



# Healthcare Data Hygiene and Quality

Anthony Clarke, MPH

Aarti Gupta, MPH





## Presentation Purpose & Objectives

- Define Data Hygiene and Data Quality
- Demonstrate healthcare data best practices using components of data hygiene and data quality
- Highlight trainings, webinars, and resources that can help increase your data hygiene and data quality knowledge and skills



## What are Data Hygiene and Data Quality?

- **Data Hygiene** is a set of best practices that ensure healthcare data is high quality from the point of data entry
- **Data Quality** is a set of characteristics that describe healthcare data ensuring information being captured is useful in supporting and improving patient care



# Data Hygiene



# Data Hygiene

## Definition:

- A set of best practices that ensure healthcare data is high quality from the point of data entry

## Key Components:

- Automation
- Standardization
- Ease of Use

# Data Hygiene

## Your “A. S. E.” in the hole!



### Key Components:

- Automation
- Standardization
- Ease of Use

## Data Hygiene Best Practices: Automation

- **Automation:** Using automated processes to capture and/or connect data rather than relying on manual data entry
  - Integrate automatic data entry as much as possible to reduce opportunities for human error
  - Examples of automation include:
    - Using a formula to automate data summarization in Excel
    - Using templates and forms which pre-populate with data from Electronic Medical Records (EMR)
    - Auto-populating fields

## Data Hygiene Best Practices: Standardization

- **Standardization:** Using the same coding, keywords, and data entry methods as much as possible across different departments, tools, and tests to ensure easy integration.
  - Data can be shared across systems
    - Reduces duplicate data entry
    - Allows for a holistic view of patients
  - Examples of standardization include:
    - Protocols
    - ICD-9/10 codes
    - Refresher training to ensure consistency



## Data Hygiene Best Practices: Ease of Use

- **Ease of Use:** Making data entry & summarization as easy as possible; eliminating opportunities for user error
  - Make sure any staff involved in data entry are trained on how to best do so & be receptive of staff feedback to improve data entry
  - Ease-of-Use can be added to your data entry by:
    - Electronic record keeping vs paper record keeping
    - Making the protocol easily available during data entry
    - Creating templates



## Healthcare Personnel COVID-19 Vaccination Cumulative Summary (CDC 57.219, Rev 9)

(Note: This form is used for the Long-term Care Facility and Healthcare Personnel Safety Components.)

2 Pages

\*required for saving

*Facility ID#:						
*Vaccination type: COVID-19						
*Week of data collection (Monday – Sunday): __/__/____ – __/__/____					*Date Last Modified: __/__/____	
Cumulative Vaccination Coverage						
	Healthcare Personnel (HCP) Categories					
	All Core HCP <sup>a</sup>	All HCP <sup>b</sup>	Employee HCP	Non-Employee HCP		
			*Employees (staff on facility payroll) <sup>c</sup>	*Licensed independent practitioners: Physicians, advanced practice nurses, & physician assistants <sup>d</sup>	*Adult students/trainees & volunteers <sup>e</sup>	*Other Contract Personnel <sup>f</sup>
1. *Number of HCP that were eligible to have worked at this healthcare facility for at least 1 day during the week of data collection						
2. *Cumulative number of HCP in Question #1 who are <b>up to date</b> with COVID-19 vaccines.  Please review the current definition of up to date: <a href="#">Key Terms and Up to Date Vaccination</a>						
3. *Cumulative number of HCP in Question #1 with other conditions:						
3.1. *Medical contraindication to COVID-19 vaccine						
3.2. *Offered but declined COVID-19 vaccine						



