National COVID-19 Data Quality Audit Template

How It's Going and What We've Learned

A special report by
Delaware State Auditor Kathy McGuiness, RPh, CFE

AUDITOR OF ACCOUNTS
STATE OF DELAWARE
LIBERTY AND INDEPENDENCE

State of Delaware
Office of Auditor of Accounts

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State Auditor

Dear fellow Delawareans,

In July 2020, I led a bipartisan multi-state task force to develop the National COVID-19 Data Quality Audit Template as a consistent tool for states to assess their approach to data collection, reporting, and monitoring of coronavirus cases. Our intent was to provide a way for states to determine the quality of the data they use to make policy decisions.

This report focuses on how the COVID-19 Data Quality Audit Template has been used to date and analyzes common issue areas across states and territories which have applied the template to the unique issues affecting their communities. By analyzing trends in data quality collection efforts, we can improve the efficiency of our state's public health response efforts in the event of future variants or novel public health crises.

My report primarily discusses several common issues identified in the various state reports including issues surrounding data dashboards and information infrastructure to collect and share COVID-19 related data, issues collecting demographic data for developing targeted solutions, and unclear guidance surrounding mortality information.

We depend on quality data to inform response efforts and policy decisions that could slow the course of public health crises. My hope is that this report helps to emphasize the importance of proactive planning and investment. By proactively funding and developing policies, procedures, and public health information systems, we can improve state response efforts to limit the spread and impact of future public health crises.

Thank you for the opportunity to serve you.

Sincerely,

Kathy McGuiness

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COVID-19 National Data Quality Audit Template How It's Going and What We've Learned

In July 2020, Delaware State Auditor Kathy McGuiness announced the creation of a national COVID-19 Data Quality Audit Template. The template was created as part of a bipartisan, multi-state effort with auditor's offices from Florida, Mississippi, Ohio and Pennsylvania in order to create a uniform approach to data collection, reporting, and monitoring of COVID-19 across the country. The audit template was released in July, just four months after many states began seeing their earliest COVID-19 cases. This timely resource has provided a framework for audit shops across the country to quickly assess the quality of COVID-19 data collection efforts.

As we look forward, states are still producing reports using the COVID-19 Data Quality Audit Template. To date, audit shops across the country have released hundreds of reports concerning COVID-19. OAOA reviewed over a hundred auditor's reports and found a wide range of subjects and report types including financial statement audits, performance audits, and special reports. While there are a substantial number of reports concerning COVID reporting, data quality, and other important COVID-related issues, this report specifically focuses on those reports that directly applied the template and the work of the bipartisan multi-state task force. Several auditor's offices across the country have released reports specifically using the COVID-19 Data Quality Audit Template including audit shops from Delaware, Iowa, Ohio, Louisiana, Washington D.C. and others that are still in development. The goal for this report is to evaluate released reports for common issues that can inform and improve the effectiveness of Delaware's response during public health emergencies.

COVID-19 Data Quality Task Force:

The CDC's 8 Core Goals for COVID-19 Public Health Surveillance:

1. Monitor trends and intensity of SARS-CoV-2 transmission, identify outbreaks, and provide data to initiate case and contact investigations
2. Understand disease severity and the spectrum of illness
3. Monitor and track vaccine distribution, uptake, and effectiveness
4. Describe risk factors for severe disease and transmission
5. Monitor for variants
6. Assess impact on health care systems
7. Estimate disease burden, and forecast trends, impact, and clinical public health needs
8. Monitor impact of disease and interventions on health equity

www.cdc.gov/coronavirus/2019-ncov/science/data-improvements.html [1]

Why is COVID-19 Data Quality Important?

The CDC notes that COVID-19 data collection and public health surveillance is critically important for several notable reasons. The CDC identified eight core goals for public health surveillance efforts. First, this data allows the monitoring of trends and intensity of SARS-CoV-2 transmission, helps to identify outbreaks, and provides data to initiate case and contact investigations. Quality COVID-19 data helps to understand disease severity and the spectrum of illness, and it also allows the monitoring and tracking of vaccine distribution, uptake, and effectiveness. The CDC notes that public health surveillance efforts help to describe risk factors for severe disease and transmission, monitor for variants, and assess impacts on healthcare systems. Quality data is important for estimating disease burden, forecasting trends, impacts, and clinical and public health needs. A final goal for public health surveillance and data collection is to monitor the impact of the disease and interventions on health equity[1]. It is clear that quality public health surveillance and data collection are essential for an informed and methodical public health response.

