



# From facilities to outcomes: A neighborhood-level examination of maternal and infant care access in Chicago

## Introduction

In the United States, a nation celebrated for its advancements in health care, the state of maternal health remains a critical focal point. Despite overall progress in medical science and technology, the landscape of maternal health in the U.S. is marked by both accomplishments and persistent challenges. Healthy pregnant people contribute not only to the welfare of their families but to the overall well-being and prosperity of the nation. In recent years, the U.S. has witnessed a mounting awareness of maternal health inequities, unveiling a complex interplay of socio-economic, racial and health care system factors. As a result, improving the outcomes and experience of maternity care has become a priority for many groups, including federal, state and local policymakers, health authorities, physician groups and many community organizations.<sup>1-5</sup>

More than 2 million individuals of childbearing age live in “maternity care deserts,” without access to birthing facilities or maternal care physicians and providers. Building on the findings from the March of Dimes [“Nowhere to Go: Maternity Care Deserts Across the US 2022 Report,”](#) this current report aims to highlight the potential impacts of maternity care deserts at a zip code level within the city of Chicago on physicians, facilities, caregivers and patients.

## Background and objective

The dire state of maternal health in the U.S. is underscored by the trending increase in maternal deaths over the past 20 years. By comparison, pregnant people in the U.S. are more likely to die from complications related to pregnancy or childbirth than their counterparts in other developed countries.<sup>6,7</sup> A review of existing literature highlights an even deeper divide between the outcomes of white pregnant individuals in the U.S. and their Black and Indigenous counterparts.<sup>8</sup> In each year between 1999 and 2019, the Black population had the highest median state maternal mortality rate while the Indigenous population experienced the largest increases in median state maternal mortality rate. Although Black and Indigenous pregnant people are disproportionately impacted by this inequity, maternal mortality is on the rise in the U.S. for pregnant people from all racial and ethnic backgrounds.<sup>9</sup>

It is important to note that such inequities are not a result of biological differences but, rather, are due to systems in place that structure access to resources along racial and class lines (and intersections), as is noted by data showing differences in hospital quality serving mainly Black, Hispanic or Native patients as opposed to a mostly white patient population.<sup>10</sup> Although there are research efforts underway to identify policy levers and solutions for increasing access to maternity care at both state and national levels, assessing (racial) health inequities at only these scales risks obscuring the extent



and impact of the intersection between race and place. Examining this intersection helps inform local governments' allocation of their often-limited resources so they may best combat major health inequities specific to their community, which is not always reflected by national and state data due to geographic variations in health outcomes by race. Therefore, this report will provide observations at a local level with corresponding suggested approaches with the goal that these may be considered for implementation.

The March of Dimes report described inequities in availability and access to maternal and infant care across Illinois. However, the data presented in the report was at the county level, thus masking metro-level variation in access to care.<sup>11</sup> The city of Chicago is both the third largest city in the U.S. and the most highly segregated.<sup>12</sup> Further, resources are disproportionately spread throughout communities.<sup>13</sup> Chicago has well-documented health inequities across racial and ethnic groups in its neighborhoods, including maternal and infant health outcomes. With a Black-white maternal mortality disparity higher than the national estimate, Chicago represents a significant proportion of the national burden of maternal mortality.<sup>14</sup> The purpose of this study and subsequent report is to understand at a hyper-local level the variations in access to maternal and infant medical care across Chicago neighborhoods. Based on the identified gaps in maternal care and variations in maternal and infant-related mortality and morbidity, this study offers recommendations to the medical and advocacy communities.

## Methodology

Using the 2022 March of Dimes “Nowhere to Go: Maternity Care Desert Report” as a framework, this analysis utilizes data available at the zip code or Chicago Community Area level to highlight variations in access to maternal and infant medical care, social determinants of health, and maternal and infant health outcomes.<sup>15</sup> The research team extracted variables from the March of Dimes report that could be used at the zip code and Community Area levels. Zip codes are postal delivery routes. Chicago Community Areas are a set of census tracts that have been used and not modified since 1920 to track certain statistics, such as income and health. The boundaries of zip codes and Community Areas do not perfectly match. Some data is only available at the zip code level (e.g., use of prenatal services) while other data is only available at the Chicago Community Area level (e.g., maternal morbidity). This is a common issue in conducting health research in Chicago. For each map, we took precaution to overlap zip code data with zip code boundaries and Community Area data with Community Area boundaries; similarly, the geography of the numerator coincides with the geography of the denominator for each statistic. Additional variables relevant to the city environment were added including personal vehicles at residence and public transit lines.

The research team then investigated sources that would have health care facility location and capacity, demographic, socioeconomic, and maternal and infant health care related statistics at the zip code and community area level. A list of sources and variables extracted from each is on **page 27**. Data were gathered between September 2023 and January 2024.

## Maternal and infant care: Results of analysis

### Maternal health care access

The standard of care in medicine includes pre- and post-natal care to pregnant people and their babies. Prenatal care is presumed to support the health of the pregnant person and baby. In many instances, this is the case.<sup>16</sup> However, in cases where prenatal care does not occur, the impact to maternal and fetal outcomes is often more influenced by factors beyond the control of the



pregnant person.<sup>17</sup> When the ability to obtain appropriate care for themselves and for their child is either eliminated or made exponentially more difficult, those missed opportunities can result in complications that might otherwise be preventable.

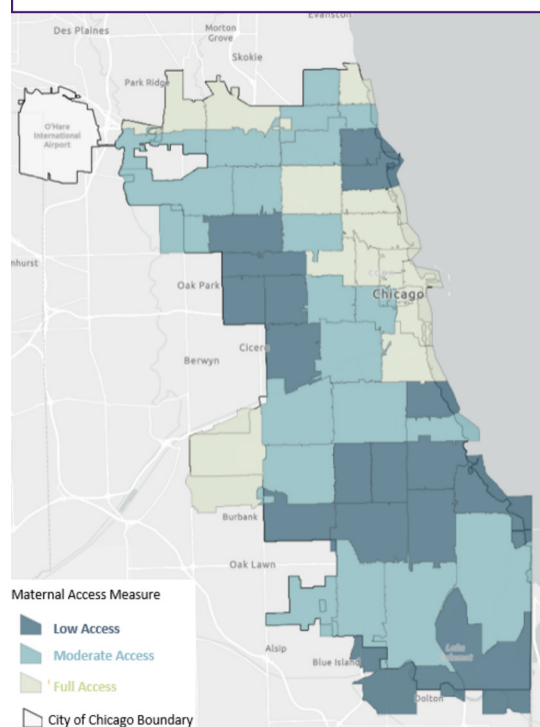
A maternal health care access measure was created for this report. It began with the maternity care desert measure and was adjusted for an urban health care environment.<sup>19,20</sup> The maternal health care access measure is a combination of three variables at the zip code level:

1. Ratio of OB/GYN physicians to number of women of childbearing age (ages 15-44) in a zip code;
2. Severe maternal morbidity, defined as one or more diagnoses and procedures occurring at the time of delivery that may cause short- or long-term consequences to the mother's health;<sup>18</sup> and
3. Hardship index, a composite measure of hardship on a community made up of six indicators: crowded housing, poverty rate, unemployment rate, adults with a high school degree or equivalent, age dependency ratio and per capita income.<sup>18,21</sup>

Maternal health care access is divided into three categories (1) low access, (2) medium access, and (3) full access. A full description of the methodology used to create the maternal health care access measure can be found in Appendix A.

Low, moderate, and full maternal care access is distributed unequally across the city of Chicago (**Figure 1**). We see most low access zip codes are located on the south and west sides of the city while most of the full access zip codes are located downtown and on the north side of the city (**Figure 1**).

**Figure 1: Maternal Care Access by ZIP<sup>1</sup> Code, Chicago IL, 2024**



1. Boundaries - ZIP codes. City of Chicago Data Portal. <https://data.cityofchicago.org/Facilities-Geographic-Boundaries/boundaries-ZIP-Codes/gdcf-xmhw>. Accessed September 8th 2023.  
2.2. Esri. "Light Gray Canvas Base" (baseemap). Scale not given. October 26, 2017. <https://www.arcgis.com/home/item.html?id=299d5eab3a0412593b66d384379f89f>. 2024.



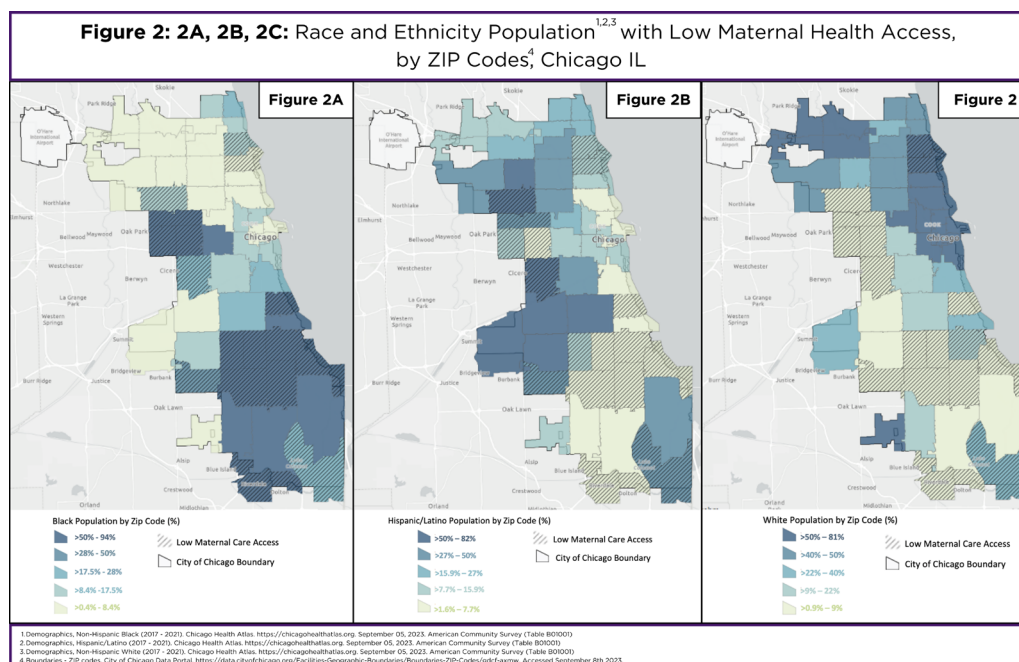
The percentage of zip codes, women aged 15-44, and of births is broken down by maternal care access category in **Table 1**. There is low maternal health care access in 30.5% of zip codes in Chicago, with 28.6% of women aged 15-44 residing in, and 24.2% of births occurring in, zip codes with low maternal health care access. There is moderate access to maternal health care in 39.6% of zip codes, with 41.4% of women aged 15-44 living in, and 45.2% of births occurring in, moderate access areas. There is full maternal health care access in 29.3% of zip codes, with 28.9% of women aged 15-44, and 30.6% of births occurring in, zip codes with full access to maternal health care.

	Low Access		Moderate Access		Full Access		Total
	#	%	#	%	#	%	
ZIP Codes	18	30.5	23	39.6	17	29.3	58
Women 15-44 <sup>1</sup>	193,505	28.6	288,027	41.4	195,581	28.9	677,113
Births <sup>2</sup>	30,687	24.2	57,383	45.2	38,926	30.6	126,996

1. Age and Sex. American Community Survey, ACS 5-Year Estimates Subject Tables, Table S0101. United States Census Bureau, 2021. Accessed September 7, 2023.  
2. Birth and Death Files. Illinois Department of Public Health, 2018-2021. Accessed Nov. 1 2023.

The variation in maternal health care access across Chicago coincides with distribution of race and ethnicity. The majority of zip codes deemed to have low maternal care access are also zip codes with a population of majority Black residents (**Figure 2A**). The next highest proportion of zip codes with low maternal care access overlap with zip codes that are home to a majority of Hispanic/Latino residents (**Figure 2B**). The fewest zip codes with low maternal care access overlap with the zip codes that are home to a majority of White residents (**Figure 2C**).

These maps show the overlap of socioeconomic factors which are used to calculate our Maternal Access Measure, and the disparity in access to care that exists between different races and ethnicities.





