

NHSN Connectivity Initiative: Hospital Bed Capacity Project Program Updates and Overview of Key Resources

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July 2025

Objectives

- Identify, locate, and use key components and resources for NHSN Connectivity Initiative: Hospital Bed Capacity Project
- Direct facility reporting option available via API
- Understand use cases related to the Hospital Bed Capacity Project
- Run the Bed Capacity analysis reports and interpret the output
- Explain data quality and validation considerations when submitting Hospital Bed Capacity data

QUESTION

Do you know if your facility or jurisdiction is participating in the NHSN Connectivity Initiative: Hospital Bed Capacity Project?

NHSN Connectivity Initiative: Hospital Bed Capacity Project

Key Components and Resources

Ally Binder, MS

About the Hospital Bed Capacity Project

- **The NHSN Connectivity Initiative: Hospital Bed Capacity Project** is an effort to strengthen the resiliency of healthcare systems and modernize data exchange. Jurisdictions, hospitals, and CDC collaborate to establish near real-time, automated collection and transmission of hospital bed capacity data.
- **The Project aims to:**
 - Establish and sustain ongoing automated collection of bed capacity data from acute care hospitals and critical access hospitals
 - Ensure participants use standardized definitions of healthcare bed capacity

Why it matters

- CDC works closely with hospitals, jurisdictions, and other federal agencies to use reported data to efficiently coordinate and respond to emergencies.
- Automating hospital bed capacity data contributes to cross-agency response goals and supports jurisdictions, hospitals and patients in the following ways:



Situational Awareness

Near real-time data on the bed capacity in hospitals helps stakeholders and decision makers understand how facilities are affected during surges. These data help jurisdictions and federal partners maximize safe and effective patient care by determining how resources might be applied to alleviate stress on a challenged region.



Load Balancing

During disasters, one hospital may receive a disproportionately higher number of patients than nearby facilities. Jurisdictions with near real-time data can move resources or transfer patients from overwhelmed healthcare facilities to ones with more capacity. Near real-time data can help to identify potentially overwhelmed healthcare facilities as well as facilities with the ability to receive more patients.



Capacity Planning

Hospitals, jurisdictions and federal partners can use current data on bed capacity outside of a surge situation to plan for future needs. By analyzing trends in rates of bed occupancy and predicting future demand, stakeholders and decision makers can better plan for how disasters may affect specific regions and how best to mitigate the stress.



Response-Readiness and Resource Allocation

When hospitals and jurisdictions align bed capacity data definitions and share these data with federal partners, we can improve response-readiness and resource allocation with faster, more complete collection of national bed capacity data.

NHSN Connectivity Initiative Webpage

<https://www.cdc.gov/nhsn/bed-capacity/index.html>

- **Data collection instructions and specifications**
 - Data Dictionary
 - Instruction Book
 - Data Quality and Validation guide
 - SAMS/API reference guide
- **Analytic resources**
 - NHSN Analysis Report
 - NHSN Group User Dashboard
- **And more!**

The screenshot shows the NHSN (National Healthcare Safety Network) website. The header is blue with the CDC logo and the text 'National Healthcare Safety Network (NHSN)'. A search bar is on the right. Below the header, there's a yellow banner stating 'CDC's website is being modified to comply with President Trump's Executive Orders.' The main content area is titled 'NHSN Connectivity Initiative: Hospital Bed Capacity Project' with a 'Print' link. Below this, there's a section 'On This Page' with links: 'About the Hospital Bed Capacity Project', 'Connectivity Initiative in Action', 'Why it Matters', 'Data Collection Tools and Instructions', 'How it Works', 'Analytic Resources and Reference Guide', 'Participating Jurisdictions', and 'Opportunities To Learn More'. At the bottom, there's a blue box titled 'About the Hospital Bed Capacity Project' with text about the COVID-19 pandemic and a light blue box titled 'Contact Us!' with an email address NHSN@cdc.gov and instructions to use the subject line 'Bed Capacity'.

NHSN National Healthcare Safety Network (NHSN) Search

🏠 NHSN Home

NHSN Login

About NHSN +

Enroll Facility Here +

CMS Requirements +

Change NHSN Facility Admin

Resources by Facility +

Patient Safety Component +

Long-term Care Facility Component +

Dialysis Component +

Biovigilance Component +

Healthcare Personnel Safety Component (HPS) +

Neonatal Component +

CDC's website is being modified to comply with President Trump's Executive Orders.

NHSN Connectivity Initiative: Hospital Bed Capacity Project

[Print](#)

On This Page

About the Hospital Bed Capacity Project	Connectivity Initiative in Action
Why it Matters	Data Collection Tools and Instructions
How it Works	Analytic Resources and Reference Guide
Participating Jurisdictions	Opportunities To Learn More

About the Hospital Bed Capacity Project

The COVID-19 pandemic demonstrated the need for the federal government to collect information about healthcare system stress to increase patient safety during emergencies. CDC is uniquely positioned to collect such surveillance information and to incorporate that data collection

Contact Us!

Email us at NHSN@cdc.gov and use the subject line "Bed Capacity" for more information.

NHSN Connectivity Initiative Data Collection Instructions and Specifications

- **NEW: SAMS/API Guide**
 - Step-by-step guide for establishing SAMS system account
 - Upload and download API commands
 - Troubleshooting and FAQs
- **NEW: Data Quality and Validation Reference Guide**
 - Detailed information on file format and front-end validation requirements for successful data transmission

Data Collection Tools and Instructions

- [NHSN Connectivity Initiative Hospital Bed Capacity Project Instruction Book](#) [PDF – 429 KB]
- [NHSN Connectivity Initiative API and SAMS Onboarding Instructions](#) [PDF – 1 MB]
- [NHSN Connectivity Initiative Hospital Bed Capacity Project Data Dictionary](#) [XLS – 34 KB]
- [Bed Capacity – Data Element Tables and Relationships](#) [XLS – 26 KB]

This resource is provided as a supplement to the NHSN Connectivity Initiative: Hospital Bed Capacity Project Data Dictionary and includes a series of tables that display groupings and relationships among the bed capacity data elements grouped by bed category included in the collection.