# Weekly COVID-19 Vaccination Cumulative Summary for Residents of Long-Term Care Facilities (CDC 57.218, Rev 9)

1 page \*required for saving

Facility ID#:	
Vaccination type: COVID-19	
Week of data collection (Monday – Sunday):    /    /    –    /    /	Date Last Modified:    /    /
<b>Cumulative Vaccination Coverage</b>	
Note: Facilities submit Weekly COVID-19 Vaccination Cumulative Summary data by completing the questions on this form. As of March 28 <sup>th</sup> , 2022, facilities also have the option to use the Person-Level COVID-19 Vaccination Forms and select the “view reporting summary and submit” to submit these data. Using the person-level forms is recommended to ensure that individuals who are up to date with COVID-19 vaccination are categorized appropriately according to their vaccination dates.	
1. *Number of residents staying in this facility for at least 1 day during the week of data collection	
2. *Cumulative number of residents in Question #1 who are <u>up to date</u> with COVID-19 vaccines.	
<b>Please review the current definition of up to date:</b> <a href="#">Key Terms and Up to Date Vaccination</a>	
3. *Cumulative number of residents in Question #1 with other conditions:	
3.1. *Medical contraindication to COVID-19 vaccine	
3.2. *Offered but declined COVID-19 vaccine	



# Data Hygiene In Action: Automation

## How will DHQP record these data in the RIFC pathway?

(Division of Healthcare Quality Promotion)

(Resident Impact and Facility Capacity)

**Positive Tests: 4**

**Up to Date: 1**

**Not Up to Date: 3**

– NOTE: This variable is auto-populated by the system

Resident Impact for COVID-19 (SARS-CoV-2)

4

**\* POSITIVE TESTS:** Enter the Number of residents with a newly positive SARS-CoV-2 viral test result (for example, a positive SARS-CoV-2 antigen test and/or SARS-CoV-2 NAAT (PCR).

**Note:** Do not include residents who have a positive SARS-CoV-2 antigen test, but a negative SARS-CoV-2 NAAT (PCR).

Only include residents newly positive since the most recent date data were collected for NHSN reporting.

Vaccination Status of Residents with a Newly Confirmed SARS-CoV-2 Viral Test Result

Up to Date Vaccination Status

**Up to Date:** Include residents with a newly positive SARS-CoV-2 viral test result who are up to date with COVID-19 vaccines 14 days or more before the specimen collection date.

**Note:** Please review the current NHSN surveillance definition of [up to date](#).

**Not Up to Date:** Based on the counts entered for POSITIVE TESTS and UP TO DATE, the count for residents who are NOT considered up to date based on the NHSN Surveillance definition has been calculated above.

This count is not editable, to edit please update the count entered for UP TO DATE.

1

3

Source: [Centers for Disease Control and Prevention](#), [National Center for Emerging and Zoonotic Infectious Diseases \(NCEZID\)](#), [Division of Healthcare Quality Promotion \(DHQP\)](#)

<https://www.cdc.gov/nhsn/pdfs/covid19/lctf/NHSN-COVID-19-11.4-updates-for-May-30th-recording-final.pdf>



# Standardization and Ease of Use Example : Using dropdowns

resgname	ressurname	resgen	dob	resethnic	resadmitda	dose
Patient	Patient	F	3/14/1947	HISP	10/2/2023	
Patient	Patient	F	3/15/1947	HISP	10/3/2023	
Patient	Patient	F	947	HISP	10/4/2023	
Patient	Patient	M	947	NOHISP		
Patient	Patient	M	947	NOHISP		
Patient	Patient	M	947	NOHISP		
Patient	Patient	M	3/20/1947	NOHISP		
Patient	Patient	M	3/21/1947	NOHISP		
Patient	Patient	M	3/22/1947	NOHISP		
Patient	Patient	M	3/23/1947	HISP		

**GENDER**  
F - Female  
M - Male  
O - Other

**Ethnicity**  
HISP - Hispanic or Latino  
NOHISP - Not Hispanic or Not Latino  
DEC- Declined to respond  
UNK - Unknown



## Audience Question:

Which of these is not a key component of data hygiene:

- A. Ease of use
- B. Automation
- C. Standardization
- D. Systemization



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Which of these is not a key component of data hygiene:

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# Data Quality





# What is Data Quality in Healthcare?

## Key Components of Data Quality:

- Accuracy
- Completeness
- Consistency
- Timeliness

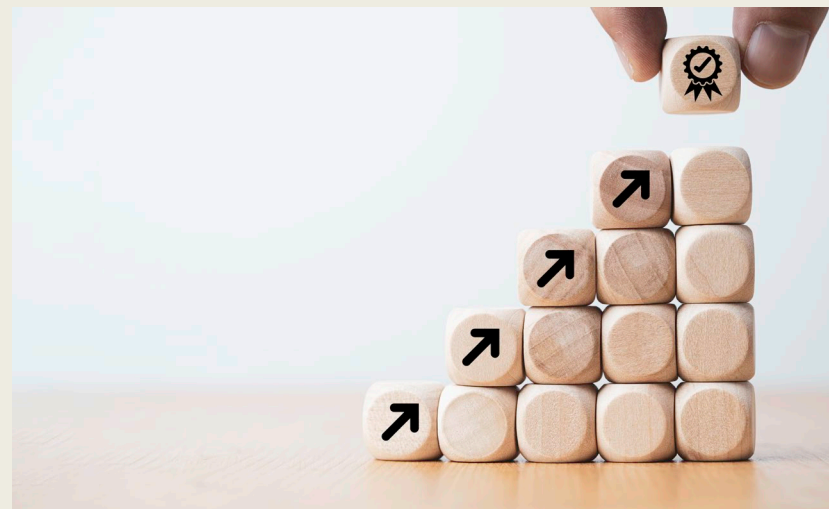
## Definition:

- A set of characteristics that describe healthcare data which is useful in supporting and improving patient care

# What is Data Quality in Healthcare?

## Key Components of Data Quality:

- Accuracy
- Completeness
- Consistency
- Timeliness



## Data Quality: Accuracy

- **Accurate data** is data which is true.
- Data accuracy can be ensured via robust data validation processes
  - Automated validation is preferable to save staff time
    - e.g., a process in your EHR prevents data entry if some error is caught
  - Staff routinely review of data points to ensure data entered is true and correct
    - Ensure names spelled correctly / dates are correct
    - Correct any errors flagged by automated processes



## Data Quality: Completeness

- **Data is complete** when all relevant information required for comprehensive patient care is included
- Incomplete data can be the result of:
  - Human error
  - Limitations of system and/or system integration
- Be sure to enter in full demographics: patient's name including suffix (Jr., Sr., etc), race/ethnicity, date of birth, full address including city state and zip code
- Record patient's complete medical history including past medical diagnoses, allergies, etc

## Data Quality: Consistency

- **Consistent data** is reliable all the time.
- Inconsistent data can be the result of:
  - Unclear or missing protocols
  - Lack of system integration
- Data consistency can be assured by:
  - Reviewing data entered across systems
  - Routinely reporting data
  - Utilizing protocols

## Data Quality: Timeliness

- **Timely data** is data which is up-to-date with the most recent available information.
- Data timeliness can be ensured by:
  - Improving processes for data entry
  - Automatically capturing data
  - Routine data updates as part of testing protocols



# Audience Question

Which data quality issue do you find in the highlighted cell in the table?

- A. Timeliness
- B. Accuracy
- C. Consistency
- D. Completeness

Firstname	Last name	Gender
Patient	Patient	F
Patient	Patient	F
Patient	Patient	
Patient	Patient	M
Patient	Patient	M



# Audience Question

Which data quality issue do you find in the highlighted cell in the table?

- A. Timeliness
- B. Accuracy
- C. Consistency
- D. **Completeness**

Firstname	Last name	Gender
Patient	Patient	F
Patient	Patient	F
Patient	Patient	
Patient	Patient	M
Patient	Patient	M





# Audience Question

Which data quality issue do you find in the highlighted cell in the table?

- A. Timeliness
- B. Accuracy
- C. Consistency
- D. Completeness

	Last name	Gender	DOB
Patient		F	1/29/1968
Patient		F	11/26/1967
Patient			9/22/2024
Patient		M	6/31/1949
Patient		M	11/21/1956