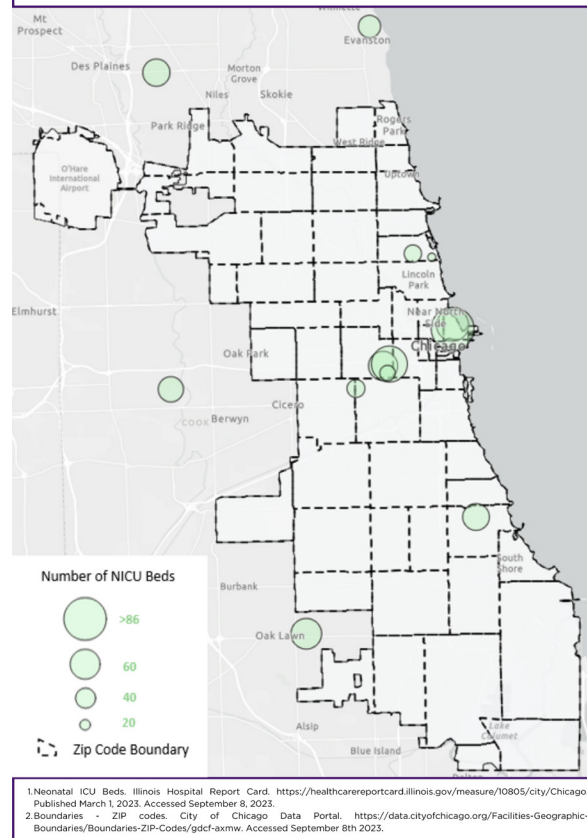


# Hospitals

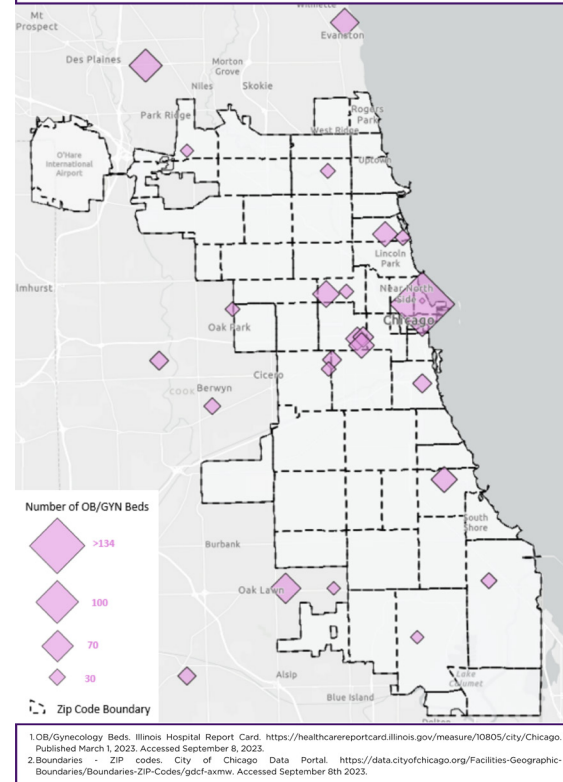
## Obstetric units

At a fundamental level, the purpose of an obstetrical unit (OU) is typically to provide both basic and specialty care (as defined by the American College of Obstetricians and Gynecologists' levels of maternal care) for those giving birth. OUs serve as a facility, or part of a facility, that primarily focuses on maternal health, offering access to pregnant people and their babies when it is most needed.<sup>22</sup> Obstetric (OB) beds are mainly in major medical hospitals. **Figure 3** displays a map of the city of Chicago with zip codes, along with hospitals with OB units in Cook County. OBs are represented by pink diamonds, with larger diamonds representing greater OB capacity. The capacity of hospitals with obstetric and gynecological beds in Cook County ranges from 12 to 134.

**Figure 4:** Cook County Hospital Neonatal Intensive Care Units and Number of Beds,<sup>1</sup> by Chicago ZIP codes,<sup>2</sup> 2023.



**Figure 3:** Cook County Hospital Obstetric Units and Number of Beds,<sup>1</sup> by ZIP Codes, Chicago, IL,<sup>2</sup> 2023



## Neonatal intensive care units

Neonatal intensive care units (NICUs) are also part of facilities (typically hospitals) and provide specialty care to babies who need dedicated, constant care, i.e., those who are born prematurely or are sick in some way. The care team members that staff NICUs have specialized training and equipment. **Figure 4** displays NICUs, represented by green circles. The larger green circle represents a larger NICU capacity. Medical facilities with NICUs are mainly located downtown, in the medical district, with a small portion of facilities on the south, north and far west sides of the city. Of hospitals in Cook County that operate a NICU, the bed capacity ranges from eight to 86.

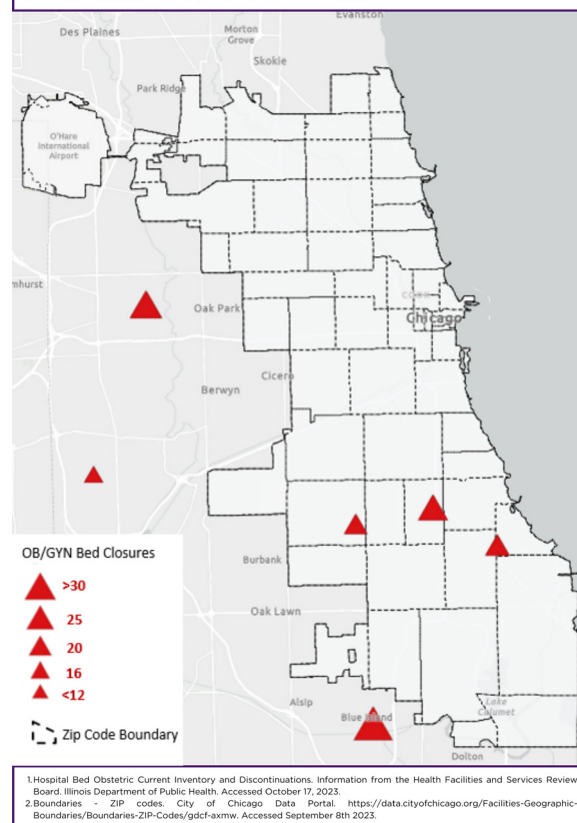


Many hospitals in Cook County have both OUs and NICUs; this figure shows this overlap (**Figure 5**). Cook County represents more geography than the city of Chicago alone, but data was pulled at the county level recognizing that in some areas of the city, the closest hospital may be outside of city limits.

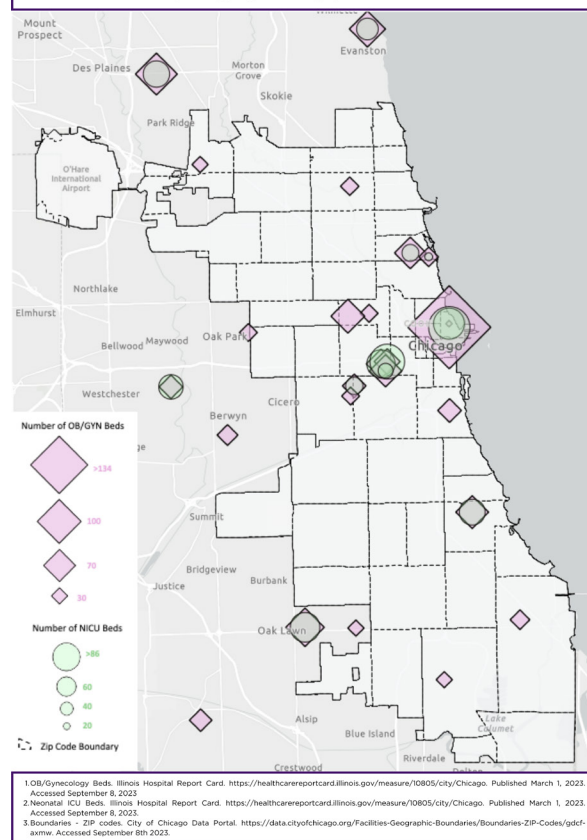
## Hospital closures

From 2018 to 2023 there were a series of hospital closures in Chicago. The implication of the closure of a hospital or facility that provides maternal and fetal care is that it limits access to care for those served by its catchment area. This is true particularly in rural settings, but the same holds true for patients in urban settings as well. With the closure of hospital obstetric units, there is the creation of “maternity care deserts,” most often in areas composed of predominantly Black patients.<sup>23</sup> Maternity care deserts have been found to be associated with a 3.7 times increase in travel distance to reach obstetric care.<sup>24</sup> As a result of the closures, the increase in travel distance for patients of childbearing

**Figure 6:** Obstetric and Gynecological Unit Closures in Cook County<sup>1</sup>, by Chicago ZIP Codes,<sup>2</sup> 2018-2023



**Figure 5:** Cook County Hospital OB/GYN<sup>1</sup> and NICU<sup>2</sup> Bed Capacity, by Chicago, IL ZIP codes<sup>3</sup>



age, regardless of whether their needs during pregnancy are basic or complex, results in lost time and increases potential costs (public transportation, parking, ridesharing, etc.) to receive care. From a purely economic standpoint, the demand for care also outweighs the supply of available facilities, potentially impacting the remaining facilities' wait times and availability.<sup>25</sup>

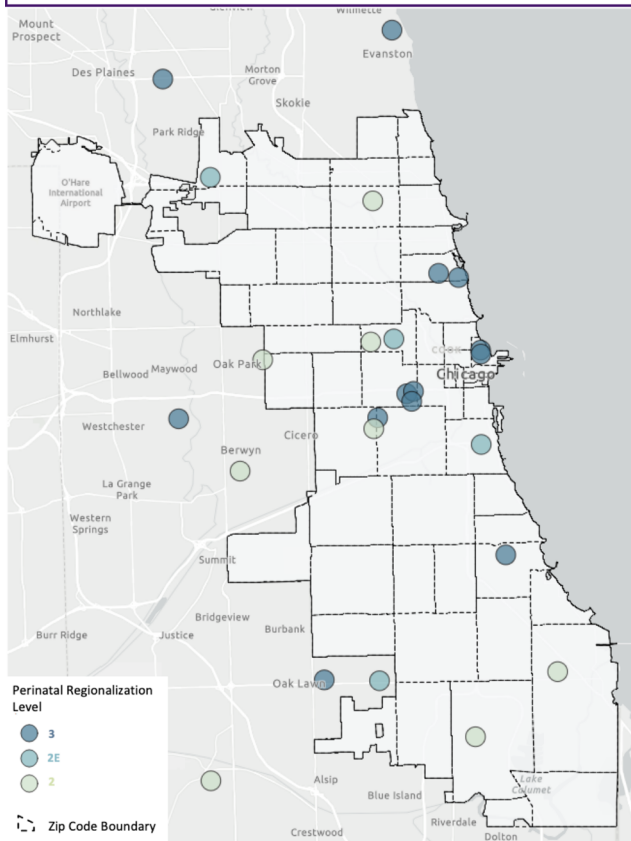
Beyond the impact to time and schedule, the decline of both rural and urban hospitals with OUs and/or NICUs has contributed to pregnancy-related complications for both mother and baby.<sup>26,27</sup> Recent labor and delivery (L&D) unit closures in Cook County are not spread evenly across the city (**Figure 6**). Locations of L&D unit closures in Cook County are represented with a red triangle; the larger the triangle, the larger the capacity of the unit closure (2018 & 2023, IDPH). Of particular interest is the closure of three L&D/Obstetrics/Gynecology (L&D/ OB/GYN) units located in the South Side of Chicago. Existing literature highlights how the distribution



of health care options is often limited in areas that have the highest need. With closures of health care facilities in areas that already compel patients to travel to receive the care they need, there are accompanying ramifications that result from physician attrition and a decreasing level of attraction as it relates to recruiting any new physicians into particular specialties such as emergency medicine, family medicine and obstetrics, thus creating a cycle of disjointed, disconnected care for the patients in those areas, not to mention a higher level of burnout for physicians in the previously noted specialties. For urban areas in particular, areas that are home to Black and economically marginalized populations have a greater likelihood of hospital closures.<sup>28,29</sup>

## Perinatal regionalization and risk-appropriate levels of care (perinatal level of care)

**Figure 7: Perinatal Regionalization of Hospitals with Labor and Delivery Capacity<sup>1</sup> in Cook County, IL, by ZIP Codes<sup>2</sup>**



1. Perinatal Regionalization. Illinois Department of Public Health. Accessed September 21, 2023. <https://dph.illinois.gov/topics-services/life-stages-populations/infant-mortality/perinatal-regionalization.html>  
2. Boundaries - ZIP codes. City of Chicago Data Portal. <https://data.cityofchicago.org/Facilities-Geographic-Boundaries/Boundaries-ZIP-Codes/gdcf-axmw>. Accessed September 8th 2023.

Perinatal regionalization, a measure defined at the individual state level, ensures that there are hospitals that can provide a full range of services for pregnant women and their babies in a geographic region.<sup>22,30</sup> Within Illinois, hospitals can be rated 0, 1, 2, 2E and 3. Services range from level 0, which has no obstetric services, to level 3, which has a functioning NICU and can care for increasingly high-risk pregnancies (IDPH). All hospitals highlighted in this report are levels 2 or higher, meaning they all have a labor and delivery unit and can care for a moderate or higher risk pregnancy. The location of facilities offering care at levels 2–3 in Cook County, (light green representing level 2, light blue representing level 2E, dark blue representing level 3) are shown in **Figure 7**. Level 3 is also only assigned to hospitals with NICU units. Level 2 facilities offer care to pregnant patients at moderate risk and do not operate NICUs or special care nurseries, while Level 2E hospitals have extended neonatal capabilities and special care nurseries, they do not have NICUs. Out of 14 total NICU units in Cook County, there is one level 3 facility on the South Side and two on the West Side, both of which are outside of the city. Most of these

Level 3 facilities specializing in highest risk pregnancies for both mother and baby are concentrated either in the immediate downtown area or on the North Side of the city and suburbs.

