiography,) or lumbar puncture (CSF demonstrating intracranial hemorrhage that was not present on admission.)

Although the neurologic deficit must not present on admission, risk factors predisposing to stroke (e.g., blunt cerebrovascular injury, dysrhythmia) may be present on admission. A diagnosis of Stroke/CVA must be documented in the patient's medical record, and must have occurred during the patient's initial stay at your hospital.
Superficial Incisional Surgical Site Infection: (Consistent with the January 2016 CDC defined SSI.) Must meet the following criteria:

Infection occurs within 30 days after any NHSN operative procedure (where day 1 = the procedure date)

AND

involves only skin and subcutaneous tissue of the incision

AND

patient has at least one of the following:

- a. purulent drainage from the superficial incision.
- b. organisms identified from an aseptically-obtained specimen from the superficial incision or subcutaneous tissue by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment (e.g., not Active Surveillance Culture/Testing (ASC/AST).
- c. superficial incision that is deliberately opened by a surgeon, attending physician** or other designee and culture or non-culture based testing is not performed.

AND

patient has at least one of the following signs or symptoms: pain or tenderness; localized swelling; erythema; or heat. A culture or non-culture based test that has a negative finding does not meet this criterion.

- d. diagnosis of a superficial incisional SSI by the surgeon or attending physician** or other designee.

COMMENTS: There are two specific types of superficial incisional SSIs:

1. Superficial Incisional Primary (SIP) – a superficial incisional SSI that is identified in the primary incision in a patient that has had an operation with one or more incisions (e.g., Csection incision or chest incision for CBGB)

2. Superficial Incisional Secondary (SIS) – a superficial incisional SSI that is identified in the secondary incision in a patient that has had an operation with more than one incision (e.g., donor site incision for CBGB)

A diagnosis of SSI must be documented in the patient's medical record, and must have occurred during the patient's initial stay at your hospital.

Unplanned Admission to ICU: Patients admitted to the ICU after initial transfer to the floor, and/or patients with an unplanned return to the ICU after initial ICU discharge. Must have occurred during the patient’s initial stay at your hospital. EXCLUDE: Patients in which ICU care was required for postoperative care of a planned surgical procedure.

Unplanned Intubation: Patient requires placement of an endotracheal tube and mechanical or assisted ventilation because of the onset of respiratory or cardiac failure manifested by severe respiratory distress, hypoxia, hypercarbia, or respiratory acidosis. In patients who were intubated in the field or Emergency Department, or those intubated for surgery, unplanned intubation occurs if they require reintubation > 24 hours after extubation. Must have occurred during the patient's initial stay at your hospital.

Unplanned Return to the Operating Room: Unplanned return to the operating room after initial operation management for a similar or related previous procedure. Must have occurred during the patient's initial stay at your hospital.
**Ventilator-Associated Pneumonia (VAP):** *(Consistent with the January 2016 CDC defined VAP.)* A pneumonia where the patient is on mechanical ventilation for > 2 calendar days on the date of event, with day of ventilator placement being Day 1,

**AND**

The ventilator was in place on the date of event or the day before. If the patient is admitted or transferred into a facility on a ventilator, the day of admission is considered Day 1.

**VAP Algorithm (PNU2 Bacterial or Filamentous Fungal Pathogens):**

<table>
<thead>
<tr>
<th>IMAGING TEST EVIDENCE</th>
<th>SIGNS/SYMPTOMS</th>
<th>LABORATORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two or more serial chest imaging test results with at least one of the following:</td>
<td>At least one of the following:</td>
<td>At least one of the following:</td>
</tr>
<tr>
<td>• New or progressive and persistent infiltrate</td>
<td>• Fever (&gt;38°C or &gt;100.4°F)</td>
<td>• Organism identified from blood</td>
</tr>
<tr>
<td>• Consolidation</td>
<td>• Leukopenia (&lt;4000 WBC/mm³) or leukocytosis (≥12,000 WBC/mm³)</td>
<td>• Organism identified from pleural fluid</td>
</tr>
<tr>
<td>• Cavitation</td>
<td>• For adults ≥70 years old, altered mental status with no other recognized cause</td>
<td>• Positive quantitative culture from minimally-contaminated LRT specimen (e.g., BAL or protected specimen brushing.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• ≥5% BAL-obtained cells contain intracellular bacteria on direct microscopic exam (e.g., Gram’s stain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Positive quantitative culture of lung tissue</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Histopathologic exam shows at least one of the following evidences of</td>
</tr>
</tbody>
</table>
- Pneumatoceles, in infants ≤1 year old

**NOTE:** In patients without underlying pulmonary or cardiac disease (e.g., respiratory distress syndrome, bronchopulmonary dysplasia, pulmonary edema, or chronic obstructive pulmonary disease), **one definitive** chest imaging test result is acceptable.