- [Bed Capacity Data Quality and Validation Reference Guide](#) [PDF – 627 KB]

This resource provides detailed information on file and data type specifications and recommendations for ensuring accuracy for successful transmission of bed capacity data to NHSN.

Analytic Resources and Reference Guide

- [At a Glance: Using Bed Capacity Data](#) [PDF – 660 KB]

This resource provides examples of how jurisdictions, hospitals and federal agencies use bed capacity data to improve patient outcomes and public health response.

- [Bed Capacity Analysis Report Quick Reference Guide](#) [PDF – 1 MB]

This guide provides instructions for modifying and running the Bed Capacity Analysis Report in the NHSN Patient Safety Component for group users.

- [Bed Capacity Group User Dashboard Quick Reference Guide](#) [PDF – 659 KB]

This guide provides instructions for group users for viewing and using the Bed Capacity Dashboard in the NHSN Patient Safety Component.





- [NHSN Hospital Respiratory Data – Bed Capacity Mapping Guide](#) [XLS – 26 KB] [xlsx]

This guide provides specifications for mapping overlapping data elements between the Bed Capacity collection and NHSN's Hospital Respiratory Data collection.

NHSN Connectivity Initiative Analytic Resources

- **Quick Reference Guides now available!**
 - **UPDATED:** NHSN Analysis Report for Group and Facility Users
 - **NEW:** NHSN Bed Capacity Dashboard for Group Users

Data Collection Tools and Instructions

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NHSN Connectivity Initiative: Hospital Bed Capacity Project

Connect directly to NHSN via API

Ally Binder, MS

Hospital Bed Capacity Data – NHSN API Submission

- **Bed capacity data should be transmitted to NHSN's Patient Safety Component via API (CSV upload and UI not available)**
 - *"Application programming interface"*; a set of rules and specifications that allows different software systems to communicate and exchange data.

Hospital Bed Capacity Data – NHSN API Submission

- Instructions for setting up API submission are now available
 - **NHSN API Reference Guide** – chapters available for all NHSN APIs
 - **Version 1** includes chapters re: Bed Capacity and Hospital Respiratory Data
 - The individual responsible for API submission will need a **SAMS system account** – contact options are available in the API Reference Guide



Nation Healthcare Safety Network (NHSN) API Instructions

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NHSN HOSPITAL RESPIRATORY DATA (HRD) API.....	13

May 2025



SAMS Systems Account Setup

To access any NHSN API, users must have a SAMS Systems account. The below instructions will guide you through the steps needed to request and set up your SAMS Systems Account.

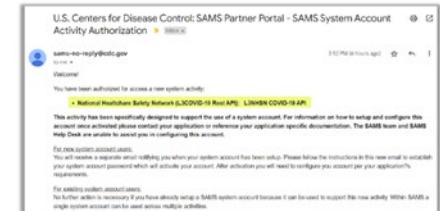
Note: The following instructions assume that the API sponsor completing the steps has requested a SAMS invitation and has the NHSN API activities added to their SAMS account.

If you are the individual responsible for setting up the API and have not registered with SAMS and had API activities added to your account, reach out to hsnch@cdc.gov using the subject line **NHSN API Setup**.

Please indicate if you will need the API activities for submission of Hospital Respiratory Data or the NHSN Connectivity: Bed Capacity Project Data.

SAMS SYSTEM ACCOUNT ACTIVITY AUTHORIZATION

1. When API activities are added to your SAMS account, you will receive the below email noting that you have access to a new system activity: LHMNH COVID-19 API (see example below) or NHSN Bed Capacity System.