**This may lead to those with a higher-risk pregnancy to seek care at a hospital that cannot offer them the proper care or require them to travel far from their home to receive appropriate care. Access to care that matches the level of risk associated with the pregnancy is vital for positive maternal and infant health outcomes.**



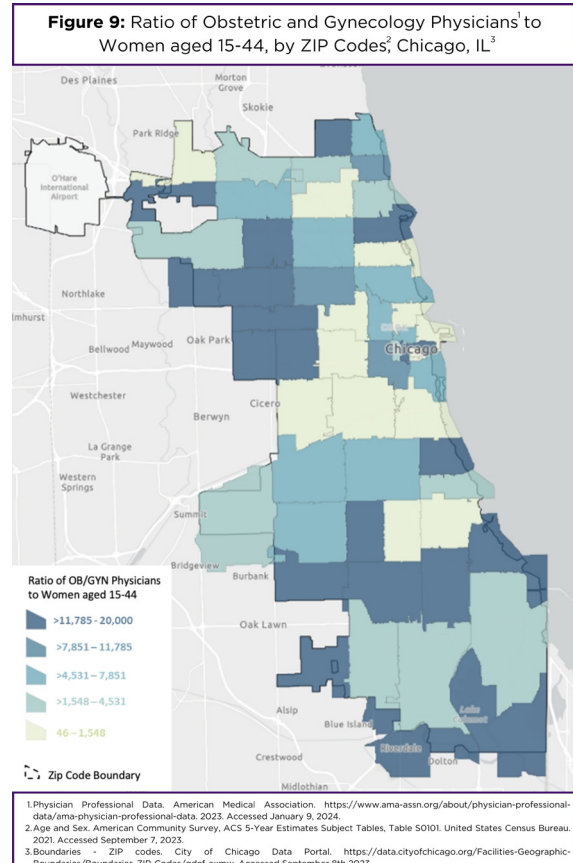
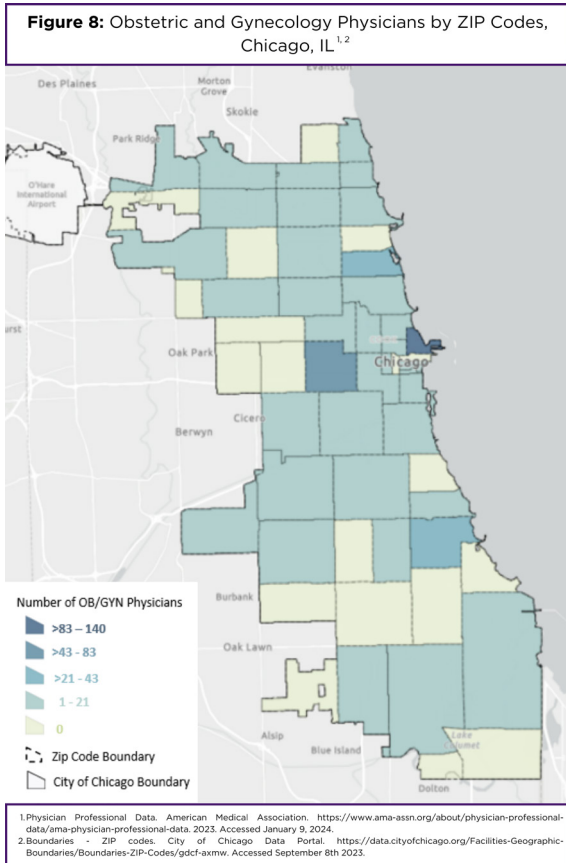


# Physicians

Obstetrician/gynecologists (OB/GYNs) have completed education in a specialty focused on pregnancy, childbirth and conditions of the reproductive system. They offer preventive care, prenatal care, detection of sexually transmitted diseases, oncology screenings, reconstructive surgery and family planning. Physicians who have completed an OB/GYN residency may decide to further their education in a subspecialty such as maternal-fetal medicine (MFM) or reproductive endocrinology and infertility.<sup>31</sup>

Roughly half of obstetric and gynecological physicians practice at hospitals and those hospitals' satellite clinics.<sup>32</sup> **Figure 8** shows the distribution of physicians who are registered to a practice address in zip codes of Chicago, with darker colors representing a higher number of physicians in the zip code (**Figures 8, 9**). The highest concentration of OB/GYN physicians is in the downtown and medical district areas while most areas with zero registered physicians are on the city's South and West sides. This leaves some of the most disenfranchised neighborhoods in Chicago having to travel outside of their neighborhood to receive obstetric and gynecological care, regardless of the level of care their pregnancy requires.

Patients on the South and West Sides of the city may have some access to providers and care through Federally Qualified Health Centers (FQHCs). However, while FQHCs are required by federal statute to provide primary care services, services are not always offered uniformly at all locations under the umbrella of a given organization, and therefore does not necessarily mean that the practice location offers an option for patients' obstetric and gynecological care.







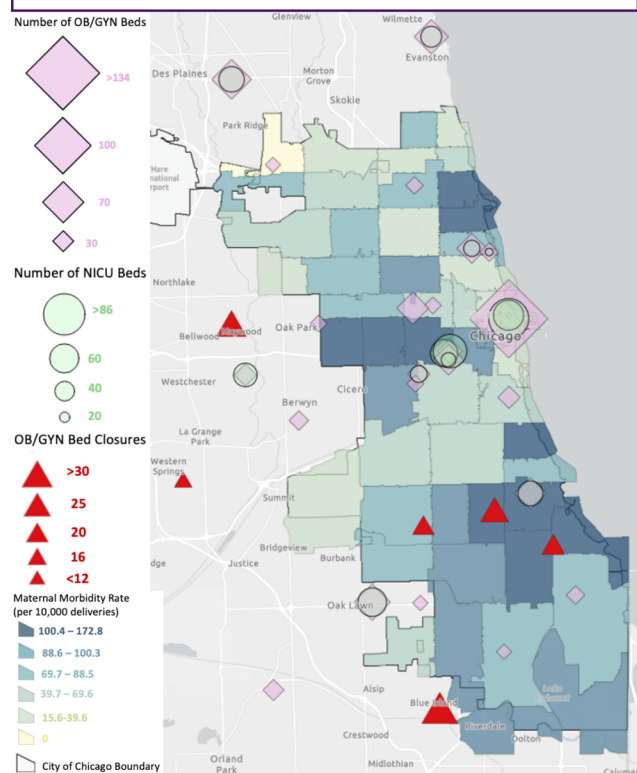
# Quality measures: Health care access and maternal, infant health

## Maternal health

In the Chicago Department of Public Health (CDPH) 2019 Data Report, severe maternal morbidity is defined as experiencing diagnoses and procedures occurring at the time of delivery that are likely to cause both short-term and long-term consequences to the mother's health.<sup>18</sup> The CDPH 2019 report on "Maternal Morbidity and Mortality" in Chicago observes—and is in alignment with national trends—that non-Hispanic Black women and women experiencing higher levels of economic hardship are disproportionately affected by the negative outcomes of maternal morbidity and mortality.<sup>18</sup>

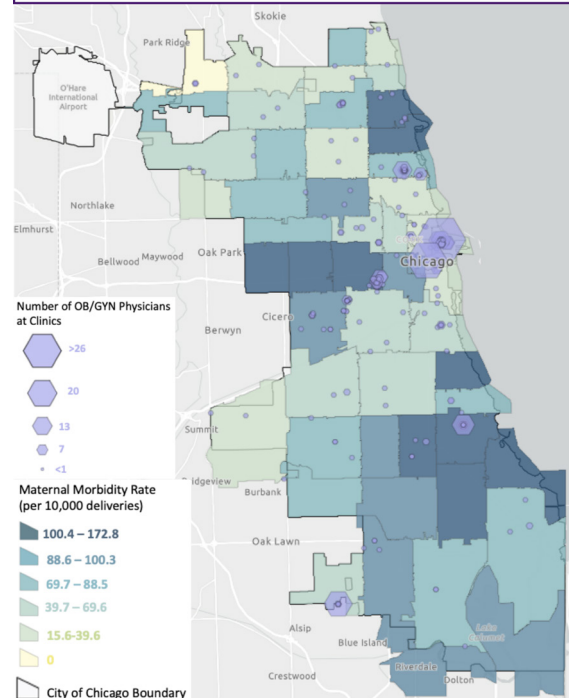
The Chicago maternal morbidity rate is 74.1 per 10,000 deliveries and ranges from 15.6 to 172.8 per 10,000 by zip code. Higher maternal morbidity rates are shown in darker colors in the below figures (**Figures 10, 11**). Higher maternal morbidity rates are concentrated on Chicago's South and West Side communities. The maternal morbidity rate overlapped with the existence of hospitals and hospital closures in Cook County with **Figure 10** showing that some of the highest rates of maternal morbidity occurred in zip codes without hospitals. Maternal morbidity rates with count of OB/GYN physicians registered to practice addresses show a similar story (**Figure 11**). Many of the zip codes with the highest rates of severe maternal morbidity have no OB/GYN physicians registered to them. Higher rates of maternal morbidity and lower numbers of practicing OB/GYN physicians overlapping in the South and West Side neighborhoods of Chicago show the potential to increase clinic locations and care in these areas.

**Figure 10: Maternal Morbidity Rate,<sup>1</sup> OB/GYN and NICU Capacity,<sup>2,3</sup> and OB/GYN Unit Closures,<sup>4</sup> by Chicago, IL ZIP codes<sup>5</sup>**



1. Maternal Morbidity & Mortality in Chicago. Chicago Department of Public Health. [https://www.chicago.gov/dam/city/depts/cdph/statistics\\_and\\_reports/CDPH-002\\_MaternalMortality\\_Database\\_r4c\\_DIGITAL.pdf](https://www.chicago.gov/dam/city/depts/cdph/statistics_and_reports/CDPH-002_MaternalMortality_Database_r4c_DIGITAL.pdf). Published 2019. Accessed September 6, 2023.  
 2. OB/Gynecology Beds. Illinois Hospital Report Card. <https://healthcarereportcard.illinois.gov/measure/OBOS/city/Chicago>. Published March 1, 2023. Accessed September 8, 2023.  
 3. Neonatal ICU Beds. Illinois Hospital Report Card. <https://healthcarereportcard.illinois.gov/measure/OBOS/city/Chicago>. Published March 1, 2023. Accessed September 8, 2023.  
 4. Hospital Bed Obsolete Current Inventory and Discontinuations. Information from the Health Facilities and Services Review Board. Illinois Department of Public Health. Accessed October 17, 2023.  
 5. Boundaries - ZIP codes. City of Chicago Data Portal. <https://data.cityofchicago.org/Facilities-Geographic-Boundaries/Boundaries-ZIP-Codes/gdcf-axmw>. Accessed September 8th 2023.

**Figure 11: Maternal Morbidity Rate<sup>1</sup> and Number of OB/GYN Physicians at Clinics<sup>2</sup> by Chicago, IL ZIP Codes<sup>3</sup>**

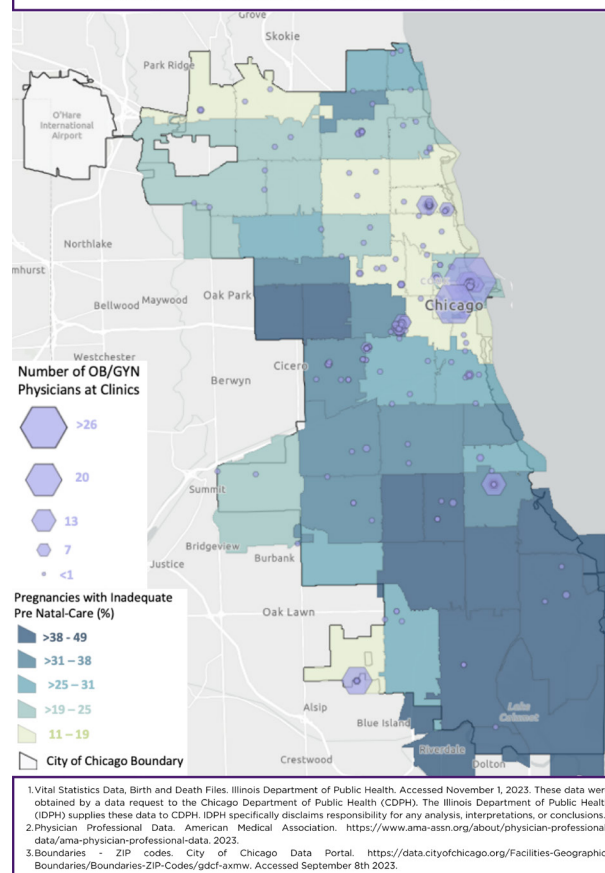


1. Maternal Morbidity & Mortality in Chicago. Chicago Department of Public Health. [https://www.chicago.gov/dam/city/depts/cdph/statistics\\_and\\_reports/CDPH-002\\_MaternalMortality\\_Database\\_r4c\\_DIGITAL.pdf](https://www.chicago.gov/dam/city/depts/cdph/statistics_and_reports/CDPH-002_MaternalMortality_Database_r4c_DIGITAL.pdf). Published 2019. Accessed September 6, 2023.  
 2. Physician Professional Data. American Medical Association. <https://www.ama-assn.org/about/physician-professional-data/ama-physician-professional-data>. 2023.  
 3. Boundaries - ZIP codes. City of Chicago Data Portal. <https://data.cityofchicago.org/Facilities-Geographic-Boundaries/Boundaries-ZIP-Codes/gdcf-axmw>. Accessed September 8th 2023.

