



HOPE FOR GEORGIA MOMS

Environmental Scan

UTILITY OF DATA SOURCES ON
SEVERE MATERNAL MORBIDITY
& SOCIAL DRIVERS OF HEALTH IN GEORGIA

[HopeforGeorgiaMoms.org](https://www.HopeforGeorgiaMoms.org)

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Environmental Scan: Utility of Data Sources on Severe Maternal Morbidity & SDoH in Georgia

1. Executive Summary

This Environmental Scan provides a roadmap for leveraging Georgia's existing data ecosystem to better understand and address maternal health challenges. Emphasis was placed on sources that enable analysis of specific Severe Maternal Morbidity (SMM) conditions and associated Social Drivers of Health (SDoH). The ability to manipulate and study data at an actionable level was given preference over high-level composite metrics and static reports. Emerging technologies including artificial intelligence and large language models present significant opportunities to enhance data integration and analysis of the varied existing data sources.

The scan began with a high-level review of **38 maternal health data sources**, including databases, surveillance systems, and web-based resources. From this initial pool, **26 sources** were identified for in-depth analysis based on their relevance, data quality, and accessibility for SMM and SDoH research in Georgia. The most robust SMM data sources—such as GA-APCD (Custom Reports), Georgia Discharge Data System, and HCUP Central Distributor—are restricted, fee-based, and/or require technical expertise, while open-access sources generally provide only summary or aggregate SMM data.

Key findings from the detailed review of 26 maternal health data sources:

- **19 sources (73%) are open access**, allowing public viewing of data results without special credentials or fees, while the remaining **7 require approval, credentials, or payment**.
- **6 sources (23%) offer full data manipulation**, enabling users to conduct custom queries or analyses; however, none of these are both open access and provide full, detailed SMM data.
- **10 sources (38%) provide SMM data**, generally aligned with [CDC's definition](#) (21 indicators derived from associated ICD-10 codes, utilizing hospital discharge data.) The degree of comprehensiveness and level of detail varied across sources. All sources reviewed excluded the blood transfusion indicator, aligned with current CDC recommendations. The ability to manipulate or stratify data varies widely.
- **SMM Data Accessibility** – Free, open-access, and timely SMM data is limited, particularly at the SMM indicator-level.
 - **2 data sources** provide free, open access to SMM indicator-level or “subcomponent” level data (Georgia Maternal Mortality Review Report, America’s Health Ratings)
 - **Zero sources** provide free, open access with the ability to manipulate SMM data for further drill down and custom analysis.
- **24 sources (92%) include SDoH data**, reflecting a strong emphasis on social context in maternal health surveillance. The comprehensiveness and approach to SDoH measurement varies widely.

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This scan highlights both the breadth of maternal health data resources in Georgia and the significant barriers to accessing detailed, manipulable SMM data. While open-access data is common, actionable, indicator-level SMM data remains concentrated in a small subset of specialized, often restricted, databases. The findings underscore the need for expanded public access to high-quality SMM data and better integration with SDoH to inform policy, research, and targeted interventions for maternal health equity in Georgia.

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2. Introduction

A. Background & Purpose

Severe Maternal Morbidity (SMM) is defined as unexpected outcomes of labor and delivery that result in significant health consequences to women. The Centers for Disease Control and Prevention (CDC) further define SMM by stating, “To identify delivery hospitalizations with SMM, CDC uses administrative hospital discharge data and International Classification of Diseases (ICD) codes. These 21 indicators and corresponding ICD codes can identify delivery hospitalizations with SMM using administrative data starting in October 2015. Both ICD-9 and ICD-10 can be used to track SMM.”¹ Of the 21 SMM Indicators, CDC excludes one indicator, Blood Transfusion, in the calculation of the composite Severe Maternal Morbidity Indicator. The data sources reviewed aligned with the exclusion of Blood Transfusions in their data definitions. The remainder of this document will refer to 20 Indicators with Blood Transfusions excluded.

This Environmental Scan was conducted with the primary purpose to assess the utility, accessibility, strengths, and limitations of data sources that track SMM and SDoH data specific to women who deliver babies in Georgia. The Environmental Scan assumes that optimized access to robust data is vital to inform policy decisions and evidence-based interventions that may be taken by community organizations, healthcare providers, public health entities and other key stakeholders.

While conducting this Scan, several sources were reviewed which included maternal and perinatal health data other than SMM measures. Although not specific to the review’s primary purpose, several were relevant to the broader mission to improve maternal and infant outcomes. Thus, the secondary purpose of this Scan is to provide insights into the utility and accessibility of the larger set of sources reviewed, with this additional information represented in **Appendix C**.

B. Scope & Methodology

The reviewer conducted an initial, high-level scan of the 37 relevant databases, surveillance systems and web-based data resources. Based on the potential for access to data relevant to the Environmental Scan’s primary purpose, a subset of 26 sources were selected for a more in-depth review, indicated by shading (figure 1).