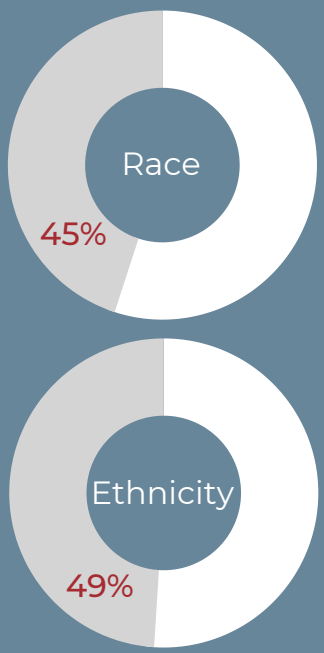
The Versatility of the Template

It is notable that each auditor's office has adopted and applied the template and its components in different ways. While some audit shops like the Office of the District of Columbia Auditor applied the entirety of the template, others like Ohio were able to select and apply components of the template that made the most sense for understanding the issues affecting their part of the country. The versatility of the template and the reports released so far serve as a testament to the work of the bipartisan Covid-19 Audit Task Force. The task force worked diligently to create the template as a robust framework for assessing the quality of COVID-19 data with consideration of risk areas that may impact the COVID-19 public health response[2]. Despite the different uses of the template, there are some common issue areas.

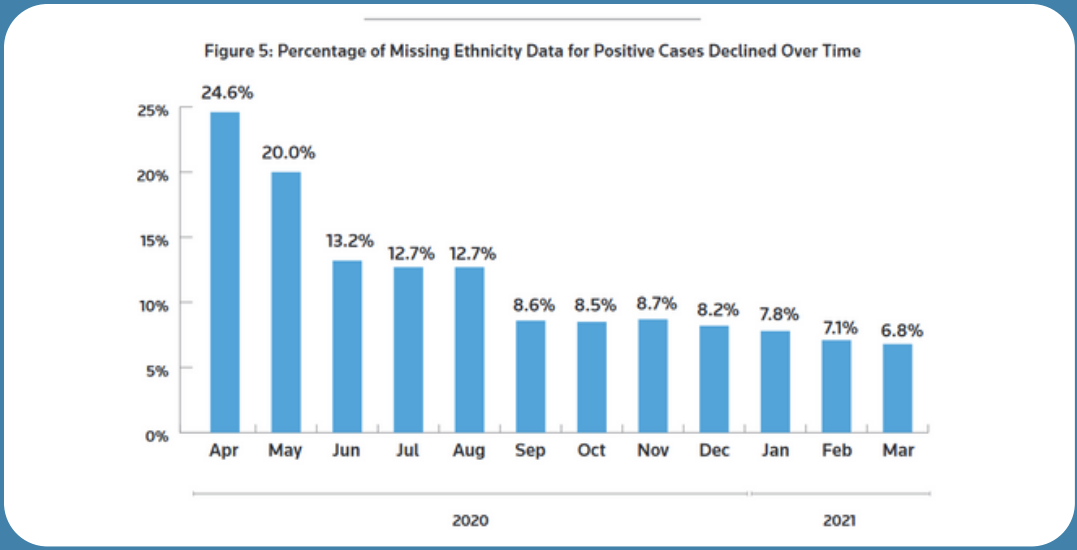
Demographic Data Issues

Many auditor's offices noted issues with COVID-19 testing data regarding demographic information. According to HHS, a rapid and thorough public health response requires complete and comprehensive laboratory testing data, including standardized test results and relevant demographic data[3]. Some reports noted the issues affecting COVID-related demographic data were in part due to the voluntary nature of responses. Data quality issues affecting demographic data presented significant challenges for states and territories as they worked to provide focused mitigation and treatment efforts to higher risk groups.

Iowa found significant issues affecting demographic information including race and ethnicity.



45% of the 3,546,461 total tests reviewed lacked race information, and 49% lacked ethnicity information[4].



Washington D.C. saw ethnicity data improve over time but also took steps to retroactively improve reporting by filling in additional demographic information by using information obtained during contact tracing and the designated Health Information Exchange for DC and Maryland[5].