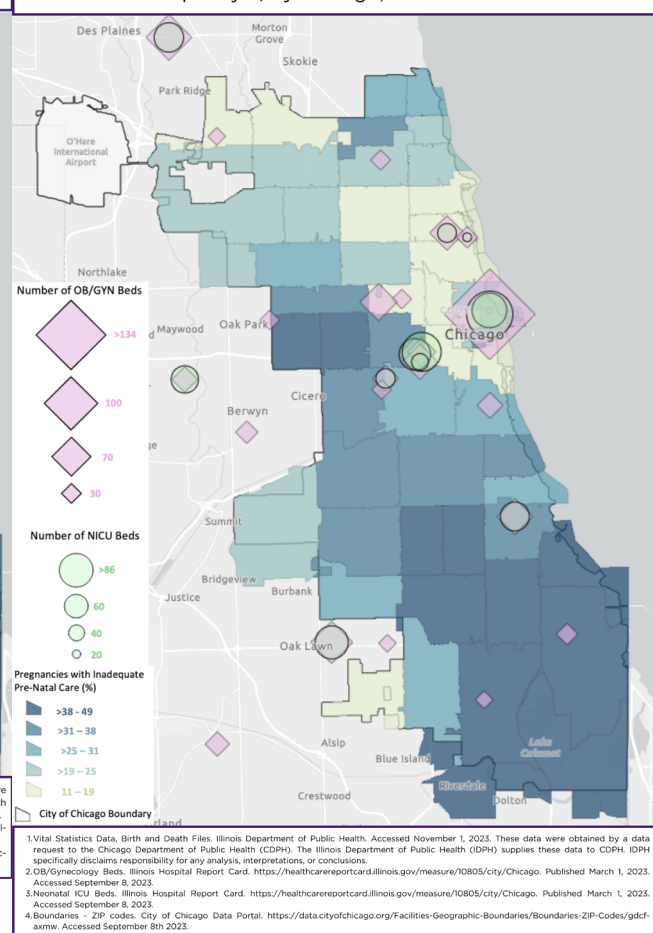


When a person becomes pregnant, it is important that they receive prenatal care to keep themselves and their baby healthy, as both pregnant people and babies are more likely to develop health complications, such as low birth weight in the case of the infant, if they do not follow a regularly scheduled set of visits.<sup>33</sup> Inadequate prenatal care is defined as care that begins after 4 months of gestation or does not meet at least 80% of the American College of Obstetricians and Gynecologists recommendations for number of visits for a given gestation.<sup>18</sup> Rates of inadequate prenatal care by Chicago zip code, with darker shades representing more pregnancies with inadequate care, are shown in the below figures. Areas with high rates of inadequate pre-natal care coincide with areas with few or no registered OB/GYN providers (**Figure 12**). Similarly, areas with the highest rates of inadequate pre-natal care are farther from hospitals with a high capacity for maternal and infant care (**Figure 13**).

**Figure 12: Inadequate Pre-Natal Care<sup>1</sup> and Number of OB/GYN Physicians at Clinics<sup>2</sup>, by Chicago, IL ZIP codes<sup>3</sup>**



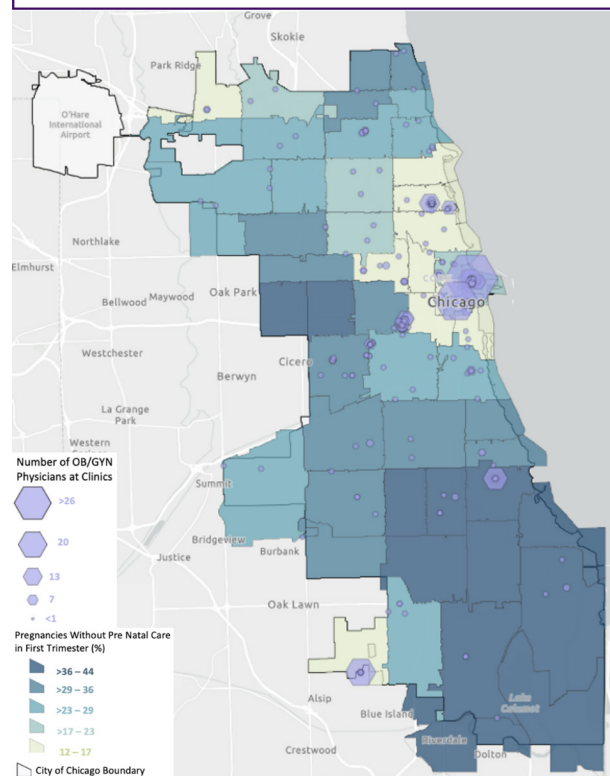
**Figure 13: Inadequate Pre-Natal Care<sup>1</sup> and OB/GYN and NICU Capacity<sup>2,3</sup>, by Chicago, IL ZIP Codes<sup>4</sup>**





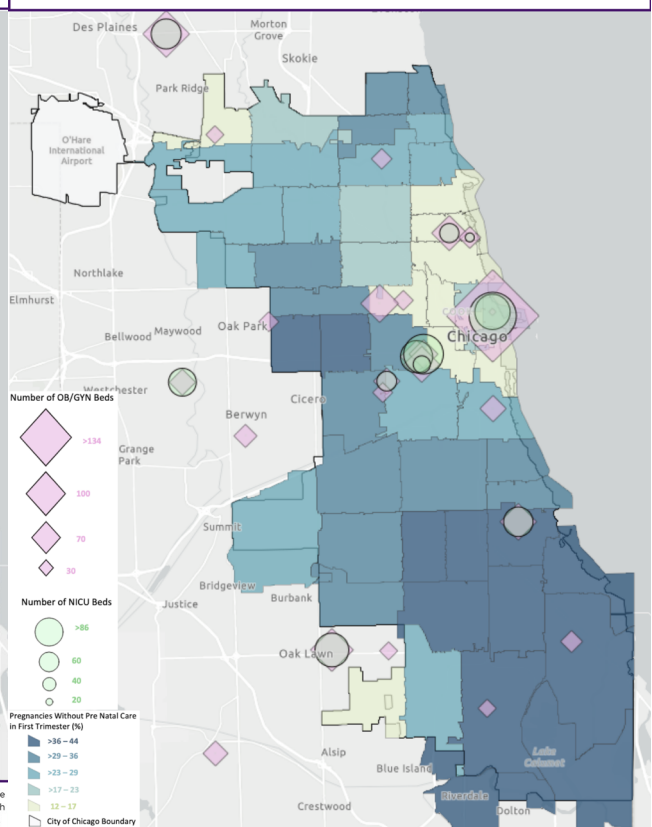
Lacking prenatal care during the first trimester is highly concentrated to the South and West Sides of Chicago. Higher percentages of pregnancies without any pre-natal care during the first trimester are represented by the darker blue (**Figure 14**). There are very few if any clinics offering OB/GYN care in zip codes with the lowest rates of pre-natal care in the first trimester (**Figure 14**). Similarly, hospitals located in areas with high rates of low pre-natal care during the first trimester also have low bed capacity (**Figure 15**). Areas lacking clinics and hospitals tending to have lower rates of pre-natal care during the first trimester and overall inadequate pre-natal care throughout their pregnancy, speaks to the need for more equitable distribution of OB/GYN services across the city of Chicago.

**Figure 14: No Pre-Natal Care During First Trimester<sup>1</sup> and Number of OB/GYN Physicians at Clinics<sup>2</sup>, by Chicago, IL ZIP codes<sup>3</sup>**



1. Vital Statistics Data, Birth and Death Files. Illinois Department of Public Health. Accessed November 1, 2023. These data were obtained by a data request to the Chicago Department of Public Health (CDPH). The Illinois Department of Public Health (IDPH) supplies these data to CDPH. IDPH specifically disclaims responsibility for any analysis, interpretations, or conclusions.  
2. Physician Professional Data. American Medical Association. <https://www.ama-assn.org/about/physician-professional-data/ama-physician-professional-data.2023>.  
3. Boundaries - ZIP codes. City of Chicago Data Portal. <https://data.cityofchicago.org/Facilities-Geographic-Boundaries/Boundaries-ZIP-Codes/gdcf-axmw>. Accessed September 8th 2023.

**Figure 15: No Pre-Natal Care During First Trimester<sup>1</sup> and OB/GYN and NICU Capacity<sup>2,3</sup>, by Chicago, IL ZIP codes<sup>4</sup>**



1. Vital Statistics Data, Birth and Death Files. Illinois Department of Public Health. Accessed November 1, 2023. These data were obtained by a data request to the Chicago Department of Public Health (CDPH). The Illinois Department of Public Health (IDPH) supplies these data to CDPH. IDPH specifically disclaims responsibility for any analysis, interpretations, or conclusions.  
2. OB/Gynecology Beds. Illinois Hospital Report Card. <https://healthcarereportcard.illinois.gov/measure/10805/city/Chicago>. Published March 1, 2023. Accessed September 8, 2023.  
3. Neonatal ICU Beds. Illinois Hospital Report Card. <https://healthcarereportcard.illinois.gov/measure/10805/city/Chicago>. Published March 1, 2023. Accessed September 8, 2023.  
4. Boundaries - ZIP codes. City of Chicago Data Portal. <https://data.cityofchicago.org/Facilities-Geographic-Boundaries/Boundaries-ZIP-Codes/gdcf-axmw>. Accessed September 8th 2023.