# Audience Question

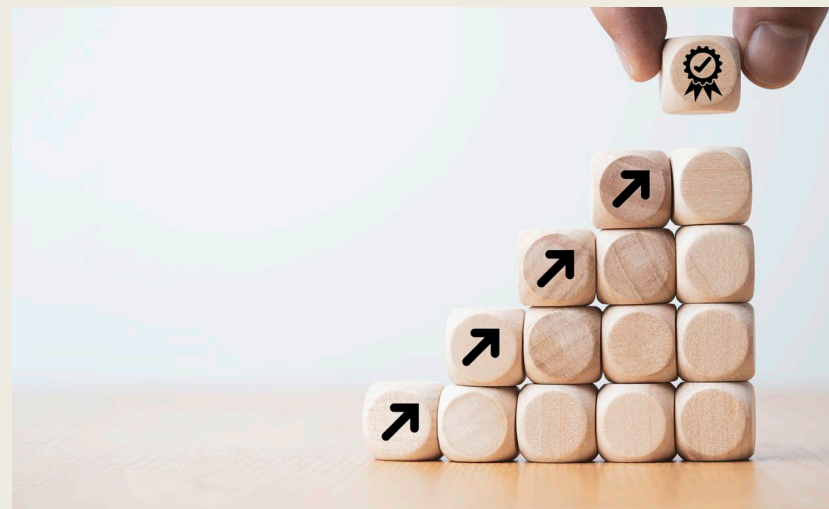
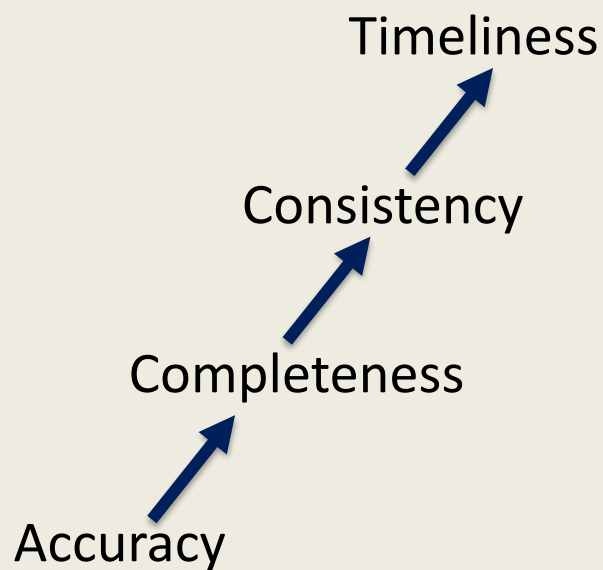
Which data quality issue do you find in the highlighted cell in the table?

- A. Timeliness
- B. **Accuracy : Should be 6/30/1949**
- C. Consistency
- D. Completeness

	Last name	Gender	DOB
Patient		F	1/29/1968
Patient		F	11/26/1967
Patient			9/22/2024
Patient		M	6/31/1949
Patient		M	11/21/1956

# Components of Data Quality Build on Each Other

## Components of Data Quality:





# Data Quality In Action

## NHSN LTCF HCP Weekly COVID-19 Vaccination Data Reporting: 2/12/2024 - 2/18/2024

	*All Core HCP <sup>a</sup>	*All HCP <sup>b</sup>	*Employees (staff on facility payroll) <sup>c</sup>	*Licensed independent practitioners: Physicians, advanced practice nurses, & physician assistants <sup>d</sup>
1. *Number of HCP that were eligible to have worked at this healthcare facility for at least 1 day during the week of data collection	240	280	100	80
2. * Cumulative number of HCP in Question #1 who are <b>up to date</b> with COVID-19 vaccine(s).  Please review the current definition of up to date: <a href="#">Key Terms and Up to Date Vaccination</a> .	165	180	75	55
3. * <b>Cumulative</b> number of HCP in Question #1 with other conditions:				
3.1 * Medical contraindication to COVID-19 vaccine	2	2	2	0
3.2 * Offered but declined COVID-19 vaccine	35	40	10	15
3.3 * Unknown/Other COVID-19 vaccination status	38	58	13	10

Source: [Centers for Disease Control and Prevention](#) , [National Center for Emerging and Zoonotic Infectious Diseases \(NCEZID\)](#) , [Division of Healthcare Quality Promotion \(DHQP\)](#)

<https://www.cdc.gov/nhsn/pdfs/ltc/lctcf-component-covid19-updates-january-2024-508.pdf>