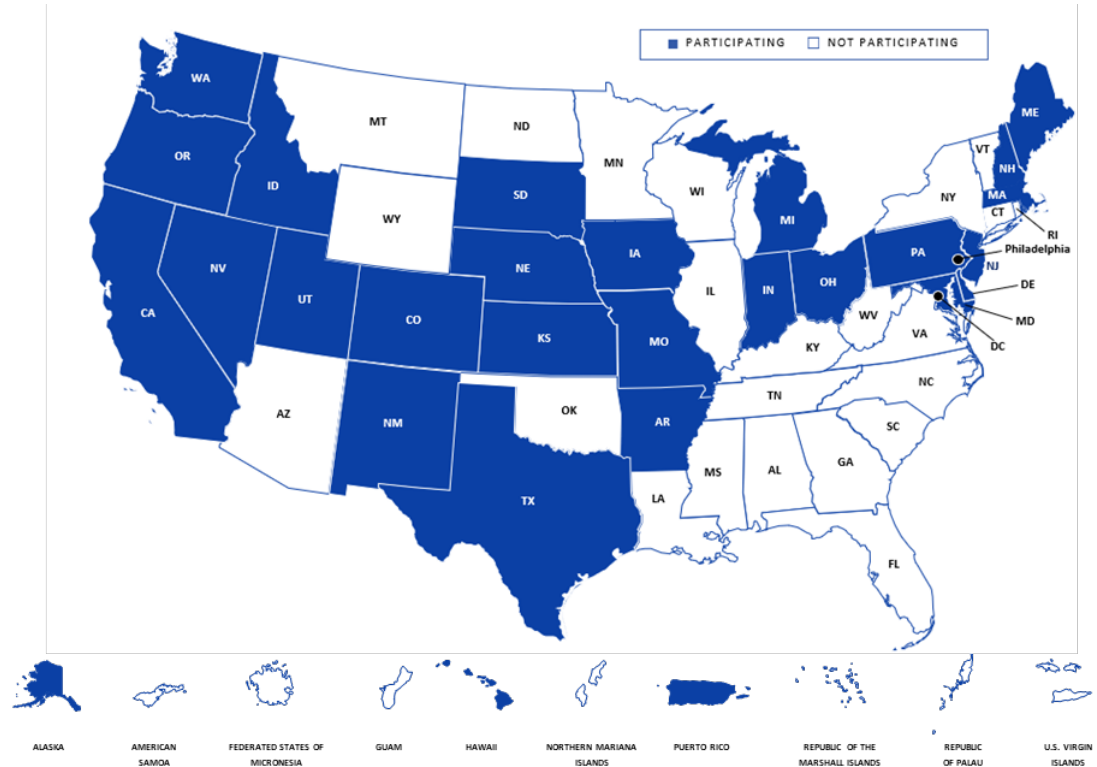


May 2025



Before setting up your facility's API and data feed, check your jurisdiction's status as a participant

- State health departments in OR, MA, and HI were funded beginning in 2022 via [CDC's Epidemiology and Laboratory Capacity \(ELC\) Cooperative Agreement](#)
- In January 2024, supplemental funding was awarded to 19 recipients of the ELC Cooperative Agreement (CK19-1904) in support of the NHSN Connectivity Initiative: Hospital Bed Capacity Project
- Jurisdictions participate in this work outside of ELC funding
- 31 jurisdictions currently participating



NHSN Connectivity Initiative: Hospital Bed Capacity Project: Use Cases

Joey Sacht, MS

Use Cases

Hospitals

- Streamlined information sharing with outside stakeholders (e.g. EMS, other hospitals, health department) using standardized definitions
 - Patient evacuation due to a natural disaster or other significant event
 - Better coordination with EMS on emergency bed availability
 - Faster patient transfer to or from outside hospital

Health Departments or Hospital Associations

- Assist with load balancing and patient movement over a large geographic area
- Situational awareness of ED bed availability across hospitals

NHSN CONNECTIVITY INITIATIVE:

HOSPITAL BED CAPACITY PROJECT

Using digital information on healthcare capacity to improve patient outcomes and public health response



What?

The CDC's Hospital Bed Capacity Project enhances healthcare system resilience by enabling near real-time, automated data collection on healthcare bed capacity. This initiative aligns with the CDC [Data Modernization Initiative \(DMI\)](#) and the [Public Health Data Strategy \(PHDS\)](#), ensuring improved preparedness, response, and resource allocation during routine operations and in public health emergencies.

Why?

- To establish ongoing, standardized hospital bed capacity data collection
- To support emergency preparedness, response, and recovery efforts
- To enable near real-time data sharing across federal, state, and local levels
- To assist in decision-making for resource allocation, healthcare transfers, and facility evacuations to ensure patient safety

Benefits?

This initiative ensures a robust and responsive healthcare infrastructure through data-driven strategies, ultimately improving patient outcomes and disaster preparedness.

- Strengthens public health emergency response
- Supports data-driven equitable allocation of resources
- Enhances decision-making through data-driven insights
- Supports federal, state, and local level coordination during crises

How?

Using bed capacity data to improve patient outcomes and public health response:



Mass Casualties

Every second counts during a mass casualty event, and immediate access to data that assists in surge capacity management and specialized patient care placement can save lives. Having a lens into current patient tracking and movement ensures timely and appropriate care in emergency situations.

Reporting Mandates

When reporting requirements are mandated by public health authorities in emergencies, having established automated data feeds reduces the reporting burden. Automated bed capacity data allows for near real-time monitoring for situational awareness and supports routine operations of hospitals. Hospitals can use occupancy trends to inform capacity planning so strategic decisions are made quickly and confidently with readily available, accurate data.

Peak Hospitalizations

In a respiratory virus surge, tracking hospital capacity and coordinating response efforts is essential to caring for sick people that require hospitalization. With fast and reliable data, we can better predict incident severity and healthcare needs so resources like medical supplies and equipment are distributed to those that need it most. Access to hospital capacity data allows us to actively monitor available beds and understand when healthcare systems are stressed.

Natural Disasters

When a natural disaster strikes, hospitals need to be informed to safely evacuate and transfer patients. Bed capacity data facilitates patient transfers to prevent hospital overload. When the data is shared with emergency responders, EMS transportation decisions are made quickly to ensure patients arrive at the right hospital and receive immediate care.



LEARN MORE

CDC welcomes jurisdictions and individual facilities to participate in this initiative. If you are interested in joining this work, please email NHSN@cdc.gov and use the subject line "Bed Capacity."

NHSN Connectivity Initiative: Hospital Bed Capacity Project

Running and Modifying Analysis Reports

Jeenal Patel, MPH

A message about the data

All data in this presentation has been created in a testing environment and is for training purpose only. Information seen on images during this presentation do not represent any actual data submitted to NHSN by participating facilities.