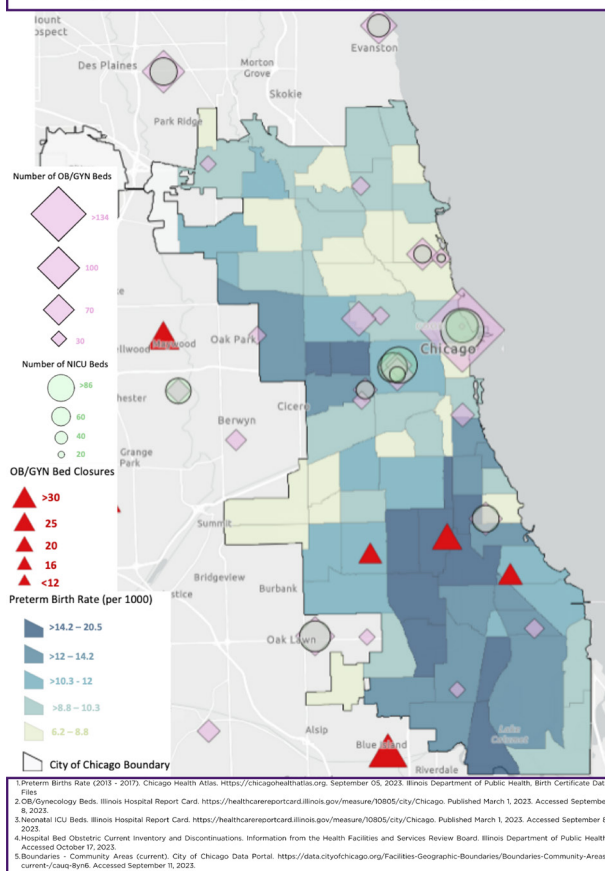




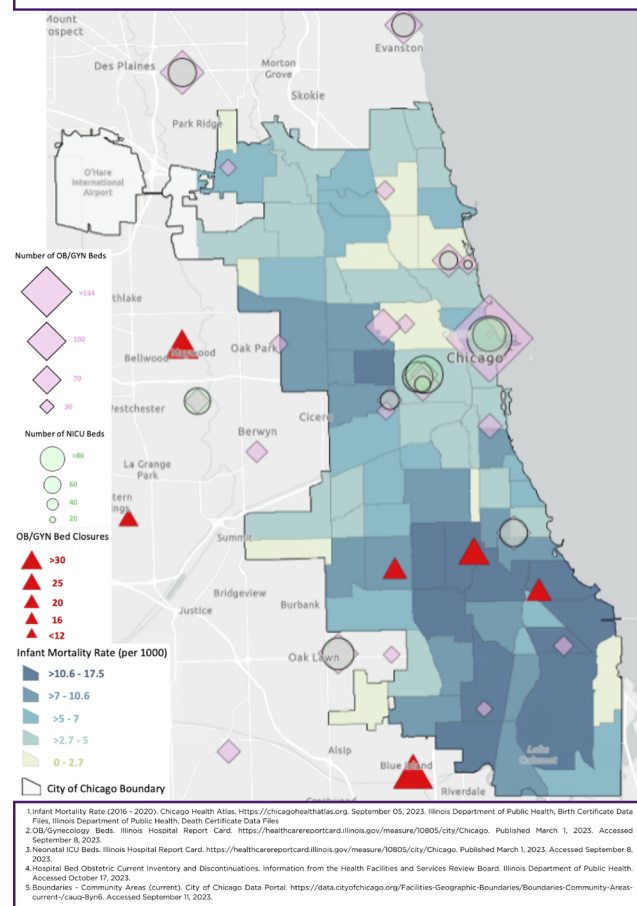
## Infant health

As maternal and infant health are intricately linked throughout the duration of pregnancy, so too are their outcomes—mortality rate, preterm birth rate, low/very low birth weight, etc.—and how we measure them.<sup>34</sup> We next looked at the rate of infant deaths, defined as expiration within the first year of life, in Chicago by community area.<sup>35</sup> Rate of infant deaths ranged from less than three to greater than 10 per 1,000 live births, again using the darker colors to identify the higher number of infant deaths in a community area (**Figure 16**). We found that the highest rate of infant mortality was concentrated in the West and South Sides of Chicago. Most of the community areas with the highest rates of infant mortality coincide with where most of the hospital closures since 2018 have occurred (**Figure 16**). These high infant mortality rates are also farther from advanced care hospitals with large capacities in the downtown and medical district areas.

**Figure 17:** Preterm Birth Rate,<sup>1</sup> OB/GYN and NICU Capacity,<sup>2,3</sup> and OB/GYN Closures,<sup>4</sup> by Chicago, IL Community Area<sup>5</sup>



**Figure 16:** Infant Mortality Rate<sup>1</sup> with OB/GYN<sup>2</sup> and NICU<sup>3</sup> Capacity and OB/GYN Unit Closures,<sup>4</sup> by Chicago, IL Community Area<sup>5</sup>



## Preterm births (less than 37 weeks)

We also examined the number of preterm births, births occurring at less than 37 weeks gestation, by community area. The preterm birth rate, or the percentage of births at less than 37 weeks, ranged from less than 8.4 per 1,000 live births to greater than 13.7 per 1,000 live births, higher rates are shown in darker shades. Higher rates were concentrated on the western and southern areas of the city (**Figure 17**). High preterm birth rates are concentrated in the South and West Sides of the city and coincide with hospital closures and lower capacity hospitals.

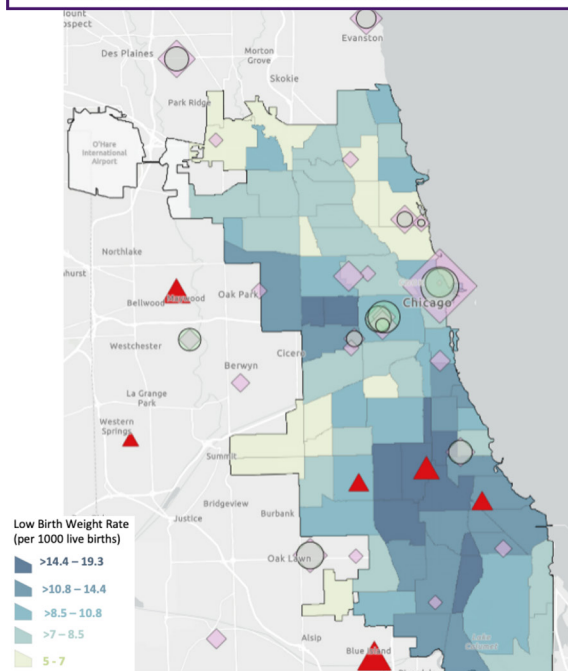




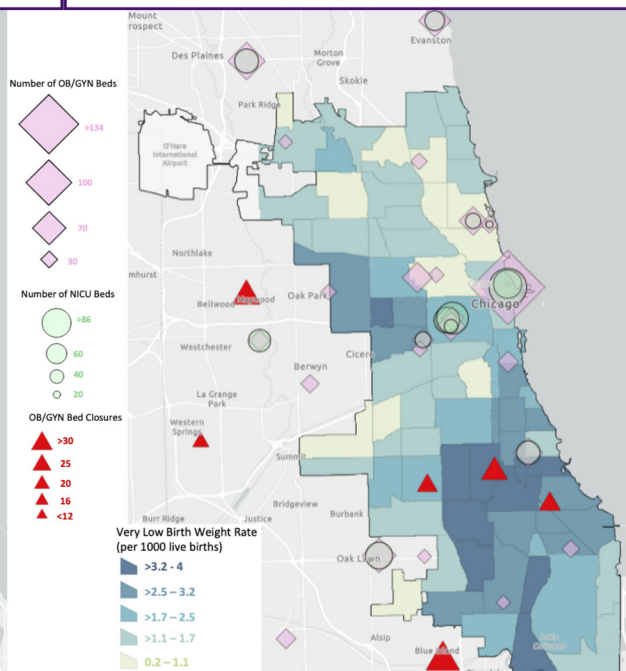
## Birthweight: Low and very low (<2500 grams/<1500g)

Low and very low birthweight data by community area was also observed. Low birth weight is caused by fetal intrauterine growth restriction or prematurity or both.<sup>36</sup> The rate of low birthweight babies born in each community area per 1,000 live births ranged from less than 6.7 to over 13.4 per 1,000 live births, while the rate of very low birthweight babies ranged from less than 1.1 to greater than 2.9 per 1,000 live births (**Figures 18, 19**). In all instances, the darker colors represent a higher rate of low birthweight babies, noting again that the darker shaded areas of the map mainly occur in the city's western and southern areas. Higher levels of low and very low birthweight rates are located in areas farther from high-capacity hospitals and in areas impacted by recent hospital closures. Low and very low birthweight is associated with many poor health outcomes for the infant and associated with fetal morbidity and mortality.<sup>36</sup>

**Figure 18:** Low Birth Weight Rate,<sup>1</sup> OB/GYN and NICU Capacity,<sup>3,4</sup> and OB/GYN Closures,<sup>5</sup> by Chicago, IL Community Area<sup>6</sup>



**Figure 19:** Very Low Birth Weight Rate,<sup>2</sup> OB/GYN and NICU Capacity,<sup>3,4</sup> and OB/GYN Closures,<sup>5</sup> by Chicago, IL Community Area<sup>6</sup>



1. Low Birthweight Rate (2013 - 2017). Chicago Health Atlas. <https://chicagohealthatlas.org>. September 05, 2023. Illinois Department of Public Health, Birth Certificate Data Files  
2. Very Low Birthweight Rate (2013 - 2017). Chicago Health Atlas. <https://chicagohealthatlas.org>. September 05, 2023. Illinois Department of Public Health, Birth Certificate Data Files  
3. OB/Gynecology Beds. Illinois Hospital Report Card. <https://healthcareportcard.illinois.gov/measure/10805/city/Chicago>. Published March 1, 2023. Accessed September 8, 2023.  
4. Neonatal ICU Beds. Illinois Hospital Report Card. <https://healthcareportcard.illinois.gov/measure/10805/city/Chicago>. Published March 1, 2023. Accessed September 8, 2023.  
5. Hospital Bed Obstetric Current Inventory and Discontinuations. Information from the Health Facilities and Services Review Board. Illinois Department of Public Health. Accessed October 17, 2023.  
6. Boundaries - Community Areas (current). City of Chicago Data Portal. <https://data.cityofchicago.org/Facilities-Geographic-Boundaries/Boundaries-Community-Areas-current/-/caup-bynd>. Accessed September 11, 2023.

A report by the Robert Graham Center and the National Association of Community Health Centers identifies those patients who are at a high risk of being unable to establish continuity of care because of a dearth of physicians in their community as “medically disenfranchised.”<sup>37</sup> The ability to access care becomes less of a pressing problem when there aren’t care options present and physically available to access. When that results in patients being compelled to forgo care, their health outcomes suffer, with some populations, e.g., pregnant people and their babies, suffering more than others.<sup>38</sup>

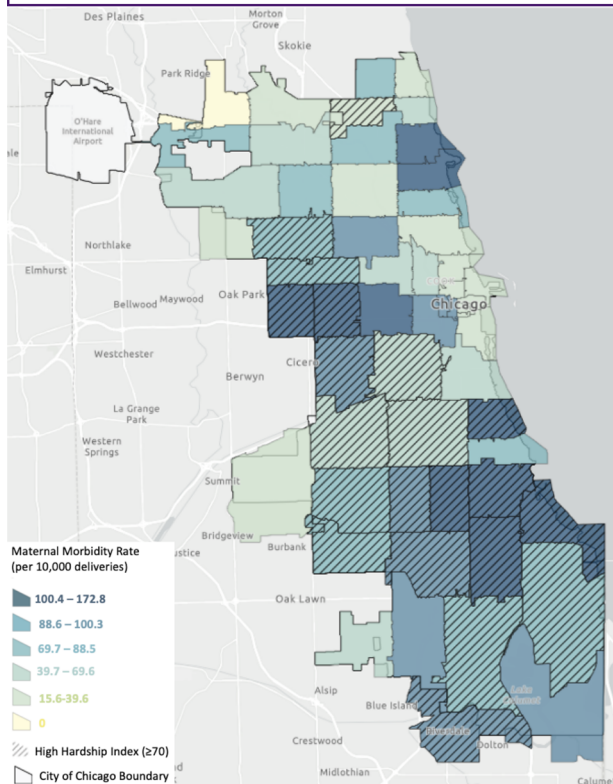


## Social factors impacting care

Medical facilities are not the only factors that play a role in maternal and infant health. Social determinants of health are also key drivers of maternal and infant health outcomes.<sup>39</sup> Within this report we review three social factors—the Chicago Hardship Index, transportation, and access to the internet—that have implications for appropriate maternal and fetal care.

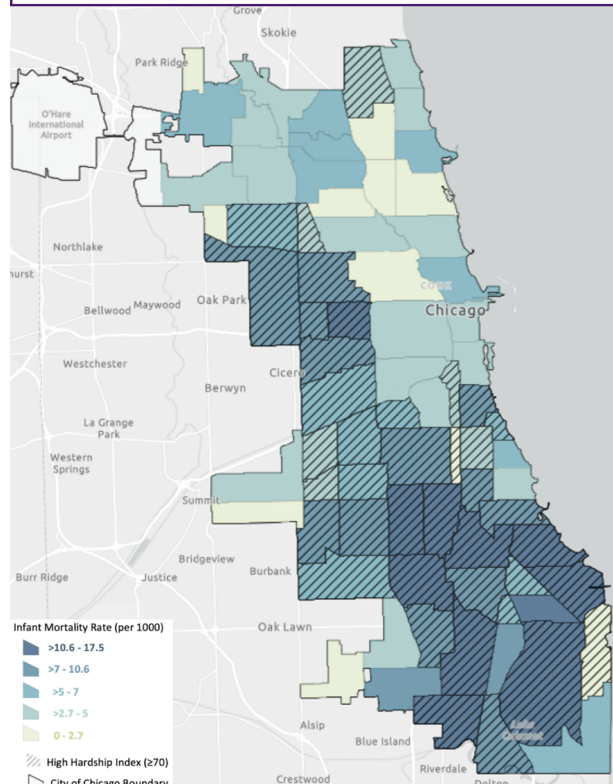
A hardship index is a composite indicator that represents overall hardship in an area.<sup>18,21</sup> It is made up of six individual indicators that account for social and economic variables such as crowded housing, poverty rate, unemployment rate, adults with a high school degree or equivalent, age dependency ratio and per capita income. A higher hardship index value, on a scale of 0–100, represents higher privation for the community.<sup>21</sup> A hardship index of 70 or higher is considered to be above what is a workable hardship level, according to the CDPH's 2019 Maternal Morbidity Report.<sup>18</sup> Included in the calculation of the Maternal Access Measure was a Hardship Index to make sure social and economic indicators impact on health outcomes were taken into account. Examining maternal morbidity rates with high hardship index zip codes overlaid showed that most areas facing the highest rates of maternal morbidity are also facing high social and economic stress (**Figure 20**). We also examined the relationship between the infant mortality rate per 1,000 live births and the hardship index. We see the same to be true in that community areas with the highest infant mortality rate tend score high on the hardship index as well (**Figure 21**). This visualization connects social and economic hardship with the disparate health outcomes faced by those giving birth and their infants.