Maternal Health Data Sources Reviewed (38)	
AHRQ HCUP Central Distributor (Healthcare Cost and Utilization Project)	Georgia Health Data Hub - Georgia Rural Health Innovation Center
AHRQ HCUP FastStats	Georgia Perinatal Quality Collaborative Ga-PQC)
AHRQ HCUP Reports & Publications	Georgia Pregnancy Risk Assessment Monitoring System (PRAMS)
AHRQ HCUPnet	GHA Georgia Discharge Data System (GDDS)
AHRQ Quality Indicators: Cloud QI	Healthy Mothers, Healthy Babies Coalition of Georgia (HMHBGA)
America’s Health Rankings (United Health Found.)	HRSA Maternal & Infant Health Mapping tool (Health Resources and Services Admin.)
Area Deprivation Index (ADI) - Univ. Wisconsin School of Med/Pub Health	HRSA Maternal and Child Health Bureau (MCHB)
CDC NCHS - National Vital Statistics System (NVSS)	HRSA Title V Information System (TVIS) Database
CDC NCHS - Vital Statistics Online Data Portal	Kaiser Family Foundation (KFF) Georgia Maternal & Infant Health Data
CDC Pregnancy Risk Assessment Monitoring System (PRAMS)	March of Dimes - PeriStats
CDC Reproductive Health Site	March of Dimes - Public Health Data Reports
CDC WONDER	National Health Interview Survey (NHIS)
GDPH - Georgia Maternal Mortality Website (MMR)	National Healthcare Quality and Disparities Reports (NHQDR)
GDPH - OASIS Community Needs Assessment Report Database (CHNA)	NCHS Data & Analysis Tools
GDPH - Online Analytical Statistical Information System (OASIS)	NCHS Publications & Information Website
Georgia All-Payer Claims Database (APCD) - Public Site	NCHS Stats of the States
Georgia All-Payer Claims Database (APCD) - Restricted	Public Health Information Portal (PHIP) Data Request
Georgia Board of Health Care Workforce, State of Georgia	Social Deprivation Index (SDI) - Robert Graham Center
Georgia Data Analytics Center (GDAC)	The U.S. Maternal Vulnerability Index (MVI)

Figure 1.

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For this scan, special emphasis was placed on databases that provide both overall SMM rates AND indicator-specific data, as this granularity is critical for targeted program planning and resource allocation. Furthermore, the ability to filter maternal health outcome data based on SDoH elements for insights about populations that may be at higher risk for poor outcomes was preferred.

The method of review for the subset of 26 data sources utilized a Data Source Review abstraction tool and included the collection information in the following categories. These elements enable a detailed assessment of data sources in terms of content, accessibility, analytic capabilities, and their relevance to maternal health surveillance and research in Georgia.

- A. **Database/System Identification:** Name of the database or surveillance system, its owner, and contact information.
- B. **Access and Availability:** Access method, whether the data is open access or requires credentials, and the process for requesting access.
- C. **Purpose and Type:** Stated purpose of the database, type of data resource (e.g., reports, query tools, datasets), and what type of data is provided (e.g., raw data, summary reports, infographics).
- D. **Maternal Health Content:** Inclusion of Severe Maternal Morbidity (SMM) data, ability to drill down into SMM indicators, and whether SMM definitions are specified.
- E. **Data Manipulation and Analysis:** Ability to manipulate data (e.g., filtering, custom queries), whether longitudinal data is displayed, and whether the source includes analysis or interpretation.
- F. **Social Drivers of Health (SDoH):** Inclusion of SDoH data elements relevant to maternal health.
- G. **Strengths and Limitations:** Noted strengths and limitations of each database or system.

1) Data Crosswalk -

Sources containing Severe Maternal Morbidity (SMM) and/or Social Drivers of Health (SDoH) data were included in a **Data Source Crosswalk (Appendix A)** to facilitate comparison of key data elements and metrics. The Crosswalk lists relevant data elements, each with a score based on a standardized 0–3 scale reflecting both the level of data detail and the integration of SDoH markers:

- (Level 3):** Detailed data with SDoH elements included
- (Level 2):** Detailed data (such as counts, rates, or ratios) without SDoH integration
- (Level 1):** Summary data (e.g., publications or summary analyses)
- (Level 0):** Primarily educational materials

This scoring approach provided a consistent assessment of data quality and analytic utility across all sources included in the scan.

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The analysis approach used to generate a comprehensive assessment of the data sources was a systematic, structured environmental scan and comparative abstraction of maternal health data sources relevant to Georgia. Using the reviewer’s Data Source Review abstraction tool and the Data Crosswalk, each data source was assessed according to a standardized set of criteria, including: presence and granularity of SMM indicators (based on CDC definitions), availability of SDoH data, level of user access (open, restricted, or fee-based), ability to manipulate or query data, geographic granularity, data lag, and key strengths and limitations. For each criterion, information was extracted directly from the tools previously described and, where needed, supplemented by official website documentation or published reports.

Data sources were then comparatively categorized and ranked, with SMM indicator detail as the primary organizing feature:

- ★★★ - full CDC SMM indicator coverage
- ★★ – partial CDC SMM indicator coverage
- ★ – limited or aggregated SMM data
- “X” - no SMM data

A similar approach was used to rank inclusion of SDoH data. Additional fields summarized access, analytic flexibility, and utility for SMM/SDoH analysis. This method ensured a transparent, reproducible, and user-focused synthesis of the landscape, enabling stakeholders to quickly identify the most robust and accessible data resources for maternal health surveillance, research, and policy in Georgia. The analysis is presented in the Data Utility Table (Appendix B) and summarized in the Environmental Scan Results section.

3. Results

A. Results Summary

Based on the comprehensive review and analysis of 26 maternal health data sources in Georgia:

- 10 sources (38%) include SMM data (i.e., they contain at least one severe maternal morbidity indicator as defined in the review).
 - All 10 include some level of SDoH data or analysis capabilities
 - 6 of 10 are open access
 - 5 of 10 allow full data manipulation
- 19 sources (73%) are open access, meaning users can view all data results publicly without special credentials or fees.

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- 3 sources (12%) fully restrict access, requiring approval, credentials, or payment to access data.
- 4 sources (15%) include mixed access, with some data/features open publicly, while others require restricted and/or paid access (e.g., custom queries or granular data).
- 6 sources (23%) offer full data manipulation, allowing users to conduct custom queries or analyses.
- 10 sources (38%) have limited or no data manipulation capabilities, meaning users can only access static reports, summary tables, or pre-defined queries.
- 24 sources (92%) include some level or element of SDoH data, providing information on social drivers of health relevant to maternal outcomes. Granularity and utility vary.

Key Takeaways:

While open access to maternal health data is common, access to highly detailed, manipulable SMM data remains limited and is concentrated in a small subset of specialized, often restricted, databases.