Objectives

- Review how to generate datasets that can be used for the analysis reports
- Understand how to access NHSN Healthcare Bed Capacity analysis reports
- Understand how to modify NHSN Healthcare Bed Capacity analysis reports
- Identify specific details in NHSN Healthcare Bed Capacity analysis reports

Analysis Report and Data Export from NHSN application

Accessing Analysis Reports page

- To access the Analysis Reports for the first time, the user must generate analysis datasets in the Patient Safety Component **at least one time**

The screenshot displays the NHSN Patient Safety Component Home Page. At the top, the CDC logo and text 'Centers for Disease Control and Prevention CDC 24/7: Saving Lives, Protecting People™' are visible. Below this is a dark blue header with 'NHSN - National Healthcare Safety Network'. The main content area is divided into two columns. The left column contains a vertical menu with items like 'NHSN Home', 'Alerts', 'Dashboard', 'Reporting Plan', 'Patient', 'Event', 'Procedure', 'Summary Data', 'Hospital Respiratory Data', 'Infectious Diseases of Public Health Concern', 'Import/Export', 'Surveys', 'Analysis', 'Users', 'Facility', 'Group', and 'Cheat Sheets'. The 'Analysis' item is highlighted in blue. A red rectangle highlights the 'Generate Data Sets' option in the dropdown menu for 'Analysis'. The right column is titled 'NHSN Patient Safety Component Home Page' and contains several dashboard links: 'TAP Strategy Dashboard', 'ARM Dashboard', 'TAS Dashboard', 'HAI Pathogen Dashboard', and 'Survey Data Quality Dashboard'. Below these is an 'Action Items' section. At the bottom, there is a section titled 'COMPLETE THESE ITEMS' with a list of tasks: 'Generate Data Sets', 'Reports', 'Statistics Calculator', and 'Preferences'. The 'Generate Data Sets' task is highlighted with a red rectangle.

Generating datasets

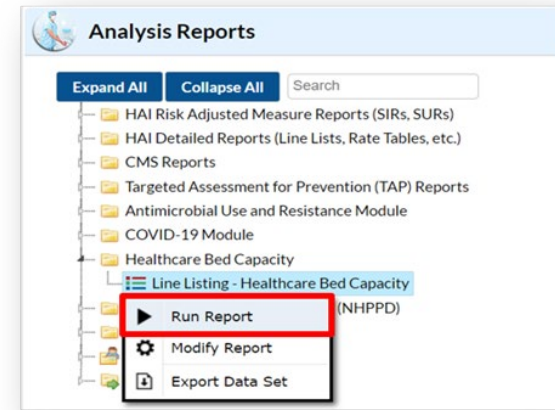
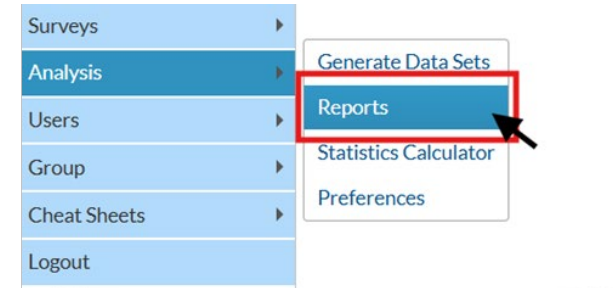
- On the “Generate Data Sets (Patient Safety)” screen, the “Reporting Data Sets” tab will open. On this tab, you can:
 - Specify the time period to apply to all analysis data sets
 - Start the data set generation process using the “Generate Reporting Data Sets” button
 - View information about when your data sets were last generated, and for which time period
 - This will clear all existing data sets and potentially clear any stuck processes

The screenshot displays the 'Generate Data Sets (Patient Safety)' interface. The 'Reporting Data Sets' tab is active. It features a time period selection section with 'Beginning' and 'Ending' date pickers, a 'Clear Time Period' button, and a 'Generate Reporting Data Sets' button. A 'Last Generated' status box shows the date and time of the last generation. A progress bar indicates 75% completion for the process 'Processing bs2_LABID_RatesCDIFIRF_CMS'. A message at the bottom states: 'Your data set generation has been scheduled. You may log out or continue to work in other areas of NHSN. When you return to this screen you will see a progress bar if still processing, otherwise, you will see a time completed.'

Reminder: Chat and Q & A features are limited to only 1000 participants

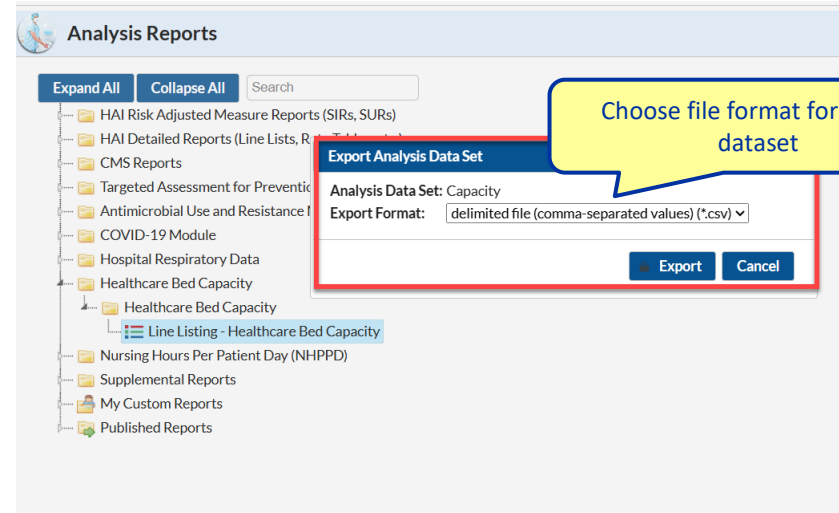
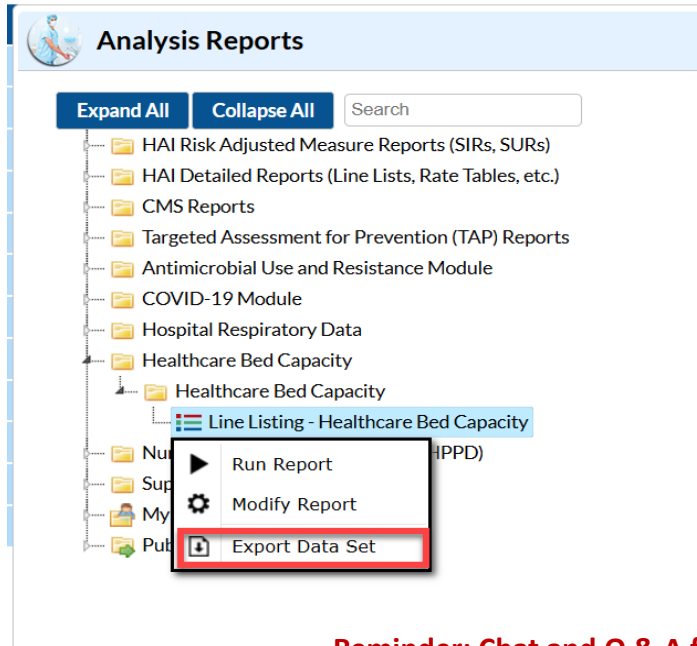
NHSN Healthcare Bed Capacity Data Reports