AND at least two of the following:

- New onset of purulent sputum, or change in character of sputum, or increased respiratory secretions, or increased suctioning requirements
- New onset or worsening cough, or dyspnea, or tachypnea
- Rales or bronchial breath sounds
- Worsening gas exchange (e.g., $\text{O}_2$ desaturations (e.g., $\text{PaO}_2/\text{FiO}_2 \leq 240$), increased oxygen requirements, or increased ventilator demand)

- Pneumatoceles, in infants ≤1 year old, AND at least one of the following:

VAP Algorithm (PNU2 Viral, Legionella, and other Bacterial Pneumonias):

<table>
<thead>
<tr>
<th>IMAGING TEST EVIDENCE</th>
<th>SIGNS/SYMPTOMS</th>
<th>LABORATORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two or more serial chest imaging test results with at least one of the following:</td>
<td>At least one of the following:</td>
<td>At least one of the following:</td>
</tr>
<tr>
<td>- New or progressive and persistent infiltrate</td>
<td>- Fever (&gt;38°C or &gt;100.4°F)</td>
<td>- Virus, <em>Bordetella, Legionella, Chlamydia or Mycoplasma</em> identified from respiratory secretions or tissue by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment (e.g., not Active Surveillance Culture/Testing (ASC/AST)).</td>
</tr>
<tr>
<td>- Consolidation</td>
<td>- Leukopenia (&lt;4000 WBC/mm$^3$) or leukocytosis (≥12,000 WBC/mm$^3$)</td>
<td>- Fourfold rise in paired sera (IgG) for pathogen (e.g., influenza viruses, <em>Chlamydia</em>)</td>
</tr>
<tr>
<td>- Cavitation</td>
<td>- For adults ≥70 years old, altered mental status with no other recognized cause</td>
<td>- Fourfold rise in <em>Legionella pneumophila</em> serogroup 1 antibody titer to ≥1:128 in paired acute and convalescent sera by indirect IFA.</td>
</tr>
<tr>
<td>- Pneumatoceles, in infants ≤1 year old</td>
<td>AND at least one of the following:</td>
<td></td>
</tr>
</tbody>
</table>

- Abscess formation or foci of consolidation with intense PMN accumulation in bronchioles and alveoli
- Evidence of lung parenchyma invasion by fungal hyphae or pseudohyphae
<table>
<thead>
<tr>
<th>NOTE: In patients <strong>without</strong> underlying pulmonary or cardiac disease (e.g., respiratory distress syndrome, bronchopulmonary dysplasia, pulmonary edema, or chronic obstructive pulmonary disease), <strong>one definitive</strong> chest imaging test result is acceptable.</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• New onset of purulent sputum, or change in character of sputum, or increased respiratory secretions, or increased suctioning requirements</td>
<td>• New onset or worsening cough, or dyspnea, or tachypnea</td>
<td>• Detection of L. pneumophila serogroup 1 antigens in urine by RIA or EIA</td>
</tr>
<tr>
<td>• Rales or bronchial breath sounds</td>
<td>• Worsening gas exchange (e.g., (0_2) desaturations (e.g., (P_aO_2/FiO_2)≤240), increased oxygen requirements, or increased ventilator demand)</td>
<td></td>
</tr>
</tbody>
</table>
**VAP Algorithm (PNU3 Immunocompromised Patients):**