- Most open access sources provide summary or aggregate data, with limited ability for users to drill down into SMM indicators or customize analyses.
- The most robust sources with SMM indicator-level detail and the ability to manipulate/filter SMM data are GA-APCD (Custom Reports) and HCUP Central Distributor. GHA's Georgia Discharge Data System is the State of Georgia's mechanism to submit source data to HCUP, and most report requests are submitted via HCUP Central Distributor.
- No data source currently offers both open access and full data manipulation of detailed SMM data in Georgia.
- Open access sources such as HCUP Fast Stats, America's Health Rankings, and March of Dimes PeriStats allow users to explore some SMM data, but only at the aggregate or summary level. These tools do not provide the ability to manipulate data at the indicator or code level, nor do they allow for fully custom queries.
- AHRQ CloudQI is open access as a software tool, but users must supply their own restricted inpatient claims data to generate SMM analyses; the tool itself does not provide open access to SMM data
- Non-SMM sources fill critical gaps: These tools are vital for understanding social drivers, workforce challenges, and infant health, complementing SMM-specific datasets.
- Over 90% of sources reviewed include some form of SDoH data, reflecting a strong emphasis on social context in maternal health surveillance.

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- Most SDoH-rich sources lack maternal morbidity data, focusing instead on broader health equity or infant outcomes.

This analysis underscores the need for enhanced open-access SMM data with integrated SDoH to support comprehensive maternal health equity efforts.

B. Inventory of High Utility Data Sources

The Data Utility table (*figure 2*) ranks and describes the most useful databases for the analysis of SMM and associated SDoH data. The comprehensive table of 26 data sources including those with broader maternal health and SDoH information is provided in **Appendix B**.

DATA SOURCE	OPEN ACCESS	DATA MANIPULATION / CUSTOM QUERIES	SMM DETAIL (CDC INDICATORS)	SDOH DATA	GEOGRAPHIC GRANULARITY	AVERAGE DATA LAG	BEST USE CASE	KEY LIMITATIONS
GA-APCD - Custom Reports (Restricted)	X	✓ (if access granted)	★★★ (Full)	★ (Limited)	State/County	2–3 years	Custom SMM analysis, ICD-10 filtering	Restricted, fee-based, lagged
HCUP Central Distributor	X	✓ (if purchased)	★★★ (Full)	★ (Limited)	State/National	2–3 years	Research requiring raw inpatient data	Restricted, fee-based, complex
GHA Georgia Discharge Data System	X	✓ (if purchased)	★★★ (Full)	★ (Limited)	Zip Code/State	2–3 years	Research requiring raw inpatient data	Restricted, fee-based, complex
AHRQ CloudQI	X	✓ (with data upload)	★★ (Partial)	★★ (Moderate)	State/Area	2–3 years	Risk-adjusted SMM, demographic analysis	Restricted, requires software
GDPH MMR Report (2019–2021)	✓	X	★★ (Partial)	★ (Limited)	State/District	2–3 years	GA-specific SMM & mortality summaries	Static reports, lagged data
HCUP Fast Stats - AHRQ	✓	✓ (limited)	★★ (Partial)	★ (Limited)	State/National	2–3 years	National SMM benchmarking, demographic splits	No ICD-10 drilldown, lagged
America's Health Rankings	✓	X	★★ (Partial)	★★ (Moderate)	State	3–4 years	State SMM, policy context, SDoH	Limited SMM detail, lagged
CDC WONDER - Natality Database	✓	✓ (moderate)	★ (Limited)	★ (Limited)	State/County	1–2 years	Birth stats, some maternal indicators	No SMM, limited morbidity
GA-PQC (GA Perinatal Quality Collaborative)	X	X	★ (Limited)	★ (Limited)	Hospital	1–2 years	QI initiatives, hospital performance	Members only, limited scope
March of Dimes PeriStats	✓	X	★ (Limited)	★★ (Moderate)	County/State	2–3 years	County-level trends, easy access	Limited SMM, summary only

Figure 2.

C. Indicator Coverage Analysis

- **GA-APCD, AHRQ HCUP Central Distributor, and GHA Georgia Discharge Data System** are the three sources reviewed with ability to access data for all 20 indicators. However, access is restricted and can be costly.
- **GDPH MMR** provides data on 8 of 20 CDC indicators, making it the most comprehensive publicly available source
- **America's Health Rankings** offers "subcomponents" (cardiac, respiratory, etc.) but not individual indicators

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D. Detailed Summary: Three (3) Star SMM Data Sources -

1) Georgia All-Payer Claims Database (GA-APCD) – Custom Reports

Utility for SMM/SDoH Analysis:

The Georgia All-Payer Claims Database (GA-APCD) offers a robust platform for in-depth analysis of Severe Maternal Morbidity (SMM) and Social Drivers of Health (SDoH) in Georgia through its **Custom Report** request service. The GA-APCD aggregates comprehensive claims data from public and private insurers, including Medicaid, Medicare, and commercial plans, covering a large proportion of the state's population. Through the custom report process, users can request datasets or analytic outputs that include ICD-10 code-level SMM indicators-encompassing all 20 CDC-defined conditions-and can stratify results by payer, geography, and available SDoH variables. This enables tailored, longitudinal, and cross-sectional analyses of maternal health outcomes and disparities.

Strengths:

- **Comprehensive Detail:** Full access to SMM diagnosis and procedure codes, with the ability to filter and stratify by payer, geography, and SDoH variables.
- **Custom Analysis:** Reports and datasets are tailored to user specifications, supporting advanced research and policy evaluation.
- **Large Population Coverage:** Includes data from both public and private payers, enhancing representativeness and analytic power.
- **Integrates SDoH:** Enables exploration of SMM in the context of demographic and socioeconomic factors.

