

# Delivering Maternal and Child Health Data to Hospitals in a Secure Online Environment

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 FEBRUARY 2025

## Project

The Division of Integrated Health and Policy Research (IHPR) at the Institute for Families in Society (IFS), under contract with the South Carolina Department of Health and Human Services (SCDHHS), provides maternal and newborn data to 38 birthing facilities in South Carolina on a quarterly basis through an online secure portal. Reporting supports hospital-level quality improvement initiatives in alignment with the South Carolina Birth Outcomes Initiatives' goals and vision to improve maternal and newborn health.

IFS transforms each hospital's individual data from birth, hospital, and Medicaid eligibility records into meaningful and actionable information, providing clinicians and decision-makers with insights into their data; allowing users the freedom to explore, identify trends more quickly, and examine relationships and patterns between measures and operations.

## Issues

While developing an online data visualization platform to transform and support the reporting of maternal and newborn outcomes data for hospitals in the state, an issue arose concerning how to protect the confidentiality of the data and each facility's individual reports. State law precludes identifiable hospital information being shared publicly without the individual hospital's permission, and the Health Insurance Portability and Accountability Act's (HIPAA) compliance rules mandate the protection of that data as well.

To comply with confidentiality protocols within this online reporting environment of ingesting three summary hospital files – with over 150,000 records of identifiable information – IFS implemented several big data solutions.

## Lessons Learned

In developing an integrated system of techniques for safeguarding hospital data from authorized and unauthorized access, IFS has furthered its understanding of how to design and support a data infrastructure that maintains the confidentiality and integrity of privileged data in an online environment. This is particularly important given increasing data breaches across public and private entities and the need for enhanced cybersecurity.

While the development and use of interactive online platforms can help guide planning and data-driven decision making by policymakers and clinicians, it is important to acknowledge the “possible risks related to the security and privacy”<sup>[2]</sup> of privileged data. When applying techniques to transform data into actionable intelligence “a balance must be struck between the utility and anonymity of data”<sup>[1]</sup>.

## References

1. Institute for Families in Society. (2022, May). Institute for Families in Society: Guidelines and methods for de-identifying protected health information [Infographic]. In SC HealthViz. University of South Carolina, prepared under contract to the SC Department of Health and Human Services. [https://www.schealthviz.sc.edu/Data/Sites/1/media/images/USC\\_IFS\\_PHIDeIdentification\\_18.pdf](https://www.schealthviz.sc.edu/Data/Sites/1/media/images/USC_IFS_PHIDeIdentification_18.pdf)
2. Nemer M, Khader YS, Alyahya MS, Pirlot de Corbion A, Sahay S, Abu-Rmeileh NM. Personal data governance and privacy in digital reproductive, maternal, newborn, and child health initiatives in Palestine and Jordan: A mapping exercise. *Frontiers in Digital Health*. 2023 May 25;5. doi:10.3389/fdgh.2023.1165692