- NHSN Healthcare Bed Capacity Data Reports can be found in the Healthcare Bed Capacity folder on the Analysis Reports page
- Users can run, modify, and export the following report of their facilities' Healthcare Bed Capacity Data:
 - Line Listing – Healthcare Bed Capacity



Exporting Healthcare Bed Capacity datasets

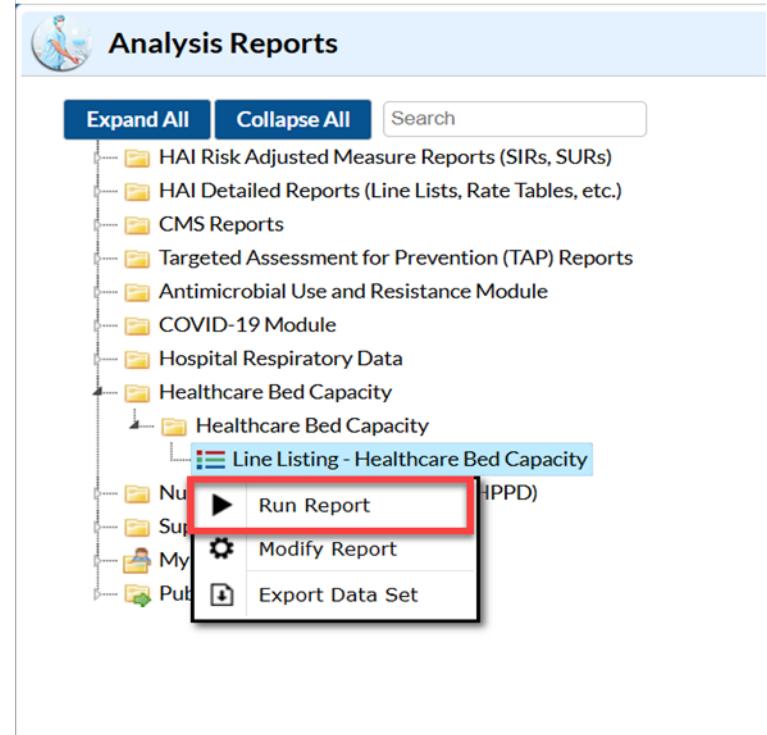
- To export dataset, select the desired report and a pop-up box will appear allowing you to “Export Data Set”. Select “Export Data” to generate the dataset.



Reminder: Chat and Q & A features are limited to only 1000 participants

Running a default report

- To run a report with default settings, select the desired report and a pop-up box will appear allowing you to “Run Report”, “Modify Report”, or “Export Data Set”.
- Select “Run Report” to generate the report using the default display settings. This will produce an HTML report displaying all records included in the underlying dataset for the default variables



Modifying and Accessing Analysis Report

Modifying NHSN Healthcare Bed Capacity Reports

- The modify report window allows users to customize features of analysis reports

Modify "Line Listing - Healthcare Bed Capacity"

☐ Show descriptive variable names ([Print List](#))

Analysis Data Set: CapacityType: Line Listing

Title/FormatTime PeriodFiltersDisplay VariablesSort VariablesDisplay Options

Title:

Line Listing of Healthcare Bed Capacity

Format:

☒html

☐pdf

☐xls

☐rtf

Modifying reports: Title/Format





Modify "Line Listing - Healthcare Bed Capacity"

☐ Show descriptive variable names ([Print List](#)) Analysis Data Set: Capacity Type: Line Listing

Format Time Period Filters Display Variables Sort Variables Display Options

Title:
Line Listing of Healthcare Bed Capacity

Format:

☒  ☐  ☐  ☐ 

Annotations:

- Edit title of report
- Choose file format for exported report

Modifying reports: Time Period

Modify "Line Listing - Healthcare Bed Capacity"

☐ Show descriptive variable names ([Print List](#)) Analysis Data Set: Capacity Type: Line Listing

Title/Format Time Period Filters Display Variables Sort Variables Display Options

Time Period:

Date Variable Beginning Ending

reportingDate 01/23/2024

☐ Enter Date variable/Time period at the time you click the Run button

Select a specified time period for your report

NOTE: If you do not select a time period, your results will include all data reported for your facilities to the Healthcare Bed Capacity project

Modifying reports: Filters

- Specify criteria for filtering the data that will be included in the report

Modify "Line Listing - Healthcare Bed Capacity"

☐ Show descriptive variable names ([Print List](#)) Analysis Data Set: Capacity Type: Line Listing Last Generated (UTC): September 22, 2024 4:20 PM