<table>
<thead>
<tr>
<th>IMAGING TEST EVIDENCE</th>
<th>SIGNS/SYMPTOMS</th>
<th>LABORATORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two or more serial chest imaging test results with at least one of the following:</td>
<td>Patient who is immunocompromised has at least one of the following:</td>
<td>At least one of the following:</td>
</tr>
<tr>
<td>• New or progressive and persistent infiltrate</td>
<td>• Fever (&gt;38°C or &gt;100.4°F)</td>
<td>• Identification of matching <em>Candida</em> spp. from blood and sputum, endotracheal aspirate, BAL or protected specimen brushing.11,12,13</td>
</tr>
<tr>
<td>• Consolidation</td>
<td>• For adults ≥70 years old, altered mental status with no other recognized cause</td>
<td>• Evidence of fungi from minimally-contaminated LRT specimen (e.g., BAL or protected specimen brushing) from one of the following:</td>
</tr>
<tr>
<td></td>
<td>• New onset of purulent sputum3, or change in character of sputum4, or increased respiratory secretions, or increased suctioning requirements</td>
<td>• Direct microscopic exam</td>
</tr>
<tr>
<td></td>
<td>• Cavitation</td>
<td>• Positive culture of fungi</td>
</tr>
<tr>
<td></td>
<td>• Pneumatoceles, in infants ≤1 year old</td>
<td>• Non-culture diagnostic laboratory test</td>
</tr>
<tr>
<td></td>
<td>• New onset or worsening cough, or dyspnea, or tachypnea5</td>
<td>Any of the following from:</td>
</tr>
<tr>
<td></td>
<td>• Rales6 or bronchial breath sounds</td>
<td>LABORATORY CRITERIA DEFINED UNDER PNU2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Worsening gas exchange (e.g., O2 desaturations [e.g., PaO2/FiO2 &lt;240]7, increased oxygen requirements, or increased ventilator demand)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Hemoptysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Pleuritic chest pain</td>
</tr>
</tbody>
</table>

**NOTE:** In patients without underlying pulmonary or cardiac disease (e.g., respiratory distress syndrome, bronchopulmonary dysplasia, pulmonary edema, or chronic obstructive pulmonary disease), one definitive chest imaging test result is acceptable.
VAP Algorithm ALTERNATE CRITERIA (PNU1), for infant’s ≤1 year old:

<table>
<thead>
<tr>
<th>IMAGING TEST EVIDENCE</th>
<th>SIGNS/SYMPLECTS/LABORATORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two or more serial chest imaging test results with at least one of the following:</td>
<td>Worsening gas exchange (e.g., $O_2$ desaturation [e.g. pulse oximetry &lt;94%], increased oxygen requirements, or increased ventilator demand)</td>
</tr>
<tr>
<td>- New or progressive and persistent infiltrate</td>
<td>AND at least three of the following:</td>
</tr>
<tr>
<td>- Consolidation</td>
<td>- Temperature instability</td>
</tr>
<tr>
<td>- Cavitation</td>
<td>- Leukopenia ($\leq$4000 WBC/mm$^3$) or leukocytosis ($\geq$15,000 WBC/mm$^3$) and left shift ($\geq$10% band forms)</td>
</tr>
<tr>
<td>- Pneumatoceles, in infants ≤1 year old</td>
<td>- New onset of purulent sputum, or change in character of sputum, or increased respiratory secretions, or increased suctioning requirements</td>
</tr>
<tr>
<td>NOTE: In patients without underlying pulmonary or cardiac disease (e.g., respiratory distress syndrome, bronchopulmonary dysplasia, pulmonary edema, or chronic obstructive pulmonary disease), <strong>one definitive</strong> imaging test result is acceptable.</td>
<td>- Apnea, tachypnea, nasal flaring with retraction of chest wall, or nasal flaring with grunting</td>
</tr>
<tr>
<td></td>
<td>- Wheezing, rales, or rhonchi</td>
</tr>
<tr>
<td></td>
<td>- Cough</td>
</tr>
<tr>
<td></td>
<td>- Bradycardia (&lt;100 beats/min) or tachycardia (&gt;170 beats/min)</td>
</tr>
</tbody>
</table>

VAP Algorithm ALTERNATE CRITERIA (PNU1), for children >1 year old or ≤12 years old:

<table>
<thead>
<tr>
<th>IMAGING TEST EVIDENCE</th>
<th>SIGNS/SYMPLECTS/LABORATORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two or more serial chest imaging test results with at least one of the following:</td>
<td>At least three of the following:</td>
</tr>
<tr>
<td>- New or progressive and persistent infiltrate</td>
<td>- Fever ($&gt;38.0^\circ C$ or $&gt;100.4^\circ F$) or hypothermia ($&lt;36.0^\circ C$ or $&lt;96.8^\circ F$)</td>
</tr>
<tr>
<td>- Consolidation</td>
<td>- Leukopenia ($\leq$4000 WBC/mm$^3$) or leukocytosis ($\geq$15,000 WBC/mm$^3$)</td>
</tr>
<tr>
<td>- Cavitation</td>
<td>- New onset of purulent sputum, or change in character of sputum, or increased respiratory secretions, or increased suctioning requirements</td>
</tr>
<tr>
<td>- Pneumatoceles, in infants ≤1 year old</td>
<td>- New onset or worsening cough, or dyspnea, apnea, or tachypnea</td>
</tr>
<tr>
<td>NOTE: In patients without underlying pulmonary or cardiac disease (e.g., respiratory distress syndrome, bronchopulmonary dysplasia, pulmonary edema, or chronic obstructive pulmonary disease), <strong>one definitive</strong> imaging test result is acceptable.</td>
<td>- Rales or bronchial breath sounds</td>
</tr>
<tr>
<td></td>
<td>- Worsening gas exchange (e.g., $O_2$ desaturations [e.g., pulse oximetry &lt;94%], increased oxygen requirements, or increased ventilator demand)</td>
</tr>
</tbody>
</table>