Data Dashboards and Information Infrastructure

Many reports noted issues surrounding information infrastructure to facilitate the collection and dissemination of COVID-19 data. Some reports noted the systems used for tracking and reporting on issues of public health were antiquated or underprepared for the scale of the pandemic. This presented significant challenges to each state or territory, and many had to quickly react and update legacy systems or develop entirely new resources to collect and share state and local data. Each of these systems had to adapt and incorporate updated guidance from the U.S. Department of Health and Human Services (HHS), state and territorial health departments, and state and federal legislation.

4 out of 5 reports noted major challenges due to information systems that were unprepared for the scale of the COVID-19 Pandemic.

Some lacked clear guidance on what public health data should be collected, and others discussed overwhelmed or antiquated systems that reduced the efficiency and accuracy of public health surveillance efforts.

State Comparison

	DE	IOWA	OH	LA	D.C
First COVID-19 Case	03/11/2020	03/08/2020	03/09/2020	03/09/2020	03/07/2020
Date of First COVID-19 Death	03/26/2020	03/24/2020	03/20/2020	03/14/2020	03/20/2020
First Public Reporting of Data	03/2020	04/14/2020	03/09/2020	N/A	03/09/2020
Discussion of Mortality Data-Related Issues	✓	✓	✓	✗	✓
Discussion of Demographic Data Issues and/or Delays	✓	✓	✓	✓	✗
Discussion of Antiquated or Overwhelmed Data Dashboards & Public Health Information Infrastructure	✓	✓	✓	✗	✓
Does this state use all 18 Testing Elements Identified in the CARES Act?	✓	✗	✗	✓	✓

The 18 Elements of COVID-19 Testing Requirements Per HHS

- TEST ORDERED
- DEVICE IDENTIFIER
- TEST RESULT DATE
- ACCESSION #/SPECIMEN ID
- TEST RESULTS
- PATIENT AGE
- PATIENT ETHNICITY
- PATIENT SEX
- SPECIMEN SOURCE
- PATIENT RACE
- PATIENT RESIDENCE ZIP CODE
- PATIENT RESIDENCE COUNTRY
- PERFORMING FACILITY ZIP CODE
- ORDERING PROVIDER NAME & NPI
- PERFORMING FACILITY NAME/CLIA #
- ORDERING PROVIDER ZIP CODE
- DATE SPECIMEN COLLECTED
- DATE TEST ORDERED

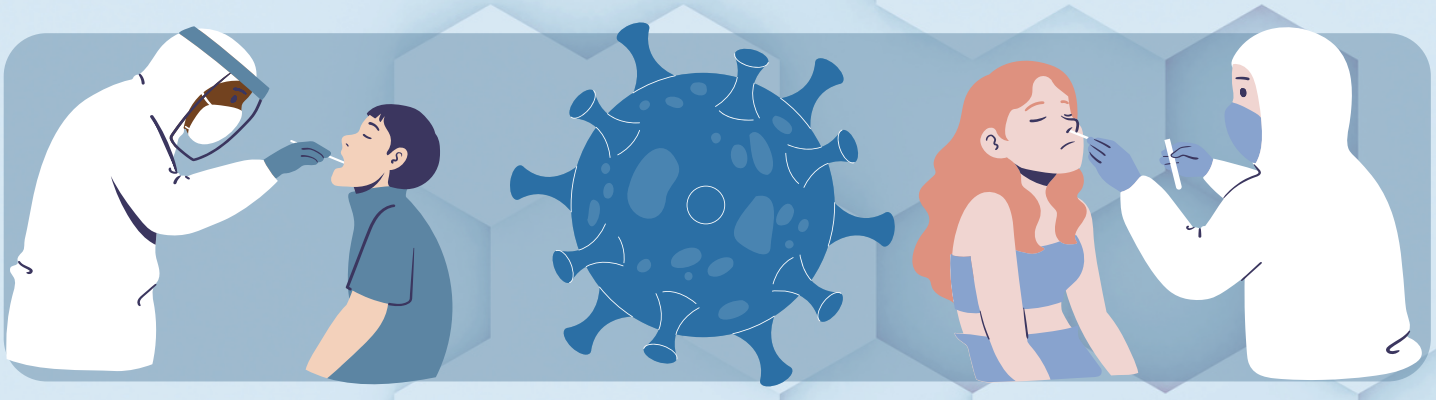
Mortality Information and Data Quality Issues

Death and mortality data are another frequently reviewed issue. Many reports noted problems with mortality data early in the pandemic and attributed these issues to unclear guidance that resulted in unequal or inconsistent reporting from different providers. Many noted changes that would later clarify ambiguity in determining cause of death and other contributing factors that may have affected COVID-19 data quality. In addition, some noted lags or delays between test dates and reporting dates that may have impacted local, state, and federal public policy decisions. Differences in coding for cause of death and other mortality related data points decreased public trust in the quality of data being reported.