Title/Format Time Period **Filters** Display Variables Sort Variables Display Options

Additional Filters:

AND OR

AND OR

AdultTotalOccupied greater 25

Select variable to filter by and specify desired values of that variable to be included in the report

A "Group" refers to a set of rules combined to make one filter

Reminder: Chat and Q & A features are limited to only 1000 participants

Modifying reports: Display Variables

- Add, remove, and/or reorder variables that will display in report
- **Note:** A subset of all variables will be pre-selected to display by default

Check this box to display descriptive variable names instead of field names (e.g., "Facility Org ID" instead of "orgID")

Modify "Line Listing - Healthcare Bed Capacity"

☒ Show descriptive variable names ([Print List](#)) Analysis Data Set: Capacity Type: Line Listing Last Generated (UTC): September 23, 2024 4:39 PM

Title/Format Time Period Filters **Display Variables** Sort Variables Display Options

Display Variables:

Available Variables:		Selected Variables:
Adult ED Admitted Census	All	Facility Org ID
Adult ED Bed Census	Selected	Record ID
Adult ED Total Census	Selected	Context for which the record applies
Adult ICU-LOC Census	All	Facility Name
Adult MT/MS Census		State
Adult MT/MS Unoccupied		County Name
Adult MTMS Beds		CMS Certification Number
Adult OBS Census		Type of Facility
Adult OBS Unoccupied		Reporting for Date
Adult Observation Beds		All Beds Census
Adult PCU Beds		All Beds Unoccupied
Adult PCU Census		Adult Total Census
Adult PCU Unoccupied		Adult Total Unoccupied
Adult Specialty Beds Occupied		Adult ICU Census
Adult Specialty Beds Unoccupied		Adult ICU Unoccupied

Up Down Undo

Modifying reports: Sort Variables

- Select which variable(s) by which to sort reports

The screenshot shows the 'Modify "Line Listing - Healthcare Bed Capacity"' interface. At the top, there's a header bar with the title and a checkbox for 'Show descriptive variable names (Print List)'. Below the header, there's a navigation bar with tabs: 'Title/Format', 'Time Period', 'Filters', 'Display Variables', 'Sort Variables' (which is highlighted in green), and 'Display Options'. The main content area is titled 'Sort Variables:'. It contains two panels. The left panel, 'Available Variables:', lists various variables such as 'Adult ED Admitted Census', 'Adult ED Bed Census', 'Adult ED Total Census', 'Adult ICU Census', 'Adult ICU Total Beds', 'Adult ICU Unoccupied', 'Adult ICU-LOC Census', 'Adult MT/MS Census', 'Adult MT/MS Unoccupied', 'Adult MTMS Beds', 'Adult Non- ICU Census', 'Adult Non- ICU Unoccupied', 'Adult Non-ICU Beds', 'Adult OBS Census', and 'Adult OBS Unoccupied'. Between the panels are three buttons: 'All', 'Selected', and 'Selected'. The right panel, 'Selected Variables:', is highlighted with a red box and contains the following variables: 'Facility Org ID', 'Record ID', 'Context for which the record applies', and 'Reporting for Date'. To the right of this panel are three buttons: 'Up', 'Down', and 'Undo'.

Report will be sorted by the selected variables in the order listed. Use the "Up" and "Down" buttons to change the variable sort order

NOTE: Selected variable(s) must be selected on Display Variables tab in order to sort on that variable

Modifying reports: Display Options

- Specify variable by which to organize the report
 - If no display variable is selected, it will display using the default “orgID”
- Report will display one table for each value of the selected “Page by variable”

Modify "Line Listing - Healthcare Bed Capacity"

☐ Show descriptive variable names ([Print List](#))

Analysis Data Set: Capacity Type: Line Listing Last Generated (UTC): [September 23, 2024 4:39 PM](#)

Title/FormatTime PeriodFiltersDisplay VariablesSort VariablesDisplay Options

Line Listing Options:
Page by variable: orgID

NOTE: “Page by variable” must also be selected on Display Variables tab

Reminder: Chat and Q & A features are limited to only 1000 participants

Run customized report

Modify "Line Listing - Healthcare Bed Capacity"

☐ Show descriptive variable names ([Print List](#)) Analysis Data Set: Capacity Type: Line Listing Last Generated (UTC): September 23, 2024 4:39 PM

Title/Format Time Period Filters Display Variables Sort Variables Display Options

Title:
Line Listing of Healthcare Bed Capacity

Format:

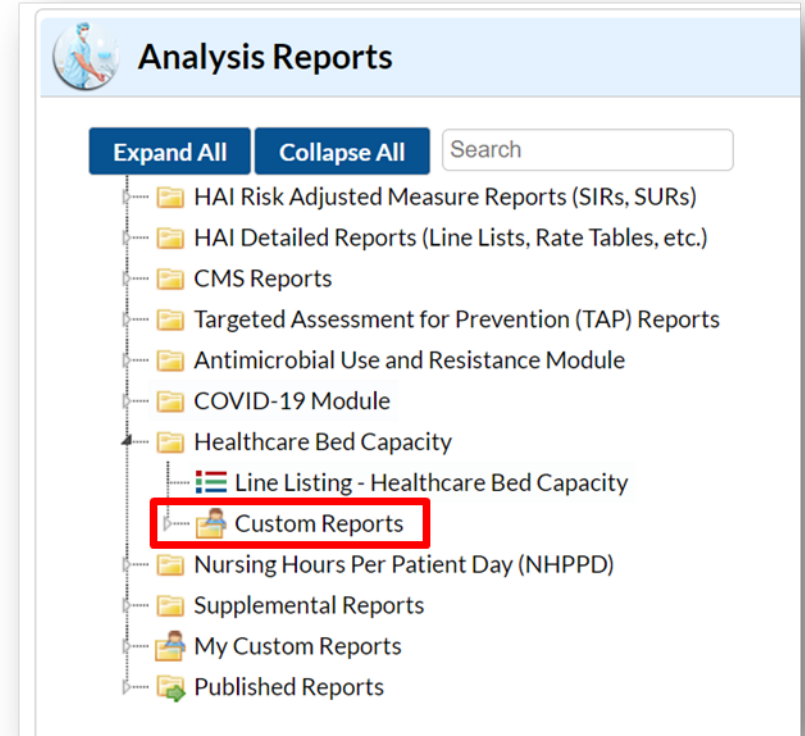
☒ html ☐ pdf ☐ xls ☐ rtf

When finished modifying report settings, user can choose to run, save, or export the report

Run Save... Export... Close

Accessing saved reports

- Saved reports can be found in the “Custom Reports” folder within the “Healthcare Bed Capacity” folder



Features of Healthcare Bed Capacity Reports

1. Report title
2. Date/time report created
3. Time period of data included in report
4. “Page by variable”
5. Line listing of hospital data reported by facilities meeting the “Page by variable” criteria listed above
6. Note on data source
7. Sort variables

1 National Healthcare Safety Network
Line Listing of Healthcare Bed Capacity
As of: June 27, 2025 at 5:14 PM UTC
Date Range: CAPACITY datepart(reportingDate) After and Including 08/01/2024 **3**

4 orgID=10000

5

orgID	recordID	context	name	state	county	ccn	factype	reportingDate	AllBedsOccupied	AllBedsUnoccupied	AdultTotalOccupied
10000	358	HOSP	DHQP Memorial Hospital	GA	GA121	TOM6	HOSP-GEN	04SEP2024:02:02:00.000	100	100	1
10000	359	HOSP	DHQP Memorial Hospital	GA	GA121	TOM6	HOSP-GEN	11SEP2024:02:02:00.000	100	100	1
10000	360	HOSP	DHQP Memorial Hospital	GA	GA121	TOM6	HOSP-GEN	18SEP2024:02:02:00.000	100	100	1
10000	361	HOSP	DHQP Memorial Hospital	GA	GA121	TOM6	HOSP-GEN	03SEP2024:02:02:00.000	100	100	1
10000	362	HOSP	DHQP Memorial Hospital	GA	GA121	TOM6	HOSP-GEN	10SEP2024:02:02:00.000	100	100	1
10000	363	HOSP	DHQP Memorial Hospital	GA	GA121	TOM6	HOSP-GEN	17SEP2024:02:02:00.000	100	100	1

6 Data provided in this report reflect data submitted directly to the NHSN Connectivity Initiative: Healthcare Bed Capacity project. Values shown have been evaluated using defined data quality checks. Null values may indicate either missing values or a result of failed data quality checks.
A value of 9999 indicates the field was not applicable for the facility (e.g., if a facility does not have any ICU beds, a value of 9999 may be reported for AdultICUOccupied).

7 Sorted by orgID recordID context reportingDate

Reminder: Chat and Q & A features are limited to only 1000 participants

NHSN Connectivity Initiative: Hospital Bed Capacity Project

Data Quality and Validation Best Practices

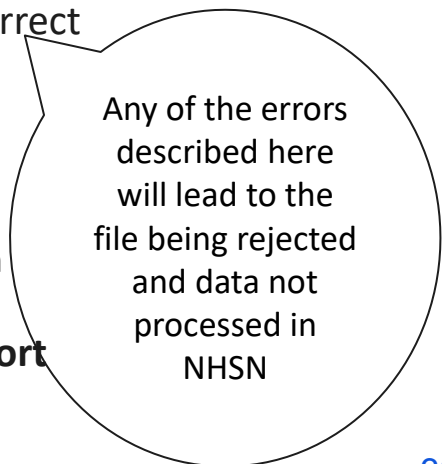
Jeenal Patel, MPH

Objectives

- Identify common JSON file structure errors and their impact
- Understand the use of 9999s to differentiate zero, null, and not applicable values
- NHSN Healthcare Bed Capacity data map into NHSN HRD pathway

JSON File Structure Errors

- **Missing ANY columns**
 - ALL columns as specified in the data dictionary and in sample template need to be included on the submission
 - If any integer values are not applicable, please indicate with '9999' rather than omitting the column from the file
 - If column header is incorrectly spelled, it will also flag as a missing column
- **Columns incorrectly formatted**
 - For example, reporting data as an integer when should be a string, incorrect datetime format, etc.
- **Missing values in required fields**
 - Required fields : orgID, context, collectionDate, ExtractionDate, ReportingStatus
 - The file cannot be processed if any records are missing values in the above fields
 - Note: if missing values in certain bed fields, data WILL NOT map into downstream products including Hospital Respiratory Data
- **File requirements are fully detailed in the instruction book and new Import File Specifications guide**

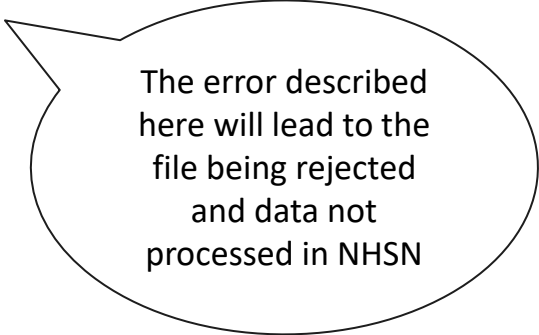


Any of the errors described here will lead to the file being rejected and data not processed in NHSN