Limitations:

- **Restricted Access:** Custom reports and datasets are not open access; requests must align with APCD objectives, require organizational affiliation, and are subject to review.
- **Fees:** Substantial fees apply for custom reports and data sets, with costs varying by complexity.
- **Data Lag:** Data are typically 2–3 years behind the current year.
- **No Direct Raw Data Access:** Users cannot directly manipulate the raw database; all analyses are performed by the APCD analytics team and delivered as reports or datasets.
- **Data Set limitations** – Data submission by insurers is voluntary.

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2) HCUP Central Distributor

Utility for SMM/SDoH Analysis:

HCUP Central Distributor provides access to raw **State Inpatient Databases (SID)**, enabling researchers to analyze severe maternal morbidity (SMM) using ICD-10-CM/PCS codes for all 20 CDC-defined indicators. While SDoH variables like race, ethnicity, and payer status are included, integration of broader SDoH markers (e.g., income, education) depends on external data linkage.

Strengths:

- **Comprehensive SMM Detail:** Full ICD-10 code-level data for all 20 CDC SMM indicators, allowing granular analysis of conditions like hemorrhage, sepsis, and renal failure.
- **Custom Analysis:** Supports advanced research with raw data for risk adjustment, longitudinal studies, and hospital benchmarking.
- **National Benchmarking:** Includes data from 48 states (2019–2021), facilitating cross-state comparisons.

Limitations:

- **Restricted Access:** Requires purchase (fees vary), a data use agreement, and institutional approval.
- **Technical Barriers:** Demands expertise in managing large datasets and statistical analysis; no built-in visualization tools.
- **Data Lag:** Typically, 2–3 years behind current data.

3) GHA Georgia Discharge Data System

Utility for SMM/SDoH Analysis:

GHA Georgia Discharge Data System serves as mechanism for Georgia hospitals to fulfill their mandatory reporting requirements for the State of Georgia. Hospitals submit hospital inpatient, and outpatient claims data monthly. These files are matched at the patient level with additional elements such as MS-DRGs, county codes and zip codes. Data requests are submitted via **AHRQ HCUP Central Distributor**. (see above)

Strengths:

- **Comprehensive SMM Detail:** Full ICD-10 code-level data for all 20 CDC SMM indicators, allowing granular analysis of conditions like hemorrhage, sepsis, and renal failure.

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Limitations:

- **Restricted Access:** Researchers and academics follow the HCUP Central Distributor request process including fees, data use agreement, and institutional approval.
- **Member Hospital Access:** GHA provides a Strategic Planning Module and various reports modeling the impact of policy changes and reimbursement factors. Publicly available information does not indicate hospital access to detailed files relevant to SMM data. Further investigation is required.

E. Detailed Summary: Two (2) Star SMM Data Sources -

1) AHRQ CloudQI

Utility for SMM/SDoH Analysis:

AHRQ CloudQI is a software tool that calculates **risk-adjusted SMM rates** using user-uploaded inpatient claims data. Its output observed rates stratified by race/ethnicity, payer, poverty (via ZIP code), and custom variables, aligning with CDC SMM definitions (excluding blood transfusion).

Strengths:

- **Risk Adjustment:** Generates observed, expected, and risk-adjusted SMM rates, accounting for demographic and clinical factors.
- **SDoH Integration:** Allows stratification by poverty level, insurance status, and custom SDoH variables.
- **Flexibility:** Compatible with multiple data sources (e.g., GA-APCD, HCUP SID) and support both desktop and cloud installations.

Limitations:

- **Data Dependency:** Requires users to supply their own claims data; no built-in data access.
- **Beta Features:** The Maternal Health Indicators (MHI) module is in beta, with limited risk adjustment and no support for weighted estimates.
- **Technical Skill:** Requires familiarity with administrative data and software installation.

2) Georgia Maternal Mortality Review (MMR) Reports

The Georgia MMR Reports, produced by the Department of Public Health, provide detailed, case-reviewed data on maternal mortality and severe maternal morbidity (SMM) for the state. The reports include breakdowns by public health district, age,

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race/ethnicity, education, and insurance, and present SMM rates and trends using a CDC-aligned algorithm for delivery hospitalizations. They also offer analysis on contributing factors such as obesity, discrimination, substance use, and mental health, and include actionable recommendations for prevention.

Strengths:

- In-depth, Georgia-specific data with SMM and mortality rates, demographic and geographic detail, and analysis of contributing factors.
- Includes public health district breakdowns and SDoH elements.

Limitations:

- Data is only available as static reports (no custom queries or raw data access).
- Reporting lags by 2–3 years

3) HCUP FastStats

HCUP FastStats is a public, interactive data tool from AHRQ that provides national and state-level trends in severe maternal morbidity (SMM) among in-hospital deliveries. Users can segment SMM rates by state, age, race/ethnicity, income, urban/rural status, and hospital characteristics. Data is downloadable for further analysis, but only at the aggregate level.

Strengths:

- Easy-to-use, open-access tool for benchmarking SMM trends and disparities across states and demographics.
- Allows segmentation by multiple variables and provides downloadable summary data.

Limitations:

- No access to patient-level or ICD-10 code-level data; custom indicator queries are not possible.
- Data lag of 2–3 years and limited to in-hospital deliveries.

4) America’s Health Rankings

America’s Health Rankings provides state-level SMM data as part of broader maternal and child health reports. The platform aggregates SMM “subcomponents” (e.g., cardiac, hemorrhage, sepsis) and allows users to explore state comparisons, trends, and policy context through interactive maps and reports.

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Strengths:

- Publicly accessible, user-friendly platform with state comparisons and SMM subcomponent breakdowns.
- Integrates SMM data with policy and SDoH context.

Limitations:

- SMM detail is limited to aggregated subcomponents; alignment with CDC SMM definitions is unclear.
- Data are not current (typically 3–4 years old) and users cannot run custom queries or access raw data.