What Have We Learned?

The National COVID-19 Data Quality Audit Template has provided valuable insight and the ability to compare state efforts to address the COVID-19 Pandemic. We found audit shops across the country are using the template in different ways to analyze the unique issues affecting their communities. Washington D.C. conducted an especially robust analysis of the district's COVID-19 reporting and applied nearly all of the audit template while others like Iowa were able to leverage the information available from the template to review specific areas of interest for their state like data collection, internal reporting, monitoring, and external reporting.

Our analysis found that Delaware was affected in similar ways to many of the other states who have used the national audit template. For example, Delaware experienced similar issues in developing information infrastructure and data dashboards as other states and had to develop new resources to collect and report on COVID-19. Delaware also had early issues with demographic information like race/ethnicity for positive cases and deaths, but the Delaware Department of Public Health took quick steps to address those issues in April 2020. Issues affecting demographic data would be addressed with additional guidance as the pandemic continued, but some states were able to implement corrections and improve their data quality in just a few months while others found broader data quality issues that had a longer-lasting impact on their ability to identify high risk groups and create targeted solutions for those communities.



In Conclusion:

Many of the takeaways from the audit reports my team reviewed were consistent with our earlier research and the issue areas identified on the COVID-19 Data Quality Audit Template[5]. Many early issues improved over time as updated guidance was released, but these reports have identified a common problem. Many states lacked the infrastructure to efficiently collect and release data in the early months of the pandemic. Whether it was due to unclear policies for data collection or legacy infrastructure, our states should apply the lessons learned since early 2020 to prepare and improve public health reporting and response efforts for future events. It is critical that states are proactive rather than reactive in their investment in necessary public health infrastructure. By proactively investing in public health information systems and establishing robust policies and procedures for data collection, states can respond to issues more efficiently, create targeted solutions for higher risk groups, and limit the impact of future public health events.

A Special Thank You:

To the first responders, front-line healthcare workers, essential employees, and everyone who did their part to limit the spread of COVID-19 and to care for those affected by it.

Thank you.

Endnotes

1 "Data Improvements." Centers for Disease Control and Prevention. Accessed April 18, 2022, https://www.cdc.gov/coronavirus/2019-ncov/science/data-improvements.html.

2 "National Data Quality COVID-19 Audit Template." State of Delaware Auditor of Accounts et al, Accessed March 20, 2022, https://www.nasact.org/files/Resources/COVID-19/Audit_Reports/2020_Covid-19_Data_Quality_Template.pdf

3 "COVID-19 Pandemic Response, Laboratory Data Reporting: CARES Act Section 18115." Centers for Disease Control and Prevention, Accessed April 10, 2022, https://www.cdc.gov/coronavirus/2019-ncov/downloads/lab/covid-19-laboratory-data-reporting-guidance_through-4_3_22.pdf.

4 "Report on a Review of the State of Iowa's Reporting of COVID-19 Data Administered by the Iowa Department of Public Health.", State of Iowa Office of Auditor of State , Accessed March 20, 2022, https://www.auditor.iowa.gov/reports/file/67546/embed.

5 "National COVID-19 Data Quality Audit: District of Columbia." Office of the District of Columbia Auditor. Accessed March 20, 2022, https://dcauditor.org/report/2021national-covid-19-data-quality-audit-district-of-columbia/

6 "Delaware's COVID-19 Data Dashboard Opportunities and Successes: How Well Does Delaware's Data Tool Allow for an Accurate and Timely Response to the Pandemic?" State of Delaware Office of Auditor of Accounts. Accessed March 23, 2022, https://auditor.delaware.gov/wp-content/uploads/sites/40/2020/12/COVID-SPECIAL-REPORT-12-2.pdf.

7 "Ohio Department of Health COVID-19 Data Performance Audit." Ohio Auditor of State. Accessed March 23, 2022, https://ohioauditor.gov/auditsearch/Reports/2021/ODH_Covid_Data_2021_Performance-Franklin_FINAL.pdf

8 "Integrity of Data Reported on the COVID-19 Dashboard." Louisiana Legislative Auditor. Accessed March 20, 2022, https://app.lla.state.la.us/PublicReports.nsf00106C2554F213DFA862586400075675F/$FILE/000221C4.pdf