**Figure 20: Maternal Morbidity Rate<sup>1</sup> and High Hardship Index<sup>2</sup>, by Chicago, IL ZIP Codes<sup>3</sup>**



1. Maternal Morbidity & Mortality in Chicago. Chicago Department of Public Health. [https://www.chicago.gov/dam/city/depts/cdph/statistics\\_and\\_reports/CDPH-002\\_MaternalMortality\\_Database\\_r4c\\_DIGITAL.pdf](https://www.chicago.gov/dam/city/depts/cdph/statistics_and_reports/CDPH-002_MaternalMortality_Database_r4c_DIGITAL.pdf). Published 2019. Accessed September 6, 2023.  
 2. Hardship Index (2017 - 2020). Chicago Health Atlas. <https://chicagohealthatlas.org>. September 05, 2023. American Community Survey (Calculated by Metopio).  
 3. Boundaries - ZIP codes. City of Chicago Data Portal. <https://data.cityofchicago.org/Facilities-Geographic-Boundaries/Boundaries-ZIP-Codes/gdcf-axmw>. Accessed September 8th 2023.

**Figure 21: Infant Mortality Rate<sup>1</sup> and High Hardship Index<sup>2</sup>, by Chicago, IL Community Area<sup>3</sup>**

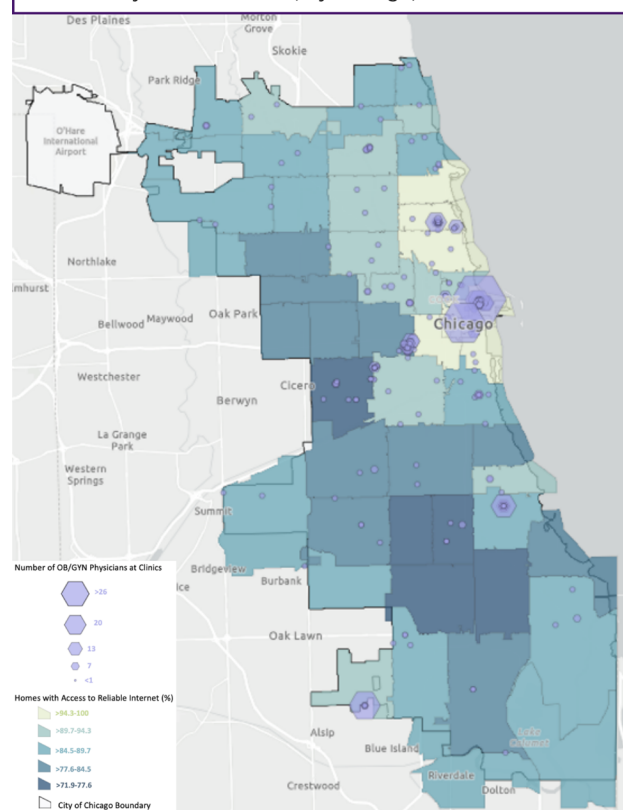


1. Infant Mortality Rate (2016 - 2020). Chicago Health Atlas. <https://chicagohealthatlas.org>. September 05, 2023. Illinois Department of Public Health, Birth Certificate Data Files, Illinois Department of Public Health, Death Certificate Data Files.  
 2. Hardship Index (2017 - 2020). Chicago Health Atlas. <https://chicagohealthatlas.org>. September 05, 2023. American Community Survey (Calculated by Metopio).  
 3. Boundaries - Community Areas (current). City of Chicago Data Portal. <https://data.cityofchicago.org/Facilities-Geographic-Boundaries/Boundaries-Community-Areas-current/cauq-8yn6>. Accessed September 11, 2023.



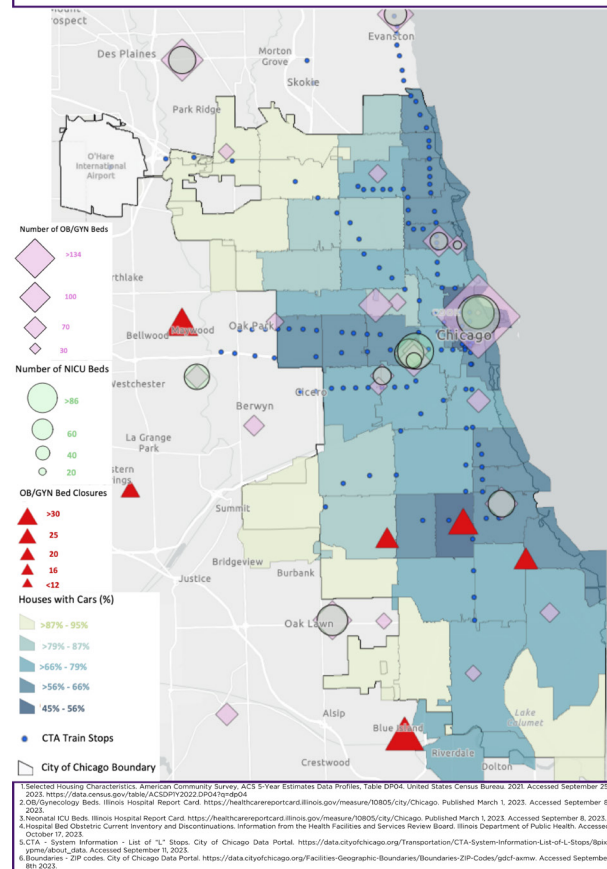
Access to reliable transportation is another barrier to accessing timely and consistent health care, especially for pregnant people and parents of infants. We examined residences with access to a personal vehicle and how that relates to transit availability and distance to hospitals in Chicago (**Figure 22**). Fewer homes with personal vehicles are represented by darker blue, we see that many who do not have a vehicle live closer to the city center or a CTA train line (**Figure 22**). Reliance on public transit can increase travel time significantly and put riders at the mercy of the frequency and function of the system.<sup>40</sup> It is important to note that the impact of access to a car carries weight for families in the South and West Sides of Chicago, as there are no major train stations for the city's public transit system, the "L," forcing residents of these areas to take multiple buses to get from destination to destination.<sup>41</sup> Research has found that for those living in poverty in Chicago, the

**Figure 23:** Homes with Access to Internet<sup>1</sup> and OB/GYN Physicians at Clinics<sup>2</sup>, by Chicago, IL ZIP Codes<sup>3</sup>



1. Internet Access (2017 - 2021). Chicago Health Atlas. <https://chicagohealthatlas.org>. Accessed September 05, 2023. American Community Survey (ACS) (Table B28002).  
 2. Physician - Professional Data. American Medical Association. <https://www.ama-assn.org/about/physician-professional-data/ama-physician-professional-data>. 2023.  
 3. Boundaries - ZIP codes. City of Chicago Data Portal. <https://data.cityofchicago.org/Facilities-Geographic-Boundaries/Boundaries-ZIP-Codes/gdcf-axmw>. Accessed September 08, 2023.

**Figure 22:** Houses with Access to Car<sup>1</sup>, OB/GYN and NICU Capacity<sup>2,3</sup>, OB/GYN Closures<sup>4</sup>, and CTA Train Stops<sup>5</sup>, by Chicago, IL ZIP codes<sup>6</sup>



average commute time by car to the nearest hospital is 10 minutes versus 30 minutes by public transit.<sup>42</sup> Car access ranged from under 60% of households to over 86% of households, and the darker colors representing a lower percentage of houses with cars. Here we also see a portion of the far South Side with access to a car in their household, as well as on the North Side of the city—both areas geographically distant from the epicenter of the city where most of the facilities are—making a car a necessity if public transportation is not an option. However, the concentration of wealth on the North Side makes access to a car less of a financial burden to those households.

Rates of access to reliable internet varies across the city of Chicago (**Figure 23**). The percentage of households with internet by zip code ranges from 71.9% to greater than 95%, with the darker colors on the map representing a lower rate





of internet access. It stands to reason that internet access is an expendable luxury if the choice is between electricity, heat or other more critical utilities. However, a lack of reliable telehealth options is likely to bear impact on the outcomes of the pregnant person and/or the baby if they are also unable to regularly receive care in person, especially when you look at this variable in comparison with all other factors reviewed previously. With little to no availability to Level 2–3 OB units in their geographic area—in this case, the South and West Sides—impacted by high levels of hardship, unreliable options for transportation and/or increased time and costs for alternative transportation, coupled alongside low rates of internet access, we begin to understand how that might translate to forgoing needed care, which then further translates to impact on maternal and fetal outcomes.

## Discussion

The review of all the variables points to a number of disparities around the availability of care for childbearing residents of the city of Chicago, particularly those who are residents of the South and West Sides. Since 2018, three OB/GYN facilities that were more convenient to residents of the South and West Sides have closed. The total number of OB/GYN physicians available to all childbearing female residents of those geographic areas ranges from 0–43, with many of the zip codes that make up the South and West Sides having access to none. Closures in these areas of the city impact the residents, those that we see score highest on the hardship index, the greatest. Compounding this impact, the closures require expectant mothers to travel outside of their neighborhood to receive any routine or specialty OB/GYN care from their physician or care team. The added time it takes to commute via public transit impacts the ability for mothers to receive care and has a direct impact on their jobs and the ability to care for their families. The combination of facility and physician distance, the necessity of reliable, accessible transportation, and the lack of affordable internet access for care via telehealth might then force the expectant person to make a choice between abstract, potential future consequences of not receiving adequate prenatal care (low birthweight, preterm birth) or immediate, more likely consequences of trying to get to an appointment (lost wages, impact on childcare).

As was noted briefly when discussing physical locations of physicians, pregnant patients might have access to some level of general primary care via FQHCs throughout the duration of their pregnancy, but not necessarily prenatal care. Should a patient be able to obtain at least a basic level of obstetrical and necessary prenatal care, this is, of course, crucial to a successful pregnancy, but the presence of care options for only basic needs during a pregnancy does not address all health issues that arise. MFM physicians and OB/GYNs are needed to provide complex levels of care, and practice in a hospital or are affiliated with a hospital. High-risk patients—i.e., those who might have a personal or family history of gestational hypertension, preeclampsia, cardiomyopathy or sepsis, for example—or those who have experienced recurrent pregnancy loss or the previous birth of a premature baby may need, or want, proximity to more diagnostic tools or treatment options than are available.<sup>43</sup> With no hospitals immediately available in patients' geographic area, the option to receive care for those conditions is limited.

To the point of limited care, internet access might be helpful in mitigating transportation barriers and limited geographic provider access via telehealth but (1) internet availability is not always guaranteed and (2) it may be considered a luxury utility.





## Recommendations

This report's intent is to highlight—at a zip code/community area level for the city of Chicago—the manifold impact that facility closures and ready access can have on pregnant people and their babies. As the outlined data identified areas of disparities, it is important to also identify potential courses of action to mitigate them. Below is a discussion of options for independently owned practices, hospitals, health systems, and other health care facilities to support mothers and babies.

### **Use of virtual care to bridge in-person visits**

Telehealth maternity care services can offer a way to support birthing people and their children in underserved communities.<sup>44</sup> For individuals for whom transportation is a barrier to care, telehealth offers a way for those patients to access routine prenatal/postpartum care and sub-specialists (inclusive of mental health services), as well as offering additional choice when it comes to provider selection.

Utilization of virtual care increased over the course of the COVID-19 pandemic and has remained a viable option for patients who may not have regular access, ability or desire to attend in-office visits. This is particularly of concern in rural areas that see facility or hospital closures, but as is inferred from the findings of this report, is not limited to just those settings.<sup>45</sup> The use of technology for obstetrical services, such as prenatal or postpartum visits via video, or virtual access to lactation services, offers not only the ability to potentially expand access, but also the potential to increase patient satisfaction and engagement.<sup>46</sup> To be certain, virtual care does not and should not replace in-person care wholesale, and it is important for the physician to identify high-risk patients for whom virtual care may not be appropriate. Telehealth should also be provided as part of the patient's ongoing care plan, and comprehensive collaboration and communication with the treating OB/GYN is essential for continuity of care if, by necessity, the telehealth visit is delivered by a different member of the care team. Further, exploration of ways to expand maternity and obstetrics care options through services such as remote patient monitoring, post-op virtual appointments, and counseling and education online classes not only support the patients, but the physicians and their staff. As an example, an independently owned practice affiliated with a hospital or health system in a rural setting might be able to offer these services to support peri- and antenatal care.<sup>47</sup> This practice could also be replicated in urban settings such as the City of Chicago and its immediate surrounding areas.