# Data Quality In Action

NHSN LTCF HCP Weekly COVID-19 Vaccination Data Reporting: 2/12/2024 - 2/18/2024

Weekly survey: **Timeliness**

	*All Core HCP <sup>a</sup>	*All HCP <sup>b</sup>	*Employees (staff on facility payroll) <sup>c</sup>	*Licensed independent practitioners: Physicians, advanced practice nurses, & physician assistants <sup>d</sup>
1. *Number of HCP that were eligible to have worked at this healthcare facility for at least 1 day during the week of data collection	240	280	100	80
2. * Cumulative number of HCP in Question #1 who are <b>up to date</b> with COVID-19 vaccine(s).  Please review the current definition of up to date: <a href="#">Key Terms and Up to Date Vaccination</a> .	165	180	75	55
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3.2 * Offered but declined COVID-19 vaccine	35	40	10	15
3.3 * Unknown/Other COVID-19 vaccination status	38	38	13	10

**Completeness:**  
Unique data entry field for each possibility

25

Sum = 100

**Accuracy**

Source: [Centers for Disease Control and Prevention](#), [National Center for Emerging and Zoonotic Infectious Diseases \(NCEZID\)](#), [Division of Healthcare Quality Promotion \(DHQP\)](#)

<https://www.cdc.gov/nhsn/pdfs/ltc/lctf-component-covid19-updates-january-2024-508.pdf>



Edit Vaccine Data

COVID-19 Vaccine: HCP   **COVID-19 Vaccine: Residents**   Influenza/RSV: Residents

Resident COVID-19 Cumulative Vaccination Summary for Long-Term

Date Created: 10/03/2023 3:50PM

\*Facility ID:      \*Vaccination type

\*Week of Data Collection: 10/02/2023 - 10/08/2023      \*Date Last Modified: 10/03/2023 3:50PM

**Complete COVID-19 Residents Form**

Cumulative Vaccination Coverage

Note: Facilities submit Weekly COVID-19 Vaccination Cumulative Summary data by completing the questions on this form. As of March 28th, 2022 facilities also have the option to use the Person-Level COVID-19 Vaccination Form and select the "view reporting summary and submit" to submit these data. Using the person-level forms is recommended to ensure that individuals who are up to date with COVID-19 vaccination are categorized appropriately according to their vaccination dates.

1. * Number of residents staying in this facility for at least 1 day during the week of data collection	<input type="text" value="100"/>
2. * <b>Cumulative</b> number of residents in Question #1 who are up to date with COVID-19 vaccines.	<input type="text" value="80"/>

Please review the current definition of [up to date](#): Key Terms and Up to Date Vaccination.

3. * <b>Cumulative</b> number of residents in Question #1 with other conditions:	
3.1 * Medical contraindication to COVID-19 vaccine	<input type="text" value="10"/>
3.2 * Offered but declined COVID-19 vaccine	<input type="text" value="10"/>
3.3 * Unknown/Other COVID-19 vaccination status	<input type="text" value="0"/>

Adverse Events following COVID-19 Vaccine(s)

Clinically significant adverse events should be reported to the Vaccine Adverse Event Reporting System (VAERS) at <https://vaers.hhs.gov/reportevent.html>. To help identify reports from NHSN sites, please enter your NHSN orgID in Box 26 of the VAERS form.

Clinically significant adverse events include vaccine administration errors and serious adverse events (such as death, life-threatening conditions, or inpatient hospitalization) that occur after vaccination, even if it is not certain that vaccination caused the event.

Other clinically significant adverse events may be described in the provider emergency use authorization (EUA) fact sheets or prescribing information for the COVID-19 vaccine(s). Healthcare providers should comply with VAERS reporting requirements described in EUAs or prescribing information.

By saving these data in NHSN, facilities are agreeing to the following:  
1) The data reported are consistent with definitions outlined in NHSN surveillance protocols (including tables of instructions and frequently asked questions).  
2) The data will be sent to the Centers for Medicare and Medicaid Services (CMS) to fulfill CMS quality reporting requirements (when applicable).

