BioSense Data Elements of Interest

BioSense is a national program intended to improve the nation's capabilities for real-time biosurveillance and situational awareness by accessing existing data from hospitals and healthcare systems across the country. Real-time clinical diagnostic information from emergency departments and hospitals will inform public health in a way not previously possible. At the time of an emergency event, hospital and public health officials will have a real-time picture of the number of cases of illness, the size, location, and spread in the broader population, and information related to available resources. This information will help to characterize an outbreak and aid in the decision-making process regarding public health interventions.

Data Elements

Clinical information systems at healthcare provider organizations are the data source for BioSense. These existing data will be transferred electronically to CDC using nationally accepted health data standards. The following are descriptions of data elements CDC is seeking to include in this system.

1 INSTITUTION

1.1 MASTER FILE

The Institution information below is needed for setup and configuration of the system

Data Element	Description
Hospital System	Hospital System is a reference to the provider of pooled data, as in a healthcare consortium
Main facility identifier and name	Name and CMS identifier of the parent facility that is a source for one or more data feeds by location. A main facility has its own list of patient care locations.
Satellite facility identifier and name	One of any number of satellite locations that may create a data feed that is reported by the main facility
Location address	Street, state, county, zip code for each facility
Licensed level of care for that location	Level of medical resources available
Points of Contact for that location	Institutional contact names and numbers (e.g., Administrative, Technical, Clinical)
Number of beds	Licensed number of beds by unit
Point-of-Care list by location	Patient care location list for each main or satellite facility

2 CENSUS

2.1 DAILY FACILITY SUMMARY

Data Element	Description
Main facility identifier and name	Name and identifier of the parent facility that is a source for one or more data feeds by location
Satellite facility identifier and name	One of any number of clinics or locations creating a data feed at a parent facility
Date/time of report	Date/time of report
Admissions	Total facility-wide Admissions last 24 hours
Discharges	Total facility-wide Discharges last 24 hours
Deaths	Total facility-wide Deaths last 24 hours
Occupancy Rate	Overall rate of occupancy at the facility

2.2 CENSUS BY UNIT

Data Element	Description
Main facility identifier and name	Name and identifier of the parent facility that is a source for one or more data feeds by location
Satellite facility identifier and name	Name and identifier of the parent facility that is a source for one or more data feeds by location
Date/time	Date/time of report
Unit	Unit Name
Number of patients	Current number of patients for each unit
Number of beds available	Number of available beds for each unit

3 PATIENT

3.1 DEMOGRAPHICS

Data Element	Description
BioSense Patient ID	The BioSense Patient ID is used to uniquely distinguish a patient across all visits to a single institution, or across all visits to a healthcare system when a common patient identification system is used. The BioSense Patient ID does not contain personally identifiable information. It is used by the healthcare facility to associate BioSense patient data to the patient's medical record.
BioSense Visit ID	The BioSense Visit ID is used to uniquely distinguish a patient visit based on the healthcare facility account identifier. The BioSense Visit ID is created to reflect the visit as defined by the healthcare facility. The BioSense Visit ID does not contain personally identifiable information.
Date of Birth	Patient's year and month of birth (day is excluded for privacy purposes)
Age	Patient's age at the time of the visit
Sex	Patient sex
Zip code	Patient residence – zip code
State	Patient residence – state
County	Patient residence – county
Country	Patient residence - country
Ethnic group	Patient ethnic group (Hispanic or not)
Race	Patient race (may be multiple)
Occupation	Patient occupation (SOC codes)
Industry	Industry in which patient works (NAICS codes)
Patient death indicator	Patient death indicator (Y/N)
Deceased date	Patient death date/time, if patient has died
Last update date/time	Last time demographic data was updated by the source
Employment Illness-Related Indicator	This field indicates whether or not this is an employment-related encounter.
Identity Unknown Indicator	If this field is populated, it should be passed forward in the outgoing message.