A diagnosis of Pneumonia must be documented in the patient's medical record, and must have occurred during the patient’s initial stay at your hospital.
Hospital participates in the Louisiana Emergency Response Network (“LERN”) and Louisiana State Bridge (“LSB”). LERN is an agency of the State of Louisiana created by R.S. 40:2841, et seq. to safeguard the public health, safety, and welfare of the people of this state against unnecessary trauma and time-sensitive related deaths and incidents of morbidity due to trauma, by establishing a comprehensive, coordinated statewide system for access to regional trauma-patient care throughout the state.

LSB is an automated web based system utilizing Image Trend Patient Registry software and is used to collect, and analyze information on the incident, severity, cause, and outcomes of trauma patients to evaluate factors and the health system’s response. The goal of the LSB is to gather information more efficiently in order to better analyze treatment methods to reduce morbidity and mortality.

The hospital participates in LSB in order to meet certain requirements for accreditation and to facilitate internal quality assurance activities.

LSB requires the hospital to disclose to LERN and for LERN to use patient ‘Protected Health Information’ (PHI) as defined in the Health Insurance Portability and Accountability Act of 1996 (HIPAA).

HIPAA requires that the Hospital and LERN enter into a Business Associate Agreement to protect PHI.

I. Agreement:

(a) The Hospital agrees that LERN may use the PHI received for the following purposes:

1. To set standards for quality, multidisciplinary trauma care delivered in numerous hospital settings statewide;

2. To survey hospitals to assess compliance with those standards;
(3) To analyze, aggregate, produce, and publish aggregated de-identified data on clinical patterns of diagnosis, treatment, and outcomes of trauma patients;

(4) To produce reports of aggregated, de-identified data that describes the diagnosis, treatment, and outcomes of trauma patients;

(5) To evaluate hospital performance, develop effective interventions to improve trauma care outcomes at the local and national level, and provide feedback in the form of an individual facility’s data benchmarked against aggregated, de-identified regional and national data (NTDB).

(b) The hospital and LERN agree to the additional terms and provisions below in order to comply with the applicable requirements of HIPAA.

II. Definitions

Terms used, but not otherwise defined; in this Agreement will have the same meaning as those terms in the Privacy Rule. PHI will have the meaning ascribed to it in the Privacy Rule, but for the purposes of this Agreement will refer solely to PHI received from, or created or received by LERN, its agents or subcontractors, on behalf of the hospital. LERN is a Business Associate and the Hospital is a Covered Entity under the terms of the Privacy Rule.

III. General Obligations of LERN

(a) LERN agrees not to use or disclose PHI other than as permitted or required by this Agreement or as required by law.

(b) LERN agrees to use appropriate safeguards to prevent use or disclosure of PHI by LERN or its agents, other than as provided for by this Agreement and will, at its own expense and at its own site, provide the equipment and software services necessary to reasonably protect and safeguard the PHI consistent with industry standards of similarly situated business associates.

(c) LERN agrees to report to the Hospital any use or disclosure of PHI not authorized by this Agreement of which it becomes aware.

(d) LERN agrees to ensure that any agent, including a subcontractor, to whom it provides PHI, will agree in writing to comply with the same restrictions and conditions that apply to LERN through this Agreement.

(e) LERN agrees to make its internal practices, books and records, including policies and procedures and PHI, relating to the use and disclosure of PHI received from, or created or received by LERN on behalf of the Hospital, available to the Secretary of the U.S. Department of Health and Human Services ("Secretary"), during reasonable business hours, for purposes of the secretary determining the hospital’s compliance with the Privacy Rule.
(f) LERN agrees to document and account for disclosures of PHI and information related to such disclosures as would be required by the Privacy Rule if the Hospital made the same or similar disclosures.

(g) LERN agrees to provide to the Hospital or an Individual, within thirty (30) days, information collected in accordance with subsection (f) of this section to permit the Hospital to respond to a request by an Individual for an accounting of disclosures of PHI.

