

The U.S. Reproductive Healthcare Desert Database & Dashboard: Data, Methods, and Codebook
Version: May 2026

Christie Sennott
Purdue University

Sara Yeatman
University of Colorado Denver

Matt Gunther
NORC at the University of Chicago

Lara Balian
Purdue University

Piritmwa Shemu
Purdue University

Sophia Neff
University of Colorado Denver

Suggested Citation: Sennott, Christie, Yeatman, Sara, Gunther, Matt, Balian, Lara, Shemu, Piritmwa, and Neff, Sophia. 2026. *The U.S. Reproductive Healthcare Desert Database & Dashboard: Data and Methods*. The RHD Project. Retrieved Month Day, Year (rhdproject.com).

This White Paper describes the data and methods underlying the Reproductive Healthcare Desert (RHD) Database and Dashboard. This includes the conceptualization of RHDs, the data used to measure each type of desert over time, and how the data were collected, coded, merged, and geocoded.

The RHD Database identifies reproductive healthcare deserts¹, places that lack access to abortion, contraception, maternity, or ART care. Our approach centers on identifying counties that lack facilities providing the most *comprehensive* access to each form of reproductive healthcare. Our definition of geographic access prioritizes care that is in-person and legal and for which data are available nationwide and longitudinally.

Abortion deserts: We conceptualize abortion deserts as counties lacking access to a physical, in-person facility providing medication and/or procedural abortion. Data on abortion facilities come from the [Myers Abortion Facility Database](#) developed by Dr. Caitlin Myers (Middlebury College) (Myers 2025). We use the restricted, facility-level data from 2010-2023 to identify abortion deserts. In recent years, telehealth has expanded options for medication abortion in many states, but use of telehealth abortion has only been tracked nationally since 2022 (Society of Family Planning 2025). Although telehealth is a growing source of abortion care, 75% of abortions in 2024 occurred at in-person clinics (Society of Family Planning 2025). There are also inconsistencies across space in the availability of telehealth abortion with access explicitly illegal in many states, subject to different gestational limits, and at times unavailable to minors (Koenig, Ko, and Upadhyay 2024). Finally, awareness of telehealth abortion remains relatively low, though that will likely change in the future (Kaller et al. 2025).

Contraceptive deserts: We conceptualize contraceptive deserts as counties lacking access to a facility providing comprehensive contraceptive care, which we define as a dedicated family planning clinic that offers a wide range of FDA-approved contraceptive methods. We operationalize contraceptive deserts as counties without a Title X facility or a Planned Parenthood (PP) facility because such facilities are dedicated family planning providers that offer in-person access to a broad range of FDA-approved contraceptive methods, including to minors (DeBoth and Napili 2025). Title X data from 2010-2016 were acquired through a Freedom of Information Act (FOIA) request to the Office of Population Affairs (OPA), Department of Health and Human Services (HHS). Title X facility rosters from 2017-2023 were publicly available and downloaded from the [HHS OPA website](#). Data on PP clinic locations were acquired using web-scraping techniques and the internet [Wayback Machine](#) to capture historical lists of clinics from each year between 2010-2023. Because PP data for 2012 were unavailable via the Wayback Machine, our team recreated the data using PP regional annual reports, local press, and Google Maps to identify openings, closures, and clinic moves between 2011-2012 and 2012-2013.

Missing data: Despite multiple FOIA requests to the federal and state governments, we were unable to obtain Title X facility data for Georgia (missing 2010-2013) and Texas (missing 2010-2012). Thus, GA and TX are excluded from the contraceptive desert and RHD indicators in 2010-2013.

Maternity care deserts: We conceptualize maternity care deserts as counties lacking the provision of comprehensive maternity care. Following others, we operationalize these deserts as counties lacking hospital-based obstetric units, which have the ability to handle complex pregnancies, births, and related emergencies (Fontenot et al. 2024). Such facilities are the site of 98% of births in the U.S. (National Academies of Sciences 2020). We exclude birth centers and other facilities that lack a labor and delivery ward with surgical capabilities because these facilities, while providing care, are not equipped to handle complex or risky births. We use county-level data on obstetric care produced by the [Maternity Care Team](#) at the University of

¹ We use the language of “deserts” to describe geographic localities that lack a provider of one or more types of reproductive healthcare but recognize that the term has limitations. Among them, it risks oversimplifying the complex factors that lead to certain locations lacking services and overlooking the richness of desert landscapes (Fontenot et al. 2024; Kozhimannil 2023). Nonetheless, we continue to use the term because of its predominance in the field and ease of interpretability for the public who are familiar with long-used terms such as “food deserts” (Karpyn et al. 2019).