As advances in telehealth continue, a lack of consideration for inequities in access to education and technology risks leaving many patients behind and widening gaps in treatment. Even with access to a computer or smartphone, millions of adults—inclusive of BIPOC communities and rural populations—still lack access to broadband services.<sup>48</sup> Physician respondents to AMA's 2021 telehealth survey identified the top three major barriers to telehealth from the patient perspective as limited access to technology, limited digital literacy, and inadequate access to broadband internet.<sup>49</sup>

A major intervention to ensure equitable access to telehealth maternity care services is state broadband expansion programs. One such example is the funding provided throughout 2019 and 2020 to Connect Illinois—the state's \$420 million statewide broadband expansion initiative. The opportunity encouraged applications from organizations that sought to provide broadband access to Illinois homes, businesses, and community anchor programs such as hospitals and health systems.<sup>50</sup> Notably, in Chicago, there are some neighborhoods that, in an internet equity study published by the



University of Chicago in 2022, indicated much lower levels of connectivity than others. The study also helps to highlight another facet of the issue, which is the affordability of internet access. As noted in the body of the report, internet service often ends up becoming a luxury to make room for resources that are more vital. However, access to the internet becomes considerably more vital if the patient is unable to make it to an in-person appointment but can set up and attend a telehealth appointment when their workday is complete.<sup>51</sup> When the barrier to making that scenario into a reality is cost, it may fall to a patient's care team to help them mitigate the cost barrier and direct them to affordable connectivity programs and other types of similar resources offered through the city.<sup>52</sup> It is this point that highlights some of the holes in the system, and why we still need to provide resources and provide options for different methods of care even if an area looks to be highly resourced.

### **Support from foundations, community programs and payers**

Many individuals in Chicago live in a maternity care desert, causing them to travel long distances, which leads to increased transportation costs and unpaid time off work. If an individual cannot cover the transportation cost to and from maternity care appointments or afford to take unpaid time off work, they often miss the appointment and go without treatment. We've identified examples of organizations that aid those in this type of situation.

- [HFS – Moms & Babies](#) provides outpatient services like prenatal checkups, doctor visits, lab tests, prenatal vitamins, medicine, specialty medical care, eye care, dental care, emergency room care, mental health, and substance abuse services, transportation to get medical care and other services. This program also provides hospital services, including labor and delivery.
- [Family Connects Chicago](#) Program provides the ability for any baby born in the city of Chicago (excluding babies born at Northwestern Hospital) to be eligible to receive a nurse-at-home visit.
- [March of Dimes Mom and Baby Mobile Health Centers](#) offer on-the-ground maternal health programs with services aimed at bringing support, education, and care to moms and moms-to-be in their local community.
- [Jackson Chance Foundation](#) partners with hospitals and some parking apps to provide complimentary parking passes to every family with a baby in the NICU.
- [West Side Healthy Parents & Babies Program](#) supports families on the West Side and connects them to necessary health care throughout pregnancy through the first year postpartum. The program, co-founded by West Side United and Lurie Children's Hospital, and launched in June 2023, also offers health education and guidance towards navigating a challenging health care system.
- [City of Chicago Department of Health clinics](#) offer comprehensive care to all patients regardless of ability to pay. Pregnant patients can receive prenatal care at these community health centers, among other services.

While it is crucial for these programs to exist for support and to be available for assistance, it is also equally as important that those efforts are coordinated and not confusing to the people or families that might need to use them. Additional time taken to ensure that programs and funding streams are not duplicated ensures that families and pregnant people do not fall through the cracks of an already fragmented system.



## Other promising approaches

### **Diversifying the maternal health care workforce and building trust with communities**

Crucial to eliminating maternal health inequities, especially those experienced by Black and Indigenous women and birthing people, is the diversification of the OB/GYN workforce and the building of trust between health systems and communities of color. A 2016 analysis of medical students and residents showed that 50% of them regarded at least one stereotype about biological differences between Black and white patients as true, including Black people having less sensitive nerve endings, smaller brains and a higher susceptibility to developing heart disease when compared to their white counterparts.<sup>53</sup> Racial concordance data has consistently shown that when patients are treated by a physician of the same race or ethnicity, they experience improved treatment, patient-provider communication, and outcomes.<sup>54–58</sup> For Black patients specifically, literature has shown that they live longer, are more likely to agree to preventive care measures, and have decreased infant mortality rates when in the care of Black physicians.<sup>59–61</sup>

Despite the critical role that minoritized physicians play in the health of minoritized communities, a study showed that between 2014 and 2019, there was a consecutive decline in the percentage of Black residents, as well as a plateau in the proportion of Hispanic and Native American or Alaska Native residents, entering the OB/GYN specialty.<sup>62</sup> To advance the diversification of the OB/GYN workforce, federal and state funding for the recruitment of students from communities of color interested in the OB/GYN specialty is critical. This includes undergraduate pre-medical students, medical students, and residents and physicians seeking OB/GYN fellowships. Retention efforts are also essential to combat workplace racism, increase professional satisfaction, and reduce disproportionately high burnout levels among minoritized physicians to prevent existing OB/GYNs from BIPOC communities from leaving the profession. Further, the voices, expertise, and work of BIPOC OB/GYN residents and physicians must be appreciated through leadership positions and pay on par with what their white counterparts' experience. Initiatives working to foster an anti-racist, equitable and inclusive OB/GYN workforce, such as the [“Black Ob/Gyn Project,”](#) founded by Drs. Rachel Bervell and Tamandra Morgan, and the Council on Resident Education in Obstetrics and Gynecology's (CREOG's) Health Equity Curriculum are just two examples.<sup>63</sup> Additionally, an anti-racist OB/GYN curriculum sponsored by both the Association of Professors of Gynecology and Obstetrics and CREOG is currently in development by the [Black Ob/Gyn Project](#).

Research has demonstrated that physician-led care, which can include certified nurse midwives (CNMs), positively impacts maternal and infant health outcomes. The inclusion of CNMs on the physician-led maternal health care team can also help promote trust between health systems and pregnant people from BIPOC communities.<sup>64,65</sup> They have the potential to increase the number of options available to pregnant people, strengthen postnatal care with the supervision of a physician, and encourage team-based care. In support of safe and accessible care, the American Medical Association advocates for the licensing of midwives as certified by the American College of Nurse-Midwives (ACNM) and as part of a physician-led care team with the interest of safeguarding maternal and neonatal health.<sup>66</sup> The American College of Obstetricians and Gynecologists (ACOG) and the ACNM believe that “health care is most effective when it occurs in a system that facilitates communication across care settings and among clinicians,” and OB/GYNs can leverage the trusted role that a midwife has historically played within communities of color to support that goal.<sup>67</sup>

FQHCs and independent primary care physician practices in particular are poised to potentially support their community by expanding into maternal and fetal health care—if they do not already





offer those services—as an established practice likely has the trust of the community it operates in and, therefore, would serve as a readily available option to receive care. However, it cannot be ignored that these practices already are overwhelmed with the demand for care in that community, and to increase that demand would place an additional strain on the well-being of those physicians. The field of obstetrics and gynecology has been additionally strained with uncertainty stemming from the 2022 U.S. Supreme Court decision with the *Dobbs v. Jackson Women’s Health Organization*. OB/GYN physicians practicing in the states with functional bans on abortion or abortion-related care have reported concerns not just about the clinical impacts, but also about the potential legal risks of providing care.<sup>68</sup>

To alleviate any potential to further strain the existing workforce, increasing the funding for the training of additional OB/GYNs and fetal medicine specialists, especially those serving in economically marginalized and historically marginalized communities, would go a long way towards the sustainability of the careers of physicians in this field. A program such as the Health Resources & Services Administration’s Rural Maternity and Obstetrics Management Strategies Program could potentially be expanded to include other types of underserved communities or, alternatively, could serve as a blueprint, either at a state or a local level.<sup>69–71</sup>

### **Education funding to expand maternal health workforce**

The previous section outlined the benefits of diversifying and expanding the maternal health workforce, but the question then becomes who bears the financial responsibility for that expansion. A report from the March of Dimes found that every year, premature births cost the U.S. over \$25.2 billion.<sup>72</sup> If we work to reduce the maternity care deserts around the country to provide better access to prenatal care, the annual cost of premature births could decrease substantially. This is an opportunity to prioritize funds for physician education grants in local communities across the country, and, for the purposes of this report, to expand and diversify the maternal health workforce in communities on the South and West side of Chicago. If the annual cost of premature births were reduced and reallocated by as little as 5%, that would mean education for approximately 6,000 additional maternal health physicians (OBGYNs, MFMs, and ER/family physicians and internal medicine physicians) per year. Currently, the health care system bears the weight of the acute costs of care of premature birth and maternity care. However, if by continuing the ongoing investment in preventative health care, which is inclusive of prenatal care, we can shift that weight, we can also shift the financial risk of the prioritization of funding towards these grants.

## **Limitations**

The limitations of this report include that the data presented in this report was not always readily available, especially at the unit of measure preferred. For example, some data for the city was either available only by zip code or only by community area. Zip code boundaries change and are postal, not necessarily representing a community. Community areas don’t perfectly overlap with zip codes, so data between them can’t be compared. Much of the data we found was not public at the unit level we needed, which required the collection and analysis of multiple separate datasets. Birth certificate data is not always properly or fully filled out by hospital staff, which may limit the reliability of that information. In addition, the timeframe of data collection ranged from 2013 to 2023, so does not represent immediately current information. It was also particularly difficult to find complete data at the hyper-local level desired for this analysis.

Finally, this report is focused on physicians and the facilities that physicians operate in as we were unable to obtain data on other members of the care team.



## Conclusion

With the recognition of limited local resources available to support an ever-growing population, there remains a need to address existing health inequities within the city of Chicago. Additional research would be of value to understand more deeply and directly the potential impacts of access to care issues and further explore solutions at a local level. Doing nothing not only has very real consequences on the lives of the patients, but also continues to exacerbate racial and class disparities. There is also very limited research surrounding urban health care “deserts,” specifically maternal care access gaps within a city. Future research might benefit from further investigation into specific local impacts.

Maternal and fetal health presents a challenge in the best of conditions—as physicians and their patients are aware, even if care is provided and followed to the letter, there may be complications that develop regardless. Compounding the potential for complications by removing options for access and closing facilities for patients who are most in need of that care is having demonstrable effects on pregnant patients on the South and West Side of the city of Chicago. We have identified options that, while not without immediate cost, would ultimately provide long-term benefits to the health of the populations of Chicago communities.



## References

1. Centers for Medicare & Medicaid Services. Transforming Maternal Health (TMaH) Model. CMS. Published 2024. Accessed March 12, 2024. <https://www.cms.gov/priorities/innovation/innovation-models/transforming-maternal-health-tmah-model>
2. The White House. FACT SHEET: President Biden's and Vice President Harris's Maternal Health Blueprint Delivers for Women, Mothers, and Families. The White House. Published June 24, 2022. Accessed March 12, 2024. <https://www.whitehouse.gov/briefing-room/statements-releases/2022/06/24/fact-sheet-president-bidens-maternal-health-blueprint-delivers-for-women-mothers-and-families/>
3. American College of Obstetricians and Gynecologists (ACOG). Eliminating Preventable Maternal Mortality and Morbidity. ACOG. Published 2024. Accessed March 12, 2024. <https://www.acog.org/advocacy/policy-priorities/maternal-mortality-prevention>
4. American Medical Association (AMA). AMA advocacy to improve maternal health. AMA. Published March 7, 2024. Accessed March 12, 2024. <https://www.ama-assn.org/delivering-care/population-care/ama-advocacy-improve-maternal-health>
5. March of Dimes. Priorities and Positions. March of Dimes. Published 2024. Accessed March 12, 2024. <https://www.marchofdimes.org/our-work/policy-advocacy/priorities-positions>
6. Gunja MZ, Gumas ED, Williams RD. The U.S. Maternal Mortality Crisis Continues to Worsen: An International Comparison. Commonwealth Fund. Published December 1, 2022. Accessed March 6, 2024. <https://www.commonwealthfund.org/blog/2022/us-maternal-mortality-crisis-continues-worsen-international-comparison>
7. Tikkanen R, FitzGerald M, Zephyrin LC. Maternal Mortality and Maternity Care in the United States Compared to 10 Other Developed Countries. Commonw Fund. Published online November 18, 2020. Accessed March 6, 2024. <https://doi.org/10.26099/411v-9255>
8. Montalmant KE, Ettinger AK. The Racial Disparities in Maternal Mortality and Impact of Structural Racism and Implicit Racial Bias on Pregnant Black Women: A Review of the Literature. *J Racial Ethn Health Disparities*. Published online November 13, 2023. Accessed March 6, 2024. <https://pubmed.ncbi.nlm.nih.gov/37957536/>
9. Fleszar L, Bryant A, Johnson C, et al. Trends in State-Level Maternal Mortality by Racial and Ethnic Group in the United States. *JAMA*. 2023;330(1):52-61.
10. Howell EA, Egorova N, Balbierz A, Zeitlin J, Hebert PL. Black-White Differences in Severe Maternal Morbidity and Site of Care. *Am J Obstet Gynecol*. 2016;214(1):122.e1-7.
11. Brigrance C, Lucas R, Jones E. *Nowhere to Go: Maternity Care Deserts Across the U.S.* March of Dimes; 2022. Accessed March 6, 2024. [https://www.marchofdimes.org/sites/default/files/2022-10/2022\\_Maternity\\_Care\\_Report.pdf](https://www.marchofdimes.org/sites/default/files/2022-10/2022_Maternity_Care_Report.pdf)
12. Petersen EE, Davis NL, Goodman D, et al. Racial/Ethnic Disparities in Pregnancy-Related Deaths - United States, 2007-2016. *MMWR*. 2019;68(35):762-765.
13. MacArthur Foundation, The Harris Poll. The Harris Poll: Economic Inequity in Chicago. MacArthur Foundation. Published September 8, 2021. Accessed April 2, 2024. <https://www.macfound.org/press/article/the-harris-poll-economic-inequity-in-chicago>