Reminder: Chat and Q & A features are limited to only 1000 participants

JSON File Structure Errors

- **Data should be formatted as an array of objects**
 - Submit brackets at the beginning and end of the JSON file, as well as commas in between each object in the file.
 - Example: The JSON submission should be [{A},{B}], as opposed to {A}{B}



The error described here will lead to the file being rejected and data not processed in NHSN

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Implementation of 9999s

- **Guidance for differentiating zero, null, and not applicable bed counts**

Scenario	Value captured
Service/bed type available or offered at hospital, no beds occupied or unoccupied (<i>zero really means zero</i>)	Zero
Service/bed type available or offered at hospital, but no data reported (<i>null/empty value</i>)	Null (field left completely blank or empty); recommend jurisdiction/vendors coordinate with hospitals to ensure resolution as a zero or non-null value is captured if the service/bed type is available.
Service/bed type not available or offered at hospital (<i>not applicable</i>)	9999

- **Null values will be flagged as potential data quality issue – all fields should either have a zero, nonzero, or 9999 value captured**
- **Nulls in any fields that are needed to map to HRD will also prevent successful mapping of the data into the HRD pathway.**

How does the NHSN Application identify bed capacity data and map it into the HRD pathways?

- **NHSN has finalized mappings of bed capacity data elements to HRD data elements based on the HRD definitions**
- **Reporting Status**
 - All records submitted to NHSN must include an indicator of the reporting status for a given hospital on a given day, which serves two primary purposes:
 - Main link between the data reported into the Bed Capacity project and the NHSN Respiratory Hospital Data (HRD) reported per CMS Conditions of Participation
 - Indicate which records are test data, which are submitted as part of the onboarding and validation process
- **It is critical that the bed capacity data are reported correctly and accurately to ensure the values can be mapped to HRD; no additional action needed by reporters in the application!**

For NHSN questions or concerns, contact the NHSN Helpdesk

- **NHSN-ServiceNow** to submit questions to the NHSN Help Desk.
- Access new portal at <https://servicedesk.cdc.gov/nhsncsp> .
- If you do not have a SAMS login, or are unable to access ServiceNow, you can still email the NHSN Help Desk at nhsn@cdc.gov.

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

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



Appendix

Non-specialty beds

Pediatric beds		
Non-specialty pediatric bed census	8a	Total pediatric bed census
	9a	Pediatric ICU census
	9c	Pediatric ICU-LOC
	9d	Pediatric non-ICU census
	10a	Pediatric progressive care, intermediate care, or step-down
	11a	Pediatric telemetry, general medicine/surgical/acute care
	12a	Pediatric observation
Unoccupied non-specialty pediatric beds	8b	Total unoccupied pediatric beds
	9b	Unoccupied pediatric ICU beds
	9e	Unoccupied pediatric non-ICU beds
	10b	Pediatric progressive care, intermediate care, or step-down
	11b	Pediatric telemetry, general medicine/surgical/acute care
	12b	Pediatric observation

Adult beds		
Non-specialty adult bed census	3a	Total adult bed census
	4a	Adult ICU census
	4c	Adult ICU-LOC
	4d	Adult non-ICU census
	5a	Adult progressive care, intermediate care, or step-down
	6a	Adult telemetry, general medicine/surgical/acute care
	7a	Adult observation
Unoccupied non-specialty adult beds	3b	Total unoccupied adult beds
	4b	Unoccupied adult ICU beds
	4e	Unoccupied adult non-ICU beds
	5b	Adult progressive care, intermediate care, or step-down
	6b	Adult telemetry, general medicine/surgical/acute care
	7b	Adult observation

Specialty beds

Specialty census			Specialty unoccupied		
Specialty beds census	13a	Specialty bed total census	Unoccupied specialty beds	13b	Unoccupied specialty bed total
	14a	Specialty non-crib census		14b	Unoccupied specialty non-crib total
	15a	Obstetrics		15b	Obstetrics
	20a	Rehabilitation		20b	Rehabilitation
	18a	Adult psychiatric		18b	Adult psychiatric
	19a	Pediatric psychiatric		19b	Pediatric psychiatric
		Specialty crib census			Unoccupied specialty crib total
	16a	NICU total census		16b	Unoccupied NICU total beds
	17a	NICU 1		17b	NICU 1
	17c	NICU 2		17d	NICU 2
	17e	NICU 3		17f	NICU 3
	17g	NICU 3 Plus		17h	NICU 3 Plus
	17i	NICU 4		17j	NICU 4
	17k	Nursery census		17l	Unoccupied nursery beds

Surge beds

Surge census			Surge unoccupied		
Surge beds census (active only)	21a	Active surge bed total census	Unoccupied surge beds (active and inactive)	21b	Unoccupied active surge total beds
	23a	Active ICU surge bed census		23b	Unoccupied active surge ICU beds
	25a	Active non-ICU surge bed census		25b	Unoccupied active surge non-ICU beds
		22a		Unoccupied inactive surge total beds	
		24a		Unoccupied inactive surge ICU beds	
		26a		Unoccupied inactive surge non-ICU beds	

Emergency department and Miscellaneous beds

Emergency department		
Total emergency department census	29e	Total ED census
	29f	Total ED admitted census
Pediatric emergency department census	29c	Total pediatric ED census
	29d	Total pediatric ED admitted census
Adult emergency department census	29a	Total adult ED census
	29b	Total adult ED admitted census

Miscellaneous		
Burn beds	27a	Burn beds census
	27b	Unoccupied burn beds
Negative pressure beds	28a	Negative pressure beds census
	28b	Unoccupied negative pressure beds