(h) LERN agrees to cooperate with Hospital in responding to any request by individuals for access to or amendment of PHI as required by the Privacy Rule.

(i) LERN shall implement administrative, physical, and technical safeguards that reasonably and appropriately protect the confidentiality, integrity, and availability of EPHI that creates, receives, maintains, or transmits on behalf of the Hospital.

(j) LERN shall promptly report to Hospital any security incident of which it becomes aware and any other use or disclosure of the information not provided for herein of which it becomes aware, have in place procedures to mitigate any harmful effects from the inappropriate use or disclosure and mitigate, to the extent practicable, any harmful effect that is known to LERN of a use or disclosure of PHI by LERN in violation of this Agreement. Further, to the extent that such unauthorized use or disclosure constitutes a breach within the meaning of the 42 USC 17921(1):

   (1) LERN shall notify Hospital of the breach without unreasonable delay but in no case later than 15 calendar days after the first day on which such breach is known, or by exercising reasonable diligence would have been known, to any person, other than the person committing the breach, who is an employee, officer, or other agent of the business associate.

   (2) The notification to Hospital shall include, to the extent possible, (1) the identification of each individual whose unsecured protected health information has been, or is reasonably believed by LERN to have been, accessed, acquired, used, or disclosed during the breach; (2) a brief description of what happened, including the date of the breach and the date of the discovery of the breach, if known; (3) a description of the types of unsecured protected health information that were involved in the breach (such as whether full name, social security number, date of birth, home address, account number, diagnosis, disability code, or other types of information were involved); (4) any steps individuals should take to protect themselves from potential harm resulting from the breach; and (5) a brief description of what LERN is doing to investigate the breach, to mitigate harm to individuals, and to protect against any further breaches.

(k) LERN shall ensure that any agent, including a subcontractor to whom it provides, EPHI agrees in writing to implement reasonable and appropriate safeguards to protect EPHI.

IV. Additional Uses and Disclosure Provisions
(a) Except as otherwise limited in this Agreement, LERN may use PHI for the proper management and administration of LERN or to carry out the legal responsibilities of LERN.

(b) Except as otherwise limited in this Agreement, LERN may disclose PHI for the proper management and administration of LERN, provided that disclosures are required by law, or LERN otherwise obtains reasonable assurances from the person to whom the information is disclosed that the person will (i) protect the confidentiality of the PHI, (ii) use or further disclose it only as required by law or for the purpose for which it was disclosed to the person, and (iii) notify LERN of any instances of which the person is aware that the confidentiality of the information has been breached.

(c) Nothing in this Agreement will be interpreted to prevent LERN from disclosing PHI in accordance with the Privacy Rule [45 CFR 164.502(j)(1)] concerning disclosures in the public interest, or other permissible uses or disclosures by a business associate as set forth in the Privacy Rule.

V. Obligations of the Hospital

(a) Provisions for The Hospital to Inform LERN of Privacy Practices and Restrictions.

(1) Hospital shall notify LERN of any limitation(s) in the Hospital’s Notice of Privacy Practices, to the extent that such limitation may affect LERN’s use or disclosure of PHI. The Hospital will make its Notice of Privacy Practices available to LERN upon request.

(2) Hospital will provide LERN with any changes in, revocation of, or permission by an Individual to use or disclose PHI, if such changes affect LERN’s permitted or required uses and disclosures.

(3) Hospital warrants that all disclosures of PHI made to LERN are permissible disclosures under the Privacy Rule and that no Individual has restricted disclosure so as to make the disclosure to LERN impermissible. The Hospital will notify LERN of any restriction on the use or disclosure of PHI that the Hospital has agreed to in accordance with the Privacy Rule [45 CFR 164.522] if such restriction affects LERN’s use or disclosure of PHI.

(b) Permissible Requests by The Hospital. The Hospital will not ask LERN to use or disclose PHI in any manner that would not be permissible under the Privacy Rule if undertaken by the Hospital; except as otherwise provided for in this Agreement.

(c) LSB Security Tools. Hospital acknowledges that the LSB system has imbedded security features. Hospital agrees to:

(1) Appoint a Facility Administrator to be responsible for properly employing the security features of the LSB system; and
(2) Understand and use the security features in the LSB system.

VI. TERM AND TERMINATION

(a) Term. The Term of this Agreement will begin on the Effective Date and will remain in effect until terminated by mutual agreement of the parties or in accordance with the termination provisions in subparagraph (b) below.

(b) Termination for Cause. Either party may terminate this Agreement based on a material breach of this Agreement, provided that the non-breaching Party gives the breaching party thirty (30) days written notice of termination and the opportunity to remedy the breach, and the breach is not remedied during the notice period.