3.2 CLINICAL DATA

Data Element	Description
BioSense Patient ID	The BioSense Patient ID is used to uniquely distinguish a patient across all visits to a single institution, or across all visits to a healthcare system when a common patient identification system is used. The BioSense Patient ID does not contain personally identifiable information. It is used by the healthcare facility to associate BioSense patient data to the patient's medical record.
BioSense Visit ID	The BioSense Visit ID is used to uniquely distinguish a patient visit based on the healthcare facility account identifier. The BioSense Visit ID is created to reflect the visit as defined by the healthcare facility. The BioSense Visit ID does not contain personally identifiable information.
Admit date/time	Admit or register date/time
Discharge date/time	Discharge/sign-out date/time
Diagnosis	Diagnosis or diagnoses assigned as a result of the encounter
Diagnosis date/time	Date/time diagnosis was determined
Diagnosis type	Type of diagnosis being sent (admitting, working, final)
Diagnosis priority	Priority of the diagnosis code (primary, secondary)
Discharge disposition	Discharge Disposition – what happened to the patient - admitted, sent home, etc.
Medical Specialty	Medical Service under which patient is being treated – may be available only for inpatient
Patient class	General type of patient, e.g., Inpatient, Outpatient, Emergency,
Admission type	Circumstances of admission: Accident, Emergency, Elective, L&D, Newborn, Routine, Urgent (may only be collected on Admitted patient)
Admission source	Where the admission originated (ER, Physician, Clinic, HMO, Court, Transfer from SNF, etc.)
Point of care	Local designation of patient location (e.g. 5E, 6W, etc.)
Date into this location	Date the patient was put into this location
Admission level of care code	Admission Level of Care may be populated to indicate the level of resources required to care for the patient, e.g., Acute, Chronic, Critical.

3.3 ED/URGENT CARE-SPECIFIC CLINICAL DATA

Data Element	Description
BioSense Patient ID	The BioSense Patient ID is used to uniquely distinguish a patient across all visits to a single institution, or across all visits to a healthcare system when a common patient identification system is used. The BioSense Patient ID does not contain personally identifiable information. It is used by the healthcare facility to associate BioSense patient data to the patient's medical record.
BioSense Visit ID	The BioSense Visit ID is used to uniquely distinguish a patient visit based on the healthcare facility account identifier. The BioSense Visit ID is created to reflect the visit as defined by the healthcare facility. The BioSense Visit ID does not contain personally identifiable information.
Date and time of illness onset	Date and time of illness onset Intended for ED, can be for other patients as well if this data is available
Chief complaint or admission reason	Chief complaint – text or coded. Intended for ED, can be for other patients as well if this data is available
Patient instructions	References post-care instructions given to the patient, such as "suture care" or "head injury" discharge instructions, if separate from the physician notes.
Physician notes	Encounter notes written by the ED physician to document the visit.
Temperature	ED body temperature measurement, including the reference to Celsius or Fahrenheit.
Date/time of temperature	Date/time temperature observation made
Blood pressure	Systolic/Diastolic blood pressure measurement
Date/time of blood pressure	Date/time Blood Pressure observation made
Current therapeutic medications	Current therapeutic medications passed as observation(s)
Extended triage notes	Provider notes documented in the process of sorting patients based on need for or likely benefit from immediate medical treatment.
ED Acuity	Indicates how quickly care is required, as in "Time to evaluation or treatment not critical", "Request Prompt Evaluation or Treatment ", "Request Immediate Evaluation or Treatment"
Procedures performed	Any test or procedure codes entered as a result of the encounter
Procedure date/time	Time the procedure was performed

3.4 LABORATORY AND RADIOLOGY TEST ORDERS

Data Element	Description
BioSense Patient ID	The BioSense Patient ID is used to uniquely distinguish a patient across all visits to a single institution, or across all visits to a healthcare system when a common patient identification system is used. The BioSense Patient ID does not contain personally identifiable information. It is used by the healthcare facility to associate BioSense patient data to the patient's medical record.
BioSense Visit ID	The BioSense Visit ID is used to uniquely distinguish a patient visit based on the healthcare facility account identifier. The BioSense Visit ID is created to reflect the visit as defined by the healthcare facility. The BioSense Visit ID does not contain personally identifiable information.
Order number	Tracking number created when the order is placed
Test Code/Name	Test code/test description
Reason for test	Encoded reasons for testing, sent with order information
Order date/time	Date/time service was ordered in the system
Begin date/time to begin	Date/time service is requested to occur