F. Analysis of Data Source Purpose & Approach

The databases serve diverse purposes and were assessed based on statements provided on public websites:

- **Surveillance & Monitoring (56%):** Track population health metrics (e.g., GDPH MMR and HCUP Fast Stats)
- **Quality Improvement (24%):** Support clinical practice improvement (e.g., Ga-PQC)
- **Resource Allocation (44%):** Guide intervention targeting (e.g., MVI and SDI)
- **Policy Development (28%):** Inform legislative decisions (e.g., KFF and America's Health Rankings)

G. Types of Data Provided

The databases vary significantly in their approach and the types of data they provide:

- **Composite SMM Data (48%):** Overall rates without indicator breakdown
- **Indicator-Level SMM Data (16%):** Specific conditions like hemorrhage, sepsis, ventilation
- **Demographic Analysis (72%):** Age, race, ethnicity, and education stratification
- **Geographic Visualization (60%):** Maps, county-level comparisons, and hotspot identification
- **Behavioral Factors (36%):** Surveys on patient experiences and health behaviors

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5. Data Accessibility

A. Public vs. Restricted Access to Data

Figure 3 provides a comparison of key sources based on whether the relevant detail is public (open) access, restricted (i.e., requires submission of a research proposal), or requires a fee for access.

Access Type	Overall SMM Rate	SMM Indicator-Level Detail	SDOH Data
Public	HCUP Fast Stats, America's Health Rankings, GDPH MMR	GDPH MMR (limited)	America's Health Rankings, GDPH MMR
Restricted	GA-APCD, AHRQ CloudQI	GA-APCD (comprehensive)	GA-PQC (limited)
Fee-based		GA-APCD Custom (\$2,500-\$20,000) HCUP Central Distributor (\$100-\$500) GHA GDDS (via HCUP)	

Figure 3.

This analysis highlights a critical finding: While overall SMM rates are available from multiple public sources, comprehensive indicator-level detail is primarily available through restricted or fee-based services, creating significant barriers to the most valuable data.

B. Cost-Utility Assessment

While GA-APCD imposes substantial fees (\$2,500-\$20,000 for custom reports), this cost must be evaluated against the enhanced utility:

- **Precision targeting:** The ability to identify specific SMM conditions prevalent populations or geographies can make interventions more effective
- **Novel insights:** Researchers can discover previously unidentified correlations between SMM and social factors
- **Custom metrics:** Organizations can define measures specifically relevant to their programs rather than using generic pre-defined metrics

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C. Ease of Data Extraction

- **Self-Service Tools:** HCUP Fast Stats, MVI, and OASIS provide user-friendly interfaces but lack indicator-level SMM detail
- **Pre-Generated Reports:** GDPH MMR offers some indicator detail but with limited customization
- **Raw Data Access:** GA-APCD provides comprehensive indicator-level data but requires formal applications and fees

6. Limitations & Gaps in Data

A. Coverage Issues

- **Indicator-Level Detail:** Only 16% of sources provide SMM rates broken down by specific indicators
- **Geographic Granularity:** 55% of Georgia counties have limited SMM data at sub-county level
- **Rural Representation:** Most detailed datasets underrepresent rural populations

B. Data Quality Concerns

- **Indicator Aggregation:** Many sources collapse specific SMM conditions into broad categories (e.g., "cardiac complications")
- **Integration Limitations:** Sources with good indicator-level detail (GA-APCD) often lack SDOH integration
- **Definitional Inconsistencies:** Some datasets do not specify the data definitions in use, and/or have created their own customized measures and composites related to Severe Maternal Morbidity.

C. Barriers to Access

- **Financial Barriers:** GA-APCD custom reports with indicator-level detail range from \$2,500-\$20,000
- **Technical Complexity:** AHRQ CloudQI requires claims data preparation and database expertise
- **Approval Processes:** Access to detailed indicator-level data often requires lengthy review periods
- **Federal Administration Orders:** While completing this Environmental Scan, certain resources have been removed from federal websites at the direction of the current administration. This is impacting on the ability to access some of the data sets described within. (e.g., CDC WONDER, HCUP data)

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7. Existing Initiatives Affecting Data Utility

A. Georgia-Specific Efforts

- **Ga-PQC:** Hospital-level quality improvement with limited public data sharing
- **Georgia APCD:** Comprehensive claims database with significant access restrictions
- **GDPH MMR:** Recent reports now include more SMM indicator detail than previous versions

8. Conclusion & Recommendations

A. Priority Actions for Consideration

1) **Enhance Indicator-Level Access:**

- Negotiate reduced-cost access to GA-APCD indicator-level SMM data for public health researchers and planners
- Expand GDPH MMR reporting to include all 20 CDC SMM indicators with public health district breakdowns

2) **Support Data Access:**

- Leverage HOPE for Georgia Moms Website as a centralized source for links to relevant Databases and Websites
- Provide information describing data source utility and mechanisms of access

3) **Improve Data Integration:**

- Create tools that link indicator-specific SMM rates with SDOH factors to identify targeted intervention opportunities
- Develop approaches for connecting specific SMM indicators with supplemental data for a holistic view. Include relevant information about community & healthcare resources

4) **Measurement Standardization:**

- Promote consistent adoption of CDC's revised SMM definition (excluding blood transfusion)
- Create a cross-organization Data Governance function to increase Maternal Health data definition standardization amongst key stakeholders.

B. AI and Large Language Models for Data Integration

The emerging capabilities of artificial intelligence (AI) and large language models (LLMs) present significant opportunities to address key challenges identified in this scan. Some potential examples include:

1) **Enhanced Data Extraction and Analysis:**

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- **Natural Language Processing (NLP):** Deploy LLMs to extract structured information from unstructured clinical notes and reports, potentially identifying more SMM cases than standard billing codes alone.
- **Multi-Source Integration:** Use AI to facilitate data exchange or aggregation between disparate systems like GA-APCD (clinical data) and MVI/SDI (SDOH data), creating standardized interfaces that overcome interoperability barriers.
- **Data Standardization:** Implement AI tools to align different data formats across Georgia's maternal health databases, ensuring CDC SMM definitions are consistently applied.