(c) Effect of Termination. Except as provided in paragraph (b) of this sub-section, upon termination of this Agreement, for any reason, LERN will, at the Hospital’s direction, destroy all PHI received from the Hospital, or created or received by LERN on behalf of the Hospital if the PHI has not yet been entered into LERN’s database. LERN will retain no copies of the PHI, except to the extent that it has been entered into LERN’s database.

In the event that LERN reasonably determines that destroying the PHI is infeasible due to inclusion of the PHI in LERN’s database or for other legitimate reason, LERN will give the Hospital a statement of reasons why the return or destruction of the PHI is infeasible. As the sole consequence of such determination, LERN will extend the protections of this Agreement to such PHI and limit further its use and disclosure to those purposes that make the return or destruction infeasible, for so long as LERN maintains such PHI.

The obligations of this sub-section (c) will survive any termination or expiration of this Agreement.

VI. MISCELLANEOUS

(a) Regulatory References. A reference in this Agreement to a section in the Privacy Rule means the section as in effect or as amended and for which compliance is required.

(b) Amendment. Any amendment to this Agreement must be in writing and signed by each of the Parties. The Parties agree to amend this Agreement from time to time as necessary for the Hospital to comply with the requirements of federal and applicable state law and regulations including the Privacy Rule and HIPAA. Either party may request that the other party amend this Agreement in order to comply with applicable state and federal law and regulations. If amendment of this Agreement is not achieved to the satisfaction of both parties, then either party may terminate this Agreement without penalty.

(c) Interpretation. Any ambiguity in this Agreement will be resolved in favor of a meaning that permits the Hospital and LERN to comply with HIPAA and applicable state and federal laws and regulations.
(d) **Assignment.** Except as otherwise provided herein, neither Party may without the written consent of the other assign, subcontract, delegate or otherwise transfer this Agreement or any of its rights or obligations under this Agreement. Nor may either Party contract with third parties to perform any obligations required by this Agreement except as may be contemplated in this Agreement, without the other Party’s prior written consent.

(e) **Severability.** If any part of this Agreement is determined to be invalid, illegal or unenforceable by any Act of Congress, state legislature, or by any regulation issued by the United States or a state, or declared null and void by any court with valid jurisdiction, then the Parties will modify such part, if possible, to conform to the law, and the remaining parts will be fully effective and operative insofar as reasonably possible.

(f) **Entire Agreement.** This Agreement constitutes the entire understanding and agreement between the Parties concerning the subject matter of this Agreement, and supersedes all prior negotiations, agreements and understandings between the Parties, whether oral or in writing, concerning its subject matter.

**THUS DONE AND SIGNED** on the date first written above.

**LOUISIANA EMERGENCY RESPONSE NETWORK (LERN)**

Name: _________________________  
Title: __________________________

**HOSPITAL**

Name: _________________________  
Title: __________________________
APPENDIX D: Louisiana Emergency Response Network

Participation Agreement

Draft #1

<table>
<thead>
<tr>
<th>Name of Hospital:</th>
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</thead>
<tbody>
<tr>
<td>Hospital Address:</td>
</tr>
<tr>
<td>City, State, Zip:</td>
</tr>
<tr>
<td>Effective Date:</td>
</tr>
</tbody>
</table>

This Participation Agreement (“Agreement”) is entered into between the hospital listed above (“Hospital”) and the Louisiana Emergency Response Network (“LERN”), an agency of the State of Louisiana.

WHEREAS, LERN is an agency of the State of Louisiana created by R.S. 40:2841, et seq. to safeguard the public health, safety, and welfare of the people of this state against unnecessary trauma and time-sensitive related deaths and incidents of morbidity due to trauma, by establishing a comprehensive, coordinated statewide system for access to regional trauma-patient care throughout the state;

WHEREAS, LERN has created the Louisiana State Bridge (“LSB”), which is an automated web based system utilizing Image Trend Patient Registry software and is used to collect, and analyze information on the incident, severity, cause and outcomes of trauma patients to evaluate factors and the health system’s response;

WHEREAS, the State’s goal of the LSB is to gather information more efficiently in order to better analyze treatment methods to reduce morbidity and mortality; and

WHEREAS, Hospital participates in LSB in order to meet certain requirements for accreditation and to facilitate internal quality assurance activities.

NOW, THEREFORE, for and in consideration of the mutual promises and conditions contained herein, the parties agree as follows:

1. Louisiana State Bridge

1.1 LERN has established the Louisiana State Bridge, a detailed description of which is contained on the LERN website – www.lern.la.gov.