3.5 MEDICATION ORDERS

Data Element	Description
BioSense Patient ID	The BioSense Patient ID is used to uniquely distinguish a patient across all visits to a single institution, or across all visits to a healthcare system when a common patient identification system is used. The BioSense Patient ID does not contain personally identifiable information. It is used by the healthcare facility to associate BioSense patient data to the patient's medical record.
BioSense Visit ID	The BioSense Visit ID is used to uniquely distinguish a patient visit based on the healthcare facility account identifier. The BioSense Visit ID is created to reflect the visit as defined by the healthcare facility. The BioSense Visit ID does not contain personally identifiable information.
Order number	Tracking number created when the order is placed
Order date/time	Date/time service was ordered in the system
Begin date/time	Date/time service is requested to occur
Drug code/name	Name and code representation of drug ordered
Drug Strength	Ordered drug strength (may be part of drug name in some formularies)
Dosage	The ordered amount of the drug.
Form	Form the drug is to be dispensed, as in Tablet, Capsule, Spray, IV preparation
Route	P.O, intranasal, intravenous
Frequency	How many times per day to administer/take
Duration	How long the prescription lasts-may have "number to dispense" or "stop date" or a duration
Pharmacy Order Type	If this optional field is populated, it may be used to filter medication orders from other types of Pharmacy orders, such as IV preparations. A default value of "M" is assumed.
Total Daily Dose	This field contains the total daily dose for this particular pharmaceutical as expressed in terms of actual dispense units, e.g., Cipro 1000 mg/day. Other data elements have broken it up into dose per frequency.

3.6 LABORATORY/MICROBIOLOGY RESULTS

Data Element	Description
BioSense Patient ID	The BioSense Patient ID is used to uniquely distinguish a patient across all visits to a single institution, or across all visits to a healthcare system when a common patient identification system is used. The BioSense Patient ID does not contain personally identifiable information. It is used by the healthcare facility to associate BioSense patient data to the patient's medical record.
BioSense Visit ID	The BioSense Visit ID is used to uniquely distinguish a patient visit based on the healthcare facility account identifier. The BioSense Visit ID is created to reflect the visit as defined by the healthcare facility. The BioSense Visit ID does not contain personally identifiable information.
Reporting laboratory	Reporting laboratory identifier
Diagnostic service section ID	Identifies the department that performed the service. If populated, it could be used to group types of tests – e.g., "Microbiology", "Serology", "Virology", "Immunology"
Performing laboratory	Performing laboratory identifier (may be different for referral lab testing)
Result status	Status of the report (preliminary, final, corrected).
Report date/time	Report Date – applies to entire message as a report, not to individual results
Report status	Status of the report (preliminary, final, corrected)
Collection date	Sample collection date
Collection method	Specimen collection method, e.g. (swab, bronchoscopy, phlebotomy), if present in the result message
Specimen site	Specimen source site (body site where specimen collected)
Specimen type	Specimen (what is collected?)
Point of Care	Location of patient when specimen was drawn, if available
Accession date	Accession date (date received by lab)
Accession ID	Accession number assigned by laboratory
Sequence number	Reported sequence of result (Micro) sequence of organism from isolate
Ordered test Code/Name	Ordered test code/description; includes susceptibility panel for Microbiology reporting
Resulted test Code/Name	Test code/description as known by the laboratory; also identifies individual drugs tested in susceptibility panels
Organism identified	Organism code/description when result is an organism
Method type	Methodology of test
Result other than organism	Result depends on type of test being done – may be numeric results
Result unit	Units of result (this is needed for numeric results)
Test interpretation	Lab interpretation (non-micro) – e.g., "Abnormal", "High"
Susceptibility test interpretation	Lab interpretation (micro) – e.g., "Sensitive", "Resistant", "Indeterminate"

Data Element	Description
Test status	Status of testing (individual test status), including the status of each susceptibility
Result Notes/Comments	Notes and comments that the laboratory may send to clarify results – often contains normal ranges by age group or comments such as “retested”
Reference Range	Normal range values for numeric testing.

3.7 RADIOLOGY RESULTS

Data Element	Description
BioSense Patient ID	The BioSense Patient ID is used to uniquely distinguish a patient across all visits to a single institution, or across all visits to a healthcare system when a common patient identification system is used. The BioSense Patient ID does not contain personally identifiable information. It is used by the healthcare facility to associate BioSense patient data to the patient’s medical record.
BioSense Visit ID	The BioSense Visit ID is used to uniquely distinguish a patient visit based on the healthcare facility account identifier. The BioSense Visit ID is created to reflect the visit as defined by the healthcare facility. The BioSense Visit ID does not contain personally identifiable information.
Report date/time	Report/Reading Date
Result Status	Status of the report (preliminary, final, corrected).
Diagnostic Service Section ID	Identifies the type of department that performed the service. If populated, it could be used to group types of tests – e.g., “Radiology”, “Nuclear Medicine”, “CT”
Procedure date	Date the exam was performed
Radiology Number	Tracking number assigned by radiology
Test performed	Test code and name
Site/testing description	Radiologist’s description of test performed and body site
Impressions	Radiologist’s diagnosis and impressions
Recommendations	Radiologist’s recommendations
Procedures	Procedure codes passed with the result, if available. These may be CPT-4 or HCPCS codes,