2) Predictive Analytics for Risk Identification:

- **Early Warning Systems:** Develop AI algorithms that analyze integrated maternal health and SDOH data to predict specific SMM risks (e.g., hemorrhage, sepsis, hypertension) at individual and community levels.
- **Targeted Interventions:** Create county-specific risk models combining clinical indicators from GDPH MMR with social vulnerability metrics from MVI to prioritize resource allocation.
- **Real-Time Monitoring:** Deploy AI-powered surveillance systems for continuous analysis of emerging SMM patterns, enabling faster public health responses.

3) Practical Implementation Approaches:

- **Privacy-Preserving Models:** Develop custom AI models specific to Georgia's maternal health needs that can analyze sensitive data without requiring data sharing with third parties. Includes approaches such as “digital twin” records for HIPAA compliant data sharing.
- **Public-Private Partnerships:** Establish collaborations between GDPH, academic institutions, and technology companies to develop Georgia-specific maternal health AI tools.
- **Tiered Implementation:** Begin with focused applications (e.g., SMM case identification in EHRs) before expanding to more complex prediction models.

These AI-driven approaches are not formal recommendations but may serve as conversation starters amongst key stakeholders considering the application of technology. Such approaches may help overcome the fragmentation in Georgia's maternal health data ecosystem, making indicator-level SMM data more accessible and actionable for targeted interventions that address both clinical and social drivers of health.

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	AHRQ Cloud IQ	AHRQ HCUP Central Distributor	AHRQ HCUP Fast Stats	America's Health Rankings - United Health Foundation	Area Deprivation Index (ADI)	CDC NCHS Vital Statistics Online Data Portal	CDC NVSS Birth Data Website (Public Access)	CDC WONDER	GA-APCD - Custom Reports (Restricted)	GA-APCD - Public Data	GA-PQC	GDAC (GA Data Analytics Center)	GDPH MMR Report	Georgia Board of Healthcare Workforce	Georgia Health Data Hub - GA Rural Health Innov. Ctr.	Georgia PRAMS System	GHA Georgia Discharge Data	Healthy Mothers, Healthy Babies Coalition of GA	HRSA Maternal & Infant Health Mapping Tool (KFF) Website	Kaiser Family Foundation National Healthcare Quality and Disparities Reports (NHQR)	OASIS - GDPH	PeriStats - March of Dimes	Pregnancy Risk Assessment Monitoring System (PRAMS) Social Deprivation Index (SDI)	U.S. Maternal Vulnerability Index (MVI)	
Maternal Mortality	✓	✓		✓								✓			✓			●			●				
Pregnancy Related Mortality		✓										✓			✓										✓
SMM - Overall Rate (excludes Blood Tx)	✓	✓	✓	✓				●				✓			✓						●				
SMM - by PH District												●													
SMM - Includes drill down for all 20 CDC Indicators		✓						●							✓										
SMM - Includes drill down for subset of CDC Indicators				●			●			◐		●													
SMM - Uses non-CDC composites or metrics				●						◐															
SMM - Rate by ethnicity		✓						●				✓			✓										
SMM - Rate by age		✓						●				✓			✓										
SMM - Rate by education level								●				✓			✓										
SMM - Rate by Insurance		✓						●				✓			✓										
Severe Hypertension in Pregnancy		✓								◐					✓										
3rd or 4th degree perineal laceration		✓					●	●							✓										
Maternal Transfusion		✓					●	●							✓										
Ruptured Uterus		✓					●	●							✓										
Maternal admission to ICU		✓				◐	●	●							✓										
Obstetric Trauma		✓						●							✓										
Health conditions during pregnancy														●								●			
Cesarean deliveries		✓				◐	●								✓		✓		✓						
Vulnerability & Social Deprivation Index/Rating systems				✓										✓							✓		✓	✓	
Policy Adoption by state Demographics & Characteristics (e.g., Age, Race, Ethnicity, Language, Education)																	◐		●		●				
Geographic Areas (States, Counties, Urban-Rural, Metro, HRSA Region, Native Land)		✓		✓										✓	✓										
Income, Economics, Occupation				✓			●							✓	✓								✓		
Insurance Coverage				✓				●							●				✓	✓			●		
Risk Factors & Comorbidities (e.g., Diabetes, Hypertension, Obesity, Smoking, Alcohol, Physical abuse, STIs)		✓						●						✓	●				✓	✓		✓	◐	●	

- ✓ Detailed Data + SDoH Data
- Detailed Data (e.g., Count, Rate, Ratio)
- ◐ Summary Data (e.g., publications, summary analysis)
- Primarily Educational Materials