1.2 Hospital agrees to participate in the LSB according to the then current rules and policies contained on the LERN website, including but not limited to the following:
1.2.1 Accurately and timely enter the data elements for all applicable claims.

1.2.2 Access only its own data and such aggregated data as permitted by the then current rules and policies.

1.2.3 Strictly comply with the then current privacy and security rules and policies.

1.3. Hospital enters into this Agreement, and participates in the LSB, to evaluate Hospital performance, develop effective interventions to improve trauma care outcomes at the local and national level, and receive feedback in the form of an individual facility’s data benchmarked against aggregated, de-identified regional and national data (NTDB).

2. **LERN use of data.** The Hospital agrees that LERN may use the PHI received for the following purposes as more fully described on the LERN Website:

2.1 To set standards for quality, multidisciplinary trauma care delivered in numerous hospital settings statewide;

2.2 To survey hospitals to assess compliance with those standards;

2.3 To analyze, aggregate, produce, and publish aggregated de-identified data on clinical patterns of diagnosis, treatment, and outcomes of trauma patients; and

2.1.4 To produce reports of aggregated, de-identified data that describes the diagnosis, treatment, and outcomes of trauma patients.

3. **Warranties.** Hospital agrees to use its best efforts to enter its data accurately. LERN agrees to use its best efforts to have all participants enter their data accurately, and to accurately present same in aggregated form. Notwithstanding the foregoing, however, neither party hereto warrants the accuracy of any of the data made available to the other through the LSB or otherwise.

4. **Privacy and security.** LERN, as the business associate of Hospital, has entered into the Business Associate Agreement attached hereto as Exhibit I, and agrees to abide by the same as provided therein.

5. **Use of Image Trend Patient Registry software.** LERN has acquired, for the implementation and operation of the LSB, certain licenses for the use of the Image Trend Patient Registry, which is a web-based tool more fully described on the LERN Website. Hospitals may derive independent benefit from the use of that tool, and LERN’s licenses allow LERN to authorize the use of that tool by hospitals participating in the LSB. Therefore, in consideration of Hospital’s participation in the LSB and other valuable consideration, receipt and sufficiency of which is hereby acknowledged, LERN hereby
grants to Hospital the right to use the Image Trend Patient Registry for its own purposes, subject to the then current terms and conditions provided on the LERN Website.

6. Term and termination.

6.1 This Agreement shall become effective on the latest date of signature below, and shall continue in effect until terminated by either party.

6.2 Either party to this Agreement may terminate it, with our without cause, by providing written notice to the other, not less that thirty (30) days in advance.

6.3 Upon termination, unless otherwise agreed by the parties in writing, LERN shall be entitled to retain and continue to use Hospital’s data, in the de-identified form, in the LSB.

Miscellaneous.

6.1 Each party is an independent contract of the other. Neither party shall be the legal agent of the other for any purpose whatsoever and therefore has no right or authority to make or underwrite any promise, warranty, or representation, to execute any contract, or otherwise to assume any obligation or responsibility in the name of or on behalf of the other party, except to the extent specifically authorized in writing by the other party. Neither party shall be bound by nor liable to any third party for the acts, obligations, or debts incurred by the other toward such third party, except to the extent specifically agreed to in writing by the party to be so bound.

6.2 If any provision of this Agreement is held to be illegal, invalid, or unenforceable under any present or future law, and if the rights or obligations of either Party under this Agreement will not be materially and adversely affected thereby, (a) such provision shall be fully severable, (b) this Agreement shall be construed and enforced as if such illegal, invalid, or unenforceable provision had never comprised a part hereof, (c) the remaining provisions of this Agreement shall remain in full force and effect and shall not be affected by the illegal, invalid, or unenforceable provision or by its severance therefrom, and (d) in lieu of such illegal, invalid, or unenforceable provision, there shall be added automatically as a part of this Agreement a legal, valid and enforceable provision as similar in terms to such illegal, invalid, or unenforceable provision as may be possible and reasonably acceptable to the parties herein. To the fullest extent permitted by applicable law, each party hereby waives any provision of law that would render any provision prohibited or unenforceable in any respect.

6.3 Neither party hereto shall be liable for defending or for the expense of defending the other party, its agents, or employees, against any claim, legal action, dispute resolution or administrative or regulatory proceeding arising out of or related to the other party’s actions or omissions under this Agreement. Neither party hereto shall be liable for any liability of the other party, its agents, or employees, whether resulting
from judgment, settlement, award, fine nor otherwise, which arises out of such other party’s actions or omissions under this Agreement.