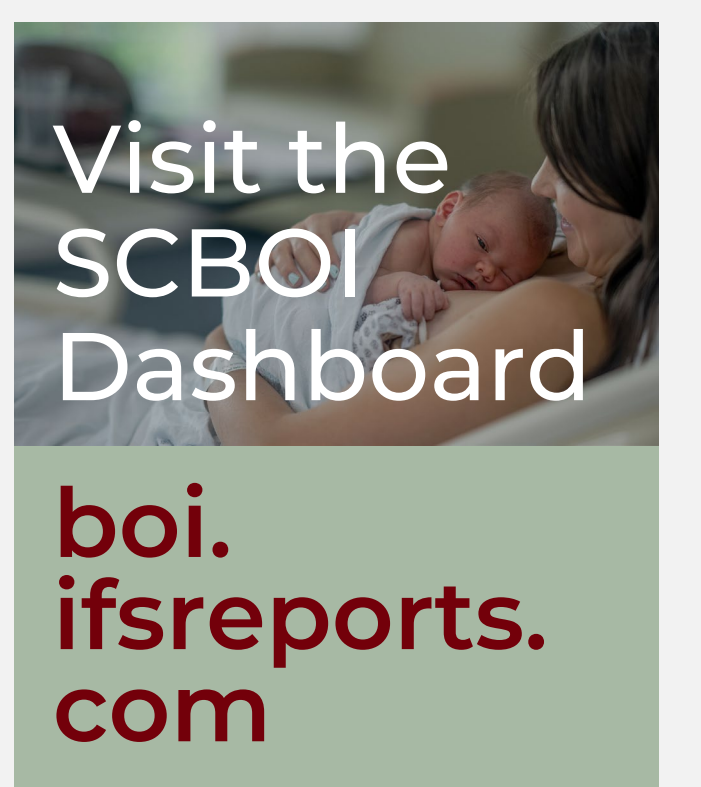
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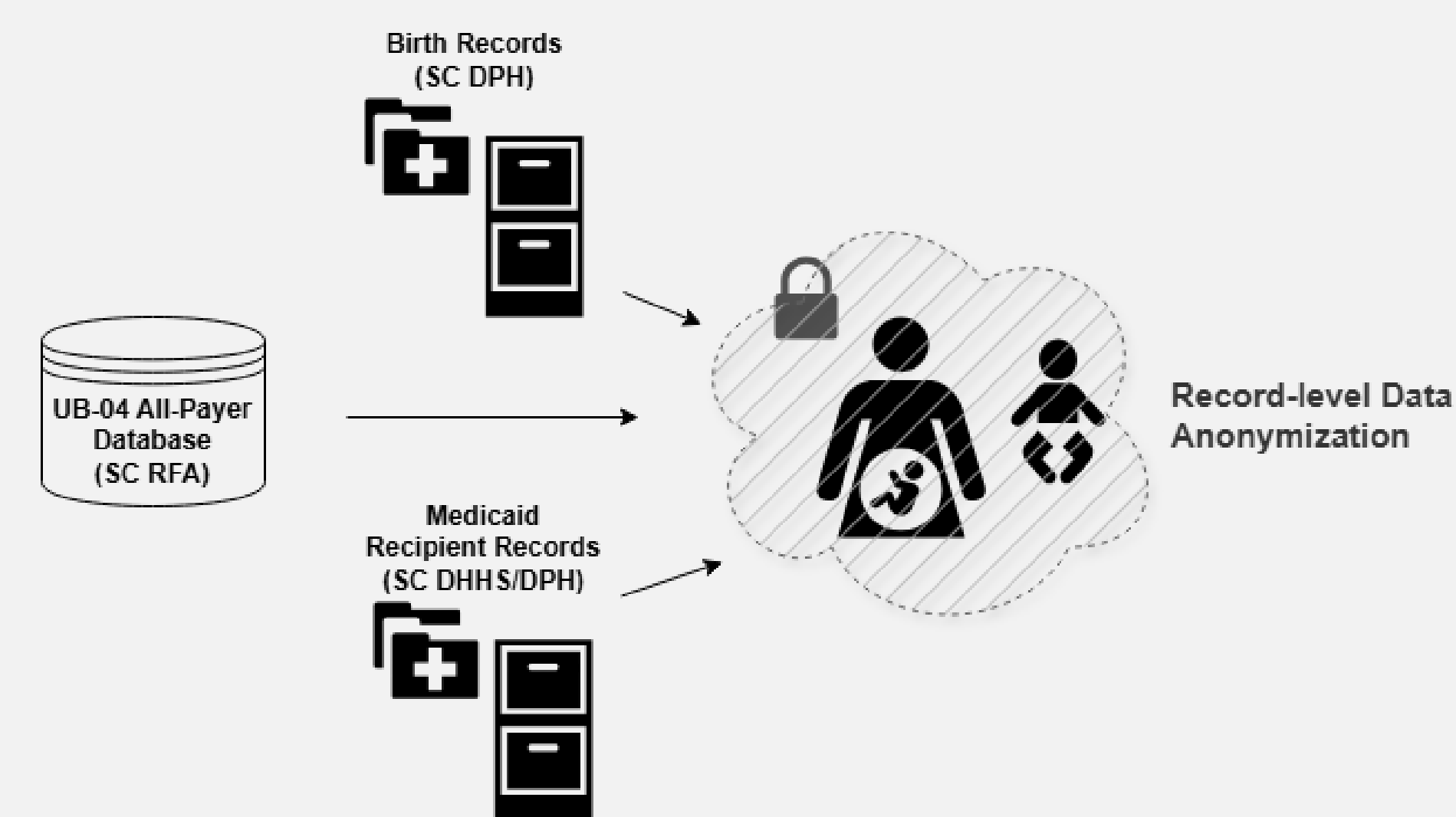