	AHRQ Cloud IQ	AHRQ HCUP Central Distributor	AHRQ HCUP Fast Stats	America's Health Rankings - United Health Foundation	Area Deprivation Index (ADI)	CDC NCHS Vital Statistics Online Data Portal	CDC NVSS Birth Data Website (Public Access)	CDC WONDER	GA-APCD - Custom Reports (Restricted)	GA-APCD - Public Data	GA-PQC	GDAC (GA Data Analytics Center)	GDPH MMR Report	Georgia Board of Healthcare Workforce	Georgia Health Data Hub - GA Rural Health Innov. Ctr.	Georgia PRAMS System	GHA Georgia Discharge Data	Healthy Mothers, Healthy Babies Coalition of GA	HRSA Maternal & Infant Health Mapping Tool (KFF) Website	Kaiser Family Foundation National Healthcare Quality and Disparities Reports (NHQR)	OASIS - GDPH	PeriStats - March of Dimes	Pregnancy Risk Assessment Monitoring System (PRAMS) Social Deprivation Index (SDI)	U.S. Maternal Vulnerability Index (MVI)	
Access to healthcare resources (e.g., provider & workforce coverage, care deserts)													✓	✓				✓	●	●		●		✓	
Physical Environment (e.g., Food, Air, Transportation, Internet)														✓											
Prenatal Care/Counseling						●				●			✓	●				✓			✓		●		
Stressors pre-pregnancy														●											
Oral Health														●			○		●				●		
Postpartum Care										●				●					●				●		
Mental Health screening											●		✓	●			●	✓					●		
Fertility Rates							✓																●		
Pregnancy Intention														●									●		
Contraception														●					✓				●		
Abortion/Induced Termination Statistics																			✓						
Birth Statistics					●	●	✓												✓			✓			
Preconception health and healthcare														●									●		
Infant/Fetal Mortality					●	●	●						✓					✓	✓		✓	✓			
Preterm Births					●	●	●	●	●									✓	✓	✓	✓	✓			
Birth Trauma								●											✓	✓	✓	✓			
Other Infant Health Outcomes (e.g., NICU, LBW)	✓						●	●	✓				✓		✓			✓	✓	✓	✓				
Breastfeeding							●							●				✓	●	✓	✓		●		
Infant sleep & environment														●			○						●		
Top Medical Procedures by age, sex, setting. NO MATERNAL DATA									●																
Chronic Condition prevalence & cost by condition, county, age, sex, urban/rural. NO MATERNAL DATA.									●																

- ✓ Detailed Data + SDOH Data
- Detailed Data (e.g., Count, Rate, Ratio)
- Summary Data (e.g., publications, summary analysis)
- Primarily Educational Materials

Data Source	Open Access	Data Manipulation / Custom Queries	SMM Detail	SDoH Data	Geographic Granularity	Average Data Lag	Best Use Case	Key Limitations
GA-APCD - Custom Reports (Restricted)	X	✓ (if access granted)	★★★ (Full)	★ (Limited)	State/County	2–3 years	Custom SMM analysis, ICD-10 filtering	Restricted, fee-based, lagged
HCUP Central Distributor	X	✓ (if purchased)	★★★ (Full)	★ (Limited)	State/National	2–3 years	Research requiring raw inpatient data	Restricted, fee-based, complex
GHA Georgia Discharge Data System	X	✓ (if purchased)	★★★ (Full)	★ (Limited)	Zip Code/State	2–3 years	Research requiring raw inpatient data	Restricted, fee-based, complex
AHRQ CloudQI	X	✓ (with data upload)	★★ (Partial)	★★ (Moderate)	State/Area	2–3 years	Risk-adjusted SMM, demographic analysis	Restricted, requires software
GDPH MMR Report (2019–2021)	✓	X	★★ (Partial)	★ (Limited)	State/District	2–3 years	GA-specific SMM & mortality summaries	Static reports, lagged data
HCUP Fast Stats - AHRQ	✓	✓ (limited)	★★ (Partial)	★ (Limited)	State/National	2–3 years	National SMM benchmarking, demographic splits	No ICD-10 drilldown, lagged
America's Health Rankings	✓	X	★★ (Partial)	★★ (Moderate)	State	3–4 years	State SMM, policy context, SDoH	Limited SMM detail, lagged
CDC WONDER - Natality Database	✓	✓ (moderate)	★ (Limited)	★ (Limited)	State/County	1–2 years	Birth stats, some maternal indicators	No SMM, limited morbidity
GA-PQC (GA Perinatal Quality Collaborative)	X	X	★ (Limited)	★ (Limited)	Hospital	1–2 years	QI initiatives, hospital performance	Members only, limited scope
March of Dimes PeriStats	✓	X	★ (Limited)	★★ (Moderate)	County/State	2–3 years	County-level trends, easy access	Limited SMM, summary only
GA-APCD - Public Data	✓	X	X	X	State/County	2–3 years	General health claims trends	No SMM or maternal data
GDAC (GA Data Analytics Center)	✓	X	X	★ (Limited)	State/County	1–2 years	Health system performance, SDoH	No SMM or maternal outcomes
Georgia Health Data Hub - GA Rural Health Innovation Center	✓	✓ (robust)	X	★★★ (Comprehensive)	County/Region	1–2 years	Rural SDoH and health disparities	No SMM or maternal outcomes

Data Source	Open Access	Data Manipulation / Custom Queries	SMM Detail	SDoH Data	Geographic Granularity	Average Data Lag	Best Use Case	Key Limitations
Georgia PRAMS	X	✓ (with request)	X	★★ (Moderate)	State	2–3 years	Maternal experience, SDoH research	Restricted, no SMM, lagged
HMHBGA (Healthy Mothers, Healthy Babies Coalition of GA)	✓	X	X	★ (Limited)	State/County	2–3 years	Advocacy, summary maternal/child health data	No SMM, summary only
OASIS - GDPH	✓	✓ (robust)	X	★★ (Moderate)	State/County/Zip	1–2 years	Demographic & vital stats, SDoH mapping	No SMM, no ICD-10 drilldown
State of Georgia Healthcare Workforce	✓	✓ (interactive)	X	X	County	1–2 years	Provider access and disparities	No SMM or maternal outcomes
Area Deprivation Index (ADI) - Univ. Wisconsin	✓	✓ (download)	X	★★★ (Comprehensive)	Census Block	5–6 years	Neighborhood SDoH, deprivation mapping	No maternal/SMM data, lagged
HRSA - Maternal & Infant Health Mapping Tool	✓	✓ (mapping)	X	★★ (Moderate)	County	2–3 years	SDoH, health resources, mapping	No SMM data, public only
Kaiser Family Foundation (KFF) Website	✓	✓ (limited)	X	★★ (Moderate)	State	2–3 years	Policy, insurance, state-level SDoH	No SMM, summary only
Maternal Vulnerability Index (MVI) - Surgo Ventures	✓	✓ (interactive)	X	★★★ (Comprehensive)	County	3–4 years	SDoH vulnerability, county comparisons	No maternal/SMM data, lagged
National Healthcare Quality and Disparities Reports (NHQDR)	✓	✓ (query tool)	X	★★ (Moderate)	State	2–3 years	Quality/disparities, some maternal health	No SMM, summary only
NVSS Birth Data Website (Public Access)	✓	✓ (moderate)	X	★ (Limited)	State/County	1–2 years	Vital stats, downloadable birth data	No SMM, summary only
Pregnancy Risk Assessment Monitoring System (PRAMS)	X	✓ (with request)	X	★★ (Moderate)	State	2–3 years	Maternal/infant risk factors, SDoH	Restricted, no SMM
Social Deprivation Index (SDI) - Robert Graham Center	✓	✓ (download)	X	★★ (Moderate)	County/Tract	2–3 years	Community SDoH, deprivation mapping	No maternal/SMM data
Vital Statistics Online Data Portal - CDC NCHS	✓	✓ (download)	X	★★ (Moderate)	State/County	1–2 years	Downloadable vital stats, research	No SMM, summary only