Minnesota's Rural Health Research Center to identify counties that lack a hospital-based obstetric unit from 2010-2023. The Maternity Care Team integrates data from the American Hospital Association's (AHA) [Annual Survey](#) with the [Provider of Services](#) (POS) data from the Centers for Medicare and Medicaid Services because of known problems with the POS, particularly at capturing unit closures (Fontenot et al. 2024; Interrante et al. 2022). Following their algorithm, the data are then run through a series of consistency checks that trigger manual website review and determination of final status by their team (Interrante et al. 2022; Interrante, O'Hanlon, and Kozhimannil 2026).

Missing data: The public-access data from the Maternity Care Team are at the county level and thus do not contain facility addresses. This is not a problem for county-level measures of deserts; however, it introduces some imprecision into our estimates of county-level distances to nearest maternity care. We address this limitation by estimating the distance from the population centroid of a county without a hospital-based obstetric unit to the population centroid of the nearest county that has a hospital-based obstetric unit (vs. the precise facility location). Under this approach, the distance is 0 for any county that is not a maternity care desert.

Assisted reproductive technology deserts: The Centers for Disease Control and Prevention (CDC) [defines](#) ART as "all treatments or procedures that include the handling of human eggs or embryos to help achieve a pregnancy." This definition excludes treatments in which only sperm are handled (e.g., intrauterine insemination). The most common type of ART is in vitro fertilization (IVF), which requires an embryology lab. We conceptualize ART deserts as counties lacking a main ART clinic because such clinics have an embryology lab and can carry out IVF and other ART procedures. We exclude satellite clinics from our conceptualization of ART deserts because the services provided are limited and patients who use ART will require visits to a main clinic during their care. In addition, previous analyses of the locations of ART satellite clinics show that they are often located in proximity to main clinics of other ART providers and, therefore, including them would not substantively improve our measure of geographic access to ART (McGarity et al. 2022). We use data from the [National ART Surveillance System](#) (NASS) to identify clinic locations over the period 2010-2022, the latest released data as of early 2026. There is a federal statutory requirement that ART providers report their success rates (102nd Congress 1992). Prior to 2019, the NASS data only included clinic name, city, and state. Our team combined and cleaned these data so that each clinic-year through 2022 could be geocoded. To address the delayed release of the NASS data, our team used a web-based search and verification strategy to identify clinics operating in 2023. The strategy combined data from the directory of the Society for Assisted Reproductive Technology (SART), clinic and health system websites, Google Maps, and news articles. The process involved a structured combination of AI-assisted web review, followed by manual check of evidence and inconsistent cases (full process available upon request). Other research has used similar web-review processes to successfully identify satellite clinics, which are not catalogued in the NASS data (McGarity et al. 2022).

For all data sources, we use the September record when monthly data are available. We link county-level data across all datasets using Federal Information Processing System (FIPS) codes.

Geocoding: To identify the precise latitude and longitude of facilities necessary to create our desert indicators, we geocoded the addresses of all facilities using the [Google Geocoding API](#). We used these facility geocoordinates to label counties as contraceptive, maternity, abortion, or ART deserts in each year based on whether they had a particular type of facility.

County changes: A few states experienced changes to county borders over the study period. For example, in 2020, the Valdez-Cordova Census Area, Alaska (2261) became the Chugach Census Area (2063) and the Copper River Census Area (2066). Our dashboard incorporates these changes dynamically. Analyses using these data, however, can combine the areas for continuity. Other counties changed FIPS codes over time. For example, 46113 in South Dakota became 46102 in 2015 and 2270 in Alaska became 2158 in 2015.

Distance measures: We used the [Google Routes API](#) to calculate distance to each type of care and operationalize this as driving distance in miles via current road networks from the U.S. Census population

centroid for each county-year to the nearest care facility, regardless of whether the facility was located within or outside the same county. The dataset includes miles traveled for care, and the dashboard categorizes distances into various categories for visualization purposes.