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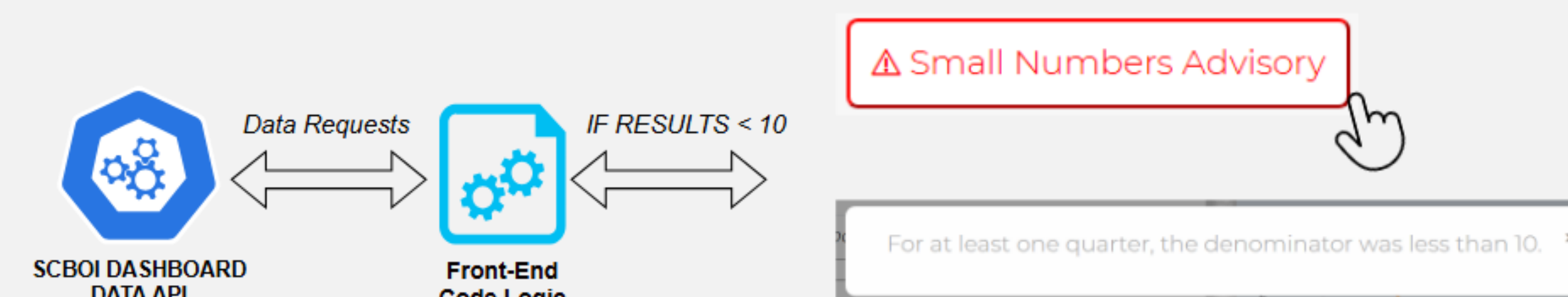