6.4 This Agreement shall be governed by the law of the State of Louisiana.

6.5 Any amendment to this Agreement must be in writing and signed by each of the Parties.

6.6 Except as otherwise provided herein, neither Party may without the written consent of the other assign, subcontract, delegate or otherwise transfer this Agreement or any of its rights or obligations under this Agreement. Nor may either Party contract with third parties to perform any obligations required by this Agreement except as may be contemplated in this Agreement, without the other Party’s prior written consent.

6.5 This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

THUS DONE AND SIGNED on the date first written above.

LOUISIANA EMERGENCY RESPONSE NETWORK (LERN) HOSPITAL

_________________________________________ ________________________________
Name: ____________________________ Name: ____________________________
Title: ____________________________ Title: ____________________________
APPENDIX E: Louisiana Emergency Response Network

User Logon Request Form

This form is to be completed by the facility administrator for each individual hospital. See page 14 of the LERN User & Training Manual for Non Image Trend Registry Users for more detail on the facility administrator. **This form is to be submitted to the LERN System Administrator after completion of the Business Associate Agreement and the Data Participation Agreement.**

**PLEASE PRINT CLEARLY**

<table>
<thead>
<tr>
<th>Name (First, Middle, Last)</th>
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<tbody>
<tr>
<td>Facility Name</td>
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<tr>
<td>Street Address</td>
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<td>City, State, Zip</td>
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<tr>
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<td>Pager Number</td>
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<tr>
<td>Fax Number</td>
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<tr>
<td>E-Mail Address</td>
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</table>

**FACILITY INFORMATION**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Trauma Center Level</td>
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<tr>
<td>Rehab Facility</td>
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<tr>
<td>Burn Center</td>
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<td>NTDB Facility ID</td>
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<td>National Provider ID</td>
</tr>
<tr>
<td>Facility State ID</td>
</tr>
<tr>
<td>Medicare Provider Number</td>
</tr>
<tr>
<td>Street Address</td>
</tr>
<tr>
<td>City, State, Zip</td>
</tr>
</tbody>
</table>
The following Data Privacy Statement will display each time you log into the Image Trend System. You must agree to this statement as denoted by clicking yes to proceed.

**PLEASE READ THIS PRIVACY STATEMENT CAREFULLY**

By accepting this Data Privacy Statement, you agree to keep the information contained within this site private and confidential. Any reporting or exporting of data must be done securely using industry standards and best practices for data privacy and adhering to all applicable federal and state data privacy requirements. It is the responsibility of the user to ensure that all applicable requirements are adhered to.

The State has taken steps to ensure that all information contained within this site is secure to protect against unauthorized access and use. All information is protected by our security measures, which are periodically reviewed. Information is protected through the use of passwords, strictly controlled server access, physical security of the hosting site, and 128-bit SSL encryption.

Although the State can assure the security and privacy of the data that has been submitted, we have no control over how individual users may handle their own data, either before or after they have submitted data. In order to protect the security and privacy of your records before or after you have submitted data, we recommend adopting the following procedures/practices:

1) Do not send incident records via email. Email does not offer the same level of security as submitting data via the internet to the Louisiana (LERN) Patient Registry because it is not encrypted.
2) Only assign user names and passwords to individuals who have responsibility for the Louisiana (LERN) Patient Registry.
3) Regularly change passwords.

If you have questions about the Privacy or Security of this site, please contact:
User ID
Password
Permission Group
  System Administrator
  Hospital Administrator
  Hospital Staff
  Peer Review Committee
Report Writer
  Permission Group
    Administrator
    Report User
    Report Read Only
View "MY" Incidents ONLY
  Yes (See only records individual enters)
  No (See all records for this facility)
Incident Forms
  Hidden
  View
  Edit
  Add
  Delete
Ability to Lock Incidents
  Yes
  No
Ability to Change Incident Status
  Yes
  No
View Patient Identifiable Information
  Yes
  No
Restrict Based on Date
  Last ____________ Days
  Date Range: ______________________
  to _____________________________
References:

American College of Surgeons, Committee on Trauma, Resources for Optimal Care of the Injured Patient, 2006, Chapter 15, Trauma Registry


www.wikipedia.org

LERN Image Trend Data Dictionary

Texas Data Dictionary

California Data Dictionary

Virginia State Trauma Registry User & Training Manual

Washington Hospital Data Dictionary

North Carolina Data Dictionary

North Carolina Data Dictionary

A special Thank You to Image Trend