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Appendix C: Pregnancy and Infant Health Data Indicators

This appendix summarizes pregnancy and infant health indicators found in the data sources reviewed. These indicators complement SMM and SDOH data and provide valuable context for understanding maternal and infant outcomes in Georgia.

Key Pregnancy-Related Indicators

Prenatal Care/Counseling

- **Top Sources:** Georgia PRAMS, GA-PQC, OASIS, HRSA Mapping Tool
- **Coverage Quality:** 4 sources provide detailed data (Level 2-3)
- **Key Gaps:** Limited socioeconomic segmentation of prenatal care utilization patterns
- **Integration Opportunity:** Link PRAMS prenatal care data with GA-APCD to explore impact of care timing on SMM outcomes

Postpartum Care

- **Top Sources:** GA-PQC only
- **Coverage Quality:** Significant data gap; only 1 source provides Level 2 data
- **Key Gaps:** Little to no data on postpartum care utilization patterns or quality metrics
- **Recommendation:** Develop standardized postpartum care metrics for integration into existing data sources

Mental Health Screening & Care

- **Top Sources:** GDPH MMR, Georgia PRAMS, Georgia Health Data Hub, KFF
- **Coverage Quality:** 4 sources provide Level 2-3 data
- **Coverage Gaps:** Limited data on screening rates and treatment access by geography
- **Integration Opportunity:** Connect Georgia PRAMS Level 3 behavioral data to GDPH MMR Level 3 outcomes data

Fertility and Pregnancy Planning Indicators

Fertility Rates

- **Top Sources:** CDC WONDER
- **Coverage Quality:** Good statewide and county-level coverage
- **Key Insights:** Enables analysis of regional variations and demographic patterns

Pregnancy Intention

- **Top Sources:** Georgia PRAMS, CDC PRAMS

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- **Coverage Quality:** Limited to survey data
- **Key Insights:** Valuable for understanding planned vs. unplanned pregnancies

Contraception

- **Top Sources:** Georgia PRAMS, CDC PRAMS, KFF
- **Coverage Quality:** Strong demographic data on contraceptive use
- **Key Gaps:** Limited geographic granularity below state level

Birth and Infant Outcomes

Birth Statistics

- **Top Sources:** OASIS, CDC WONDER, KFF
- **Coverage Quality:** Excellent statewide and county-level data
- **Key Insights:** Rich demographic and geographic segmentation available

Infant/Fetal Mortality

- **Top Sources:** OASIS, Georgia Health Data Hub, HCUP Fast Stats, KFF
- **Coverage Quality:** Strong coverage with multiple Level 3 sources
- **Key Insights:** Good geographic and demographic segmentation

Preterm Births

- **Top Sources:** GA-APCD, OASIS, HCUP Fast Stats, HRSA Mapping Tool, KFF, MVI
- **Coverage Quality:** Excellent coverage with multiple high-quality sources
- **Key Insights:** Strong correlation data with SDOH factors

Other Infant Health Outcomes (NICU, LBW)

- **Top Sources:** GA-APCD Public, GA-APCD Custom, Georgia Health Data Hub, OASIS, KFF
- **Coverage Quality:** Excellent coverage with multiple Level 3 sources
- **Key Insights:** Detailed clinical outcomes data available

Analysis and Recommendations

Data Integration Opportunities:

1. **Connect Preconception and Birth Outcomes:** Link PRAMS preconception health data (Level 2) with birth outcomes from OASIS (Level 3)
2. **Mental Health and SMM:** Integrate Georgia Health Data Hub mental health data (Level 3) with SMM data from GDPH MMR (Level 3)

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3. **Infant Outcomes and SDOH:** Combine preterm birth data from multiple sources with MVI/SDI vulnerability metrics

Critical Gaps:

1. **Postpartum Care:** Significant data gap with only GA-PQC providing limited information
2. **Rural Specificity:** Most sources lack granular data on rural pregnancy experiences
3. **Longitudinal Tracking:** Limited ability to follow women through pregnancy, delivery, and postpartum periods

Recommendations for Resource Allocation:

1. **Target Areas with Multiple Risk Factors:** Use MVI/SDI to identify counties with both high social vulnerability AND poor birth outcomes
2. **Address Mental Health Integration:** Invest in connecting mental health screening data with maternal care utilization and outcomes
3. **Enhance Postpartum Data Collection:** Develop standardized metrics for postpartum care quality and access

These pregnancy and infant health indicators provide essential context for understanding the full spectrum of maternal health in Georgia and should be considered alongside SMM and SDOH data when allocating resources and designing interventions.