RHD desert index: In addition to counties being identified as a specific type of desert, the database and dashboard also include two integrated indicators of reproductive healthcare deserts. We generated an index of the number of RHDs in a county that spans from 0 (no desert) to 4 (complete RHD). The dashboard also includes a binary indicator that differentiates counties that are complete RHDs.

Sociodemographic and health data: The RHD Database and Dashboard include a variety of county-level measures that can be analyzed in conjunction with the RHD data. These include a measure of rurality from the [National Center for Health Statistics](#) Urban-Rural Classification Scheme for Counties (National Center for Health Statistics 2024) and annual 5-year estimates from the [American Community Survey](#) (ACS) of a county's unemployment rate, race/ethnic composition, percentage and number of women of reproductive age (15-49), households with internet broadband subscriptions, households below the federal poverty level, and population with at least a bachelor's degree. The RHD Database also includes 90% margin of error estimates for the ACS variables, which were calculated by our team. The dashboard additionally includes county-year estimates of maternal and infant health outcomes from the [U.S. Health Resources and Services Administration's Maternal and Child Health Bureau](#) (MCHB). To create these measures, the MCHB uses data from multiple years and provides estimates for two time periods: 2017-2019 and 2020-2022. The MCHB data file includes estimates for counties with populations smaller than 100,000. These counties are suppressed in CDC WONDER public-use data files, but MCHB uses "a local empirical Bayes algorithm...to provide more stable estimates, particularly for counties with small numbers that would otherwise be unreliable or suppressed to ensure confidentiality" (see <https://data.hrsa.gov/maps/mchb>).

Transparency and data availability: The code for data collection, integration, cleaning, and merging as well as all code for producing the dashboard will be fully available online via GitHub. The dataset will be stored and freely accessible on Harvard's Dataverse.

Funding

The RHD Database and Dashboard are supported by the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) of the National Institutes of Health (R21 HD115062). The content is solely the responsibility of the study team and does not necessarily represent the official views of NICHD. Additional support came from Purdue's Department of Sociology, Center for Families, and Clifford B. Kinley Trust, and from the NICHD-funded University of Colorado Population Center (P2C HD066613).

References

- 102nd Congress, 2nd Session, 1992. 1992. *Fertility Clinic Success Rate and Certification Act of 1992*. United States: U.S. Government Printing Office.
- DeBoth, Alexa., and Angela Napili. 2025. *Title X Family Planning Program*. United States: <https://www.congress.gov/crs-product/IF10051?utm=>.
- Fontenot, Jazmin, Christina Brigance, Ripley Lucas, and Ashley Stoneburner. 2024. “Navigating Geographical Disparities: Access to Obstetric Hospitals in Maternity Care Deserts and across the United States.” *BMC Pregnancy and Childbirth* 24(1). doi:10.1186/s12884-024-06535-7.
- Interrante, JD, K. O’Hanlon, and KB Kozhimannil. 2026. *Availability of Hospital-Based Obstetric Services in the United States by County, 2010 – 2023: A State-by-State Report*. <https://rhrc.umn.edu/publication/availability-of-hospital-based-obstetric-services-in-the-united-states-by-county-2010-2023-a-state-by-state-report/>.
- Interrante, Julia D., Caitlin Carroll, Sara C. Handley, and Katy Kozhimanni. 2022. *An Enhanced Method for Identifying Hospital- Based Obstetric Unit Status*.
- Kaller, S., L. Ralph, R. Schroeder, and MA Biggs. 2025. “Awareness of Telehealth Services and Reasons for Seeking In-Person Abortion Care.” *Contraception* 151:111104. doi:10.1016/j.contraception.2025.111104.
- Karpyn, A. E., D. Riser, T. Tracy, R. Wang, and Y. E. Shen. 2019. “The Changing Landscape of Food Deserts .” *UNSCN Nutrition* 44:46–53.
- Koenig, Leah R., Jennifer Ko, and Ushma D. Upadhyay. 2024. “Virtual Clinic Telehealth Abortion Services in the United States One Year After Dobbs: Landscape Review.” *Journal of Medical Internet Research* 26(1). doi:10.2196/50749.
- Kozhimannil, Katy Backes. 2023. “Declining Access to US Maternity Care Is a Systemic Injustice.” *BMJ*.
- McGarity, Micajah Z., Christopher N. Herndon, John A. Harris, and Benjamin F. Hobbs. 2022. “Impact of Satellite Clinics on Geographic Access to Assisted Reproductive Technology Services in the United States.” *BMC Health Services Research* 22(1):928. doi:10.1186/s12913-022-08281-y.
- Myers, Caitlyn. 2025. “Myers Abortion Facility Database.” <https://osf.io/8dg7r/overview>.
- National Academies of Sciences, Engineering, Medicine. 2020. “Birth Settings in America Outcomes, Quality, Access, and Choice.”
- National Center for Health Statistics, Centers for Disease Control and Prevention. 2024. “NCHS Urban-Rural Classification Scheme for Counties.”
- Society of Family Planning. 2025. *#WeCount Report April 2022 through December 2024*. <https://societyfp.org/wecount-report-9-december-2024-data/>. <https://societyfp.org/research/wecount/wecount-december-2024-data/>.