Save   Cancel

# Data Quality In Action

Accuracy

Completeness

Consistency

Timeliness

Source: [Centers for Disease Control and Prevention](https://www.cdc.gov/nhsn/pdfs/covid19/ltcf/respiratory-pathogens-vaccination-webinar-sept-2023-508.pdf), [National Center for Emerging and Zoonotic Infectious Diseases \(NCEZID\)](https://www.cdc.gov/nhsn/pdfs/covid19/ltcf/respiratory-pathogens-vaccination-webinar-sept-2023-508.pdf), [Division of Healthcare Quality Promotion \(DHQP\)](https://www.cdc.gov/nhsn/pdfs/covid19/ltcf/respiratory-pathogens-vaccination-webinar-sept-2023-508.pdf)

<https://www.cdc.gov/nhsn/pdfs/covid19/ltcf/respiratory-pathogens-vaccination-webinar-sept-2023-508.pdf>



**Audience Question: What is the best data tracking practice for reporting resident vaccination totals on NHSN?**

- A. Use memory when reporting
- B. Use a central spreadsheet (Excel, Google sheets) to track data for reporting
- C. Use paper logs to track data for reporting
- D. Someone else tracks and I report based on what they tell me



**Audience Question: What is the best data tracking practice for reporting resident vaccination totals on NHSN?**

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# NHSN Person-Level COVID-19 Vaccination Forms

- The LTCF COVID-19 Vaccination Module has spreadsheets that can be used to track COVID-19 vaccination history for residents and staff

– [NHSN Person-Level COVID-19 Vaccination Forms](#) - CSV Template and Instructions

1. [.CSV File Template](#) for LTCF Residents / [Instructions](#)
2. [.CSV File Template](#) for LTCF HCP / [Instructions](#)



# Data Hygiene and Data Quality

## Data Hygiene

- “A. S. E.”
  - Automation
  - Standardization
  - Ease of Use

## Data Quality

- Components build on each other
  - Accuracy
  - Completeness
  - Consistency
  - Timeliness



# Additional Resources





# NHSN Survey Reporting Webpages & Resources

- **NHSN LTCF Component:** <https://www.cdc.gov/nhsn/ltc/index.html>
  - Several resources for new users, trainings, LTCF manual, and Frequently Asked Questions (FAQs) on reporting components
- **NHSN COVID-19/Respiratory Pathogens Module for LTCFs:** <https://www.cdc.gov/nhsn/ltc/covid19/index.html>
  - Information on LTCF COVID-19 Module enrollment, trainings (recordings and slides), upcoming webinars, data collection forms and instructions, facility CSV Import templates, as well as CMS requirements in the right pane of the webpage
  - Also includes optional influenza and RSV surveillance and vaccine reporting
- **NHSN Helpdesk:** <https://www.cdc.gov/nhsn/about-nhsn/helpdesk.html>
  - When emailing NHSN Helpdesk ([nhsn@cdc.gov](mailto:nhsn@cdc.gov)), please include in your subject line your SNF's NHSN Org ID and the LTCF COVID-19 Component item you are inquiring about, for example: "Enrollment" "NHSN Administrator Access" "COVID-19 Vaccination".
  - [NHSN-ServiceNow Customer Service Portal](#)
- **SAMs Help Desk:** [samshelp@cdc.gov](mailto:samshelp@cdc.gov) and phone 1-877-681-2901 (Select Option #5).
  - Assistance with NHSN platform login and access
  - SAMs Help Desk (via phone and email) Monday–Friday, 8 a.m.–6 p.m. EST Excluding U.S. Federal Holidays



# LAC SNF Webpages and Resources

## 1. LAC DPH SNF Webpage & Resources:

<http://publichealth.lacounty.gov/acd/SNF/index.htm>

## 2. LAC Infection and Prevention and Control Resources:

- [LAC DPH Recommended Infection Prevention and Control \(IPC\) Training for Skilled Nursing Facilities](#)
- [Transforming Nursing Homes Together Program](#)
- [LAC Ask an IP Program](#)

## 3. LAC SNF COVID guidance and resources:

<http://publichealth.lacounty.gov/acd/ncorona2019/healthfacilities/snf/prevention/>



## Additional Information

### ACDC LTCF Epi Team Contact

If you have any further questions, please contact DPH  
at [COVID-LTC-Test@ph.lacounty.gov](mailto:COVID-LTC-Test@ph.lacounty.gov)



Questions?