14. Orsi JM, Margellos-Anast H, Whitman S. Black-White Health Disparities in the United States and Chicago: a 15-year Progress Analysis. *Am J Public Health*. 2010;100(2):349-356.
15. Burgess EW, Newcomb CS. *Census Data of the City of Chicago, 1920*. University of Chicago Press; 1931. Accessed March 12, 2024. <http://pi.lib.uchicago.edu/1001/cat/bib/351415>
16. World Health Organization. Standards for Maternal and Neonatal Care. WHO. Published January 7, 2007. Accessed May 13, 2024. <https://www.who.int/publications-detail-redirect/standards-for-maternal-and-neonatal-care>
17. Holcomb DS, Pengetnze Y, Steele A, Karam A, Spong C, Nelson DB. Geographic Barriers to Prenatal Care Access and Their Consequences. *Am J Obstet Gynecol MFM*. 2021;3(5):100442.
18. Chicago Department of Public Health (CDPH). *CDPH Data Report: Maternal Morbidity & Mortality in Chicago*. Chicago Department of Public Health; 2019. Accessed March 12, 2024. [https://www.chicago.gov/dam/city/depts/cdph/statistics\\_and\\_reports/CDPH-002\\_MaternalMortality\\_Databook\\_r4c\\_DIGITAL.pdf](https://www.chicago.gov/dam/city/depts/cdph/statistics_and_reports/CDPH-002_MaternalMortality_Databook_r4c_DIGITAL.pdf)
19. Garcia E. The Urban Food Desert as a Model for the Urban Health Care Desert: Fundamental Causes and Economic Considerations. Published online September 1, 2018. Accessed March 12, 2024. [https://academicworks.cuny.edu/sph\\_etds/25](https://academicworks.cuny.edu/sph_etds/25)
20. Guagliardo MF. Spatial Accessibility of Primary Care: Concepts, Methods and Challenges. *Int J Health Geogr*. 2004;3(2004). Accessed March 12, 2024. <https://ij-healthgeographics.biomedcentral.com/articles/10.1186/1476-072X-3-3>
21. Chicago Health Atlas. Hardship Index. Chicago Health Atlas. Published 2024. Accessed April 2, 2024. <https://chicagohealthatlas.org/indicators/HDX?topic=hardship-index>
22. Levels of Maternal Care. ACOG. Published August 2019. Accessed March 12, 2024. <https://www.acog.org/clinical/clinical-guidance/obstetric-care-consensus/articles/2019/08/levels-of-maternal-care>
23. Roeder A. Maternity Ward Closures Exacerbate Health Inequity. Harvard T.H. Chan School of Public Health. Published December 13, 2023. Accessed March 12, 2024. <https://www.hsph.harvard.edu/news/features/maternity-obstetric-closure-health-disparities/>
24. Cherot E. March of Dimes Maternity Care Deserts 2023 Executive Summary. Published online 2023. Accessed May 13, 2024. <https://www.marchofdimes.org/peristats/assets/s3/reports/documents/MaternityCareDesertsReport-Executive-Summary.pdf>
25. Buchmueller TC, Jacobson M, Wold C. How Far to the Hospital?: The Effect of Hospital Closures on Access to Care. *J Health Econ*. 2006;25(4):740-761.
26. American Hospital Association. Obstetrics: Rural U.S. Hospitals. Published online 2022. Accessed March 12, 2024. <https://www.aha.org/system/files/media/file/2022/04/Infographic-rural-health-obstetrics-15ap22.pdf>
27. Wallace M, Dyer L, Felker-Kantor E, et al. Maternity Care Deserts and Pregnancy-Associated Mortality in Louisiana. *Womens Health Issues*. 2021;31(2):122-129.
28. Gujral K, Basu A. Impact of Rural and Urban Hospital Closures on Inpatient Mortality. *Natl Bur Econ Res*. Published online August 2019. Accessed March 12, 2024. <http://www.nber.org/papers/w26182>
29. Ko M, Needleman J, Derosé KP, Laugesen MJ, Ponce NA. Residential Segregation and the Survival of U.S. Urban Public Hospitals. *Med Care Res Rev*. 2014;71(3):243-260.



30. Illinois Department of Public Health. Perinatal Levels of Care Rewriting the Administrative Rules. IDPH. Published 2024. Accessed March 13, 2024. <https://dph.illinois.gov/topics-services/life-stages-populations/maternal-child-family-health-services/perinatal-levels-of-care.html>
31. American College of Obstetricians and Gynecologists (ACOG). Subspecialties of Ob-Gyn. ACOG. Published 2024. Accessed March 13, 2024. <https://www.acog.org/career-support/medical-students/medical-student-toolkit/subspecialties-of-ob-gyn>
32. Kane CK. *Recent Changes in Physician Practice Arrangements: Shifts Away from Private Practice and Towards Larger Practice Size Continue Through 2022*. American Medical Association; 2023. Accessed May 13, 2024. <https://www.ama-assn.org/system/files/2022-prp-practice-arrangement.pdf>
33. Office on Women's Health. Prenatal Care. OASH. Published February 22, 2021. Accessed March 15, 2024. <https://www.womenshealth.gov/a-z-topics/prenatal-care>
34. Benova L, Moller AB, Hill K, et al. What is Meant by Validity in Maternal and Newborn Health Measurement? A Conceptual Framework for Understanding Indicator Validation. PLOS ONE. 2020;15(5):e0233969.
35. World Health Organization. The Global Health Observatory: Infant Mortality Rate. WHO. Published 2024. Accessed March 15, 2024. <https://www.who.int/data/gho/indicator-metadata-registry/imr-details/1>
36. World Health Organization. Low Birth Weight. WHO. Published 2024. Accessed March 15, 2024. <https://www.who.int/data/nutrition/nlis/info/low-birth-weight>
37. National Association of Community Health Centers. Inc., The Robert Graham Center. *Access Denied: A Look at America's Medically Disenfranchised*; 2007. Accessed March 15, 2024. <https://www.graham-center.org/content/dam/rgc/documents/publications-reports/monographs-books/Access%20Denied.pdf>
38. U.S. Government Accountability Office. Maternal Mortality and Morbidity: Additional Efforts Needed to Assess Program Data for Rural and Underserved Areas. U.S. GAO. Published April 8, 2021. Accessed March 15, 2024. <https://www.gao.gov/products/gao-21-283>
39. Girardi G, Longo M, Bremer AA. Social Determinants of Health in Pregnant Individuals From Underrepresented, Understudied, and Underreported Populations in the United States. *Int J Equity Health*. 2023;22(1):186.
40. Chicago Mayor's Youth Commission. Mental Health Awareness and Resources for Youth. My CHI. My Future. Published 2024. Accessed March 15, 2024. <https://explore.mychimyfuture.org/mycmentalhealth>
41. TransitCenter. The State of Transit Equity: Metro Chicago. Published online June 2021. Accessed March 15, 2024. <https://transitcenter.org/wp-content/uploads/2021/06/ChicagoFactSheet.pdf>
42. TransitCenter. The Chicago Story: TransitCenter Equity Dashboard. TransitCenter. Published 2021. Accessed March 15, 2024. <https://dashboard.transitcenter.org/>
43. Society for Maternal-Fetal Medicine (SMFM). What do Maternal-Fetal Medicine Subspecialists do? SMFM. Published 2024. Accessed March 27, 2024. <https://www.smfm.org/mission-and-vision#:~:text=MFM%20subspecialists%20work%20to%20reduce,or%20life%20of%20their%20patients.>



44. Department of Health and Human Services. Introduction to Telehealth for Maternal Health Services. HHS. Published 2024. Accessed March 15, 2024. <https://telehealth.hhs.gov/providers/best-practice-guides/telehealth-for-maternal-health-services>
45. Anderer S. More Than Half of US Rural Hospitals No Longer Offer Birthing Services—Here’s Why. *JAMA*. 2024;331(10):815-817.
46. American Medical Association. *Maternal Health: Expanding on the AMA’s Recommendations to Reduce Deaths and Improve Outcomes*. American Medical Association; 2024. Accessed May 13, 2024. <https://www.ama-assn.org/system/files/ama-maternal-health-recommendations.pdf>
47. American Medical Association. Telehealth Scenario: Prenatal/Postpartum Video Visits. American Medical Association. Published May 1, 2024. Accessed May 13, 2024. <https://www.ama-assn.org/practice-management/digital/telehealth-scenario-prenatalpostpartum-video-visits>
48. Hodgkins M, Barron M, Jevaji S, Lloyd S. Physician requirements for adoption of telehealth following the SARS-CoV-2 pandemic. *Npj Digit Med*. 2021;4(1):1-3. doi:10.1038/s41746-021-00390-y
49. American Medical Association. *2021 Telehealth Survey Report*. American Medical Association; 2022. Accessed March 15, 2024. <https://www.ama-assn.org/system/files/telehealth-survey-report.pdf>
50. Pritzker J. Gov. Pritzker Announces \$50 Million in Grants to Kick Off State’s Largest-Ever Broadband Expansion. *Illinois.gov*. Published June 24, 2020. Accessed March 15, 2024. <https://www.illinois.gov/news/press-release.21729.html>
51. Saxon J, Black DA. *What We Can Learn from Selected, Unmatched Data: Measuring Internet Inequality in Chicago*. University of Chicago; 2022. Accessed May 13, 2024. [https://internetequity.uchicago.edu/wp-content/uploads/2022/04/access\\_draft\\_saxon\\_may2022.pdf](https://internetequity.uchicago.edu/wp-content/uploads/2022/04/access_draft_saxon_may2022.pdf)
52. City of Chicago. Resource Hub. City of Chicago. Published 2024. Accessed May 13, 2024. <https://www.chicago.gov/content/city/en/sites/digital-equity-council/home/resource-hub.html>
53. Hoffman KM, Trawalter S, Axt JR, Oliver MN. Racial bias in pain assessment and treatment recommendations, and false beliefs about biological differences between blacks and whites. *Proc Natl Acad Sci U S A*. 2016;113(16):4296-4301. doi:10.1073/pnas.1516047113
54. Cooper LA, Roter DL, Johnson RL, Ford DE, Steinwachs DM, Powe NR. Patient-Centered Communication, Ratings of Care, and Concordance of Patient and Physician Race. *Ann Intern Med*. 2003;139(11):907-915.
55. Traylor AH, Schmittdiel JA, Uratsu CS, Mangione CM, Subramanian U. Adherence to Cardiovascular Disease Medications: Does Patient-Provider Race/Ethnicity and Language Concordance Matter? *J Gen Intern Med*. 2010;25(11):1172-1177.
56. Cooper-Patrick L, Gallo JJ, Gonzales JJ, et al. Race, Gender, and Partnership in the Patient-Physician Relationship. *JAMA*. 1999;282(6):583-589.
57. King WD, Wong MD, Shapiro MF, Landon BE, Cunningham WE. Does Racial Concordance Between HIV-Positive Patients and Their Physicians Affect the Time to Receipt of Protease Inhibitors? *J Gen Intern Med*. 2004;19(11):1146-1153.
58. Persky S, Kaphingst KA, Allen VC, Senay I. Effects of Patient-Provider Race Concordance and Smoking Status on Lung Cancer Risk Perception Accuracy Among African-Americans. *Ann Behav Med Publ Soc Behav Med*. 2013;45(3):308-317.



59. Snyder JE, Upton RD, Hassett TC, Lee H, Nouri Z, Dill M. Black Representation in the Primary Care Physician Workforce and Its Association With Population Life Expectancy and Mortality Rates in the US. *JAMA Netw Open*. 2023;6(4):e236687.
60. Alsan M, Garrick O, Graziani GC. Does Diversity Matter for Health?: Experimental Evidence from Oakland. Published online June 2018. Accessed March 4, 2024. [https://www.nber.org/system/files/working\\_papers/w24787/w24787.pdf](https://www.nber.org/system/