Reproductive Healthcare Desert Dataset Codebook

year	Year of data
fips	Combined state/county unique FIPS code
state_fips	FIPS code for state
county_fips	FIPS code for county
state_usps	State abbreviation
state_name	State name
county_name	County name
abor_desert	County is abortion desert in that year
con_desert	County is contraceptive desert in that year
mat_desert	County is maternity desert in that year
art_desert	County is assisted reproductive technology desert in that year
rh_idx	RHD Index (range: 0-3) with abortion, contraception and maternity (does not include ART)
rh_idx_art	RHD Index (range: 0-4) with abortion, contraception, maternity, and ART
rh	Complete RHD, no abortion, contraception, or maternity (does not include ART)
rh_art	Complete RHD, no abortion, contraception, maternity or ART
abor_distance	County driving distance in miles to nearest abortion facility
con_distance	County driving distance in miles to nearest Title X or Planned Parenthood facility
mat_distance	County driving distance in miles to nearest hospital-based obstetric facility
art_distance	County driving distance in miles to nearest ART facility
nchs_urban	Rural-urban classification from the National Center for Health Statistics (NCHS): large central metro, large fringe metro, medium metro, micropolitan, non-core, small metro

Variables from ACS 5-year estimates. Each estimate also has an associated variable containing the 90% margin of error (moe) for that estimate. MOEs were calculated by the RHD Project Team.

n_total	Total population
n_repagewmn	Count of reproductive age (15-49) women
pct_repagewmn	Percent of the population comprised of reproductive age women
n_black	Count of population who are non-Hispanic Black or African American
pct_black	Percent of population who are non-Hispanic Black or African American
n_hispanic	Count of population who are of Hispanic or Latino origin
pct_hisp	Percent of population who are of Hispanic or Latino origin
n_fpl	Count of population below federal poverty level (FPL)
n_fpl_univ	Total within poverty universe
pct_fpl	Percent of population below federal poverty level (FPL)
med_hh_income	Median household income
n_college	Count of population aged 25+ with at least a bachelor's degree
pct_college	Percent of population aged 25+ with at least a bachelor's degree
n_over25	Count of population aged 25+
n_civilian_labor	Count of population in civilian labor force
n_unemployed	Count of unemployed population
pct_unemployment	Unemployment rate
n_hh_broadband	Number of households with broadband subscriptions
pct_broadband	Percent of households with broadband subscriptions
n_hh	Number of households

Variables from HRSA's Maternal and Child Health Bureau. Available for 2017-2019 and 2020-2022 only.

lbw_19	Percentage of births that were low birthweight (<2,500g) 2017-2019
lbw_22	Percentage of births that were low birthweight (<2,500g) 2020-2022
ptb_19	Percentage of births that were preterm 2017-2019
ptb_22	Percentage of births that were preterm 2020-2022
imr_19	Infant mortality rate per 1000 live births 2017-2019
imr_22	Infant mortality rate per 1000 live births 2017-2019
pnc_19	Percentage of births that received prenatal care 2017-2019
pnc_22	Percentage of births that received prenatal care 2020-2022
hyp_19	Percentage of births to women with hypertension before pregnancy 2017-2019
hyp_22	Percentage of births to women with hypertension before pregnancy 2020-2022
diab_19	Percentage of births to women with a diagnosis of diabetes before pregnancy 2017-2019
diab_22	Percentage of births to women with a diagnosis of diabetes before pregnancy 2020-2022