## The solutions included:

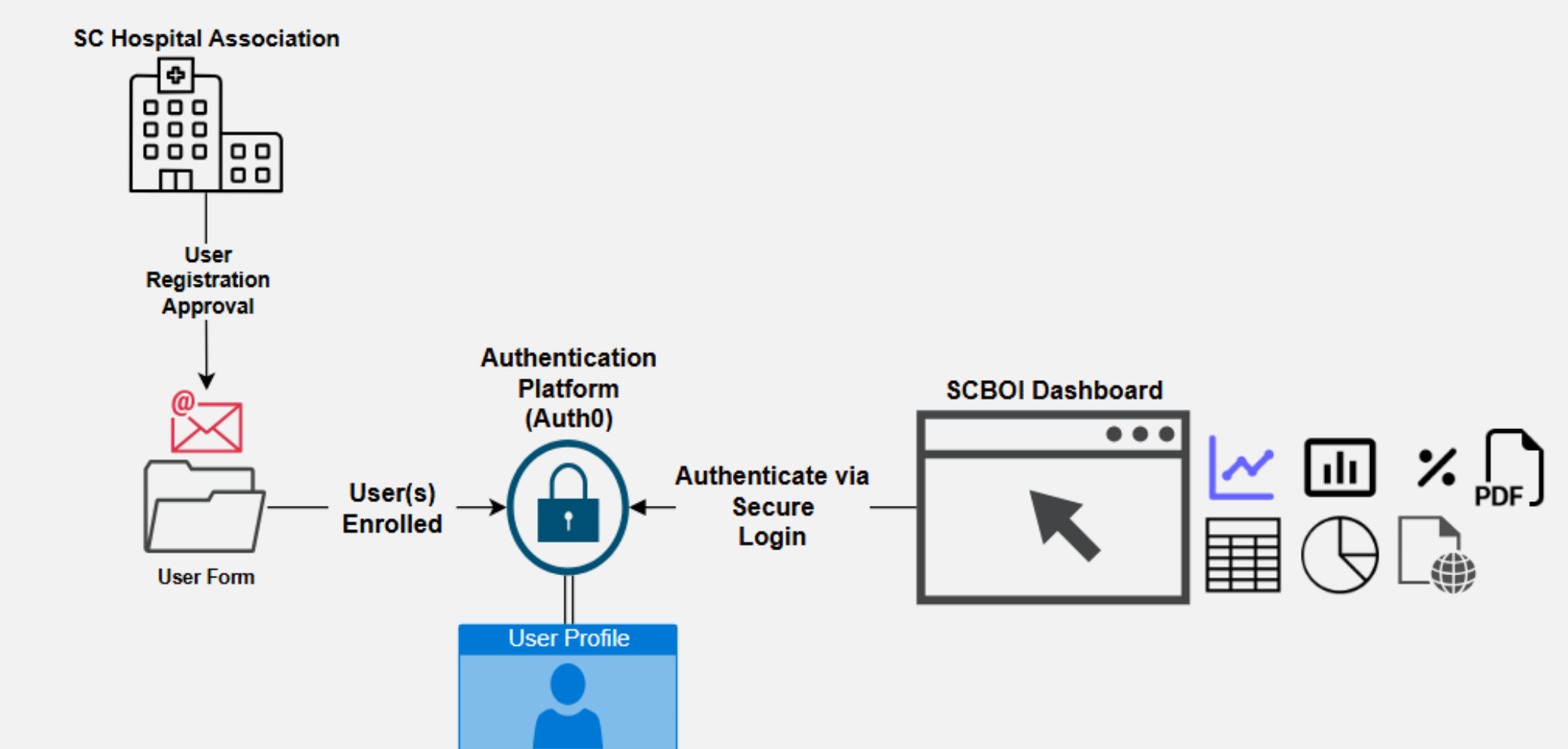
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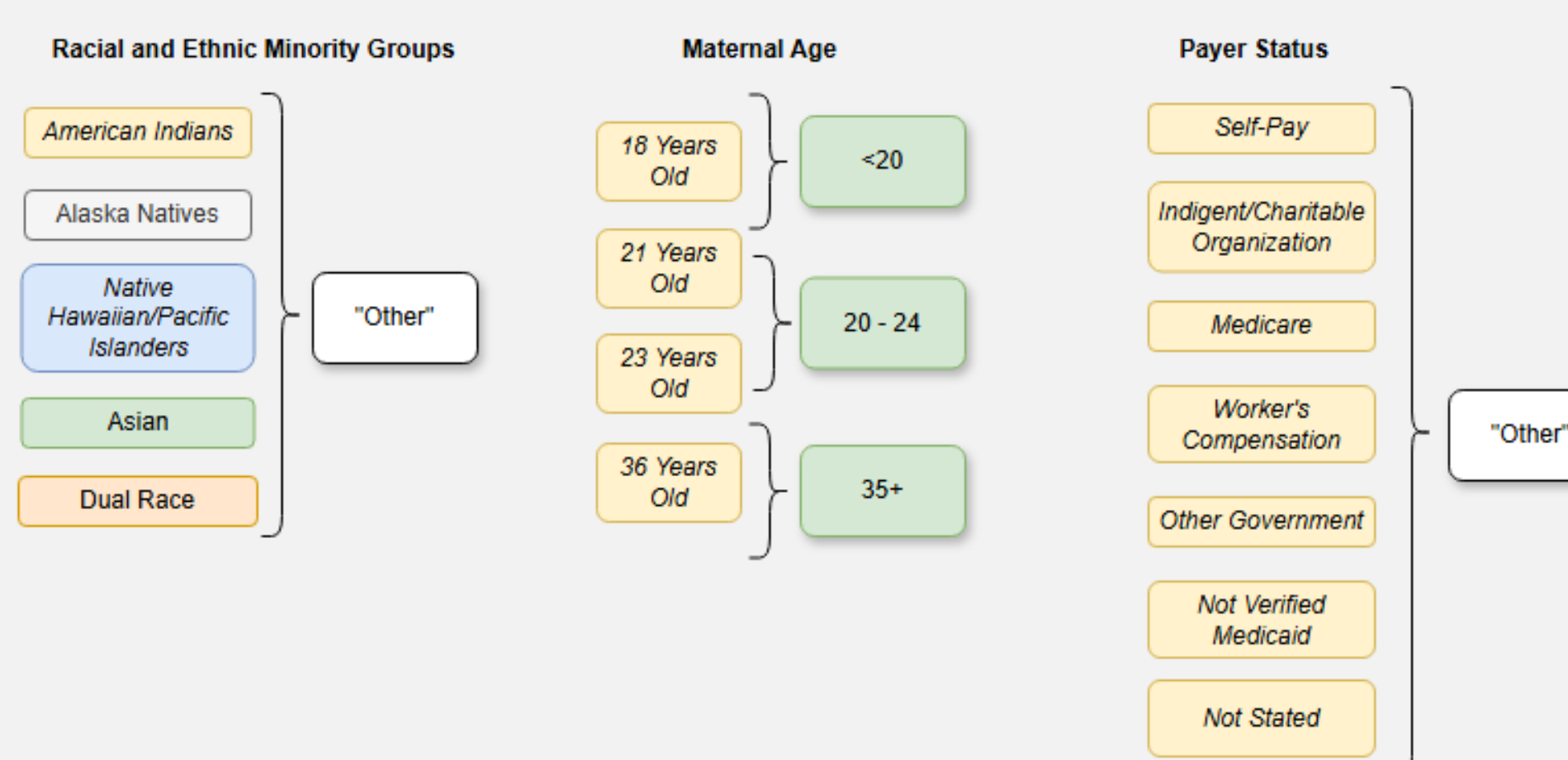
### SUPPRESSION OF SMALL NUMBERS



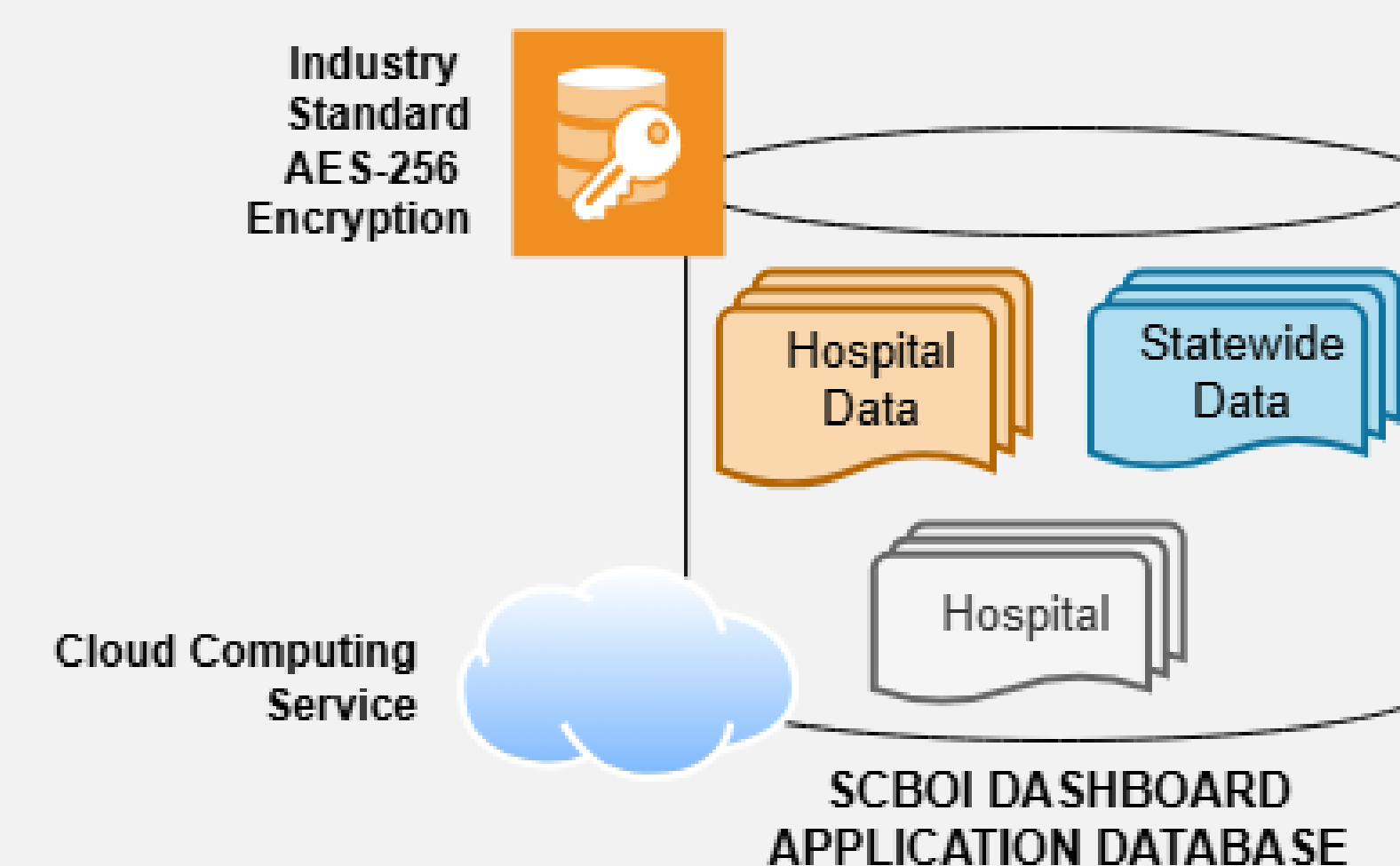
### USER AUTHORIZATION & AUTHENTICATION



### AGGREGATION OF DATA CATEGORIES



### ENCRYPTION OF DATA AT REST



### DATA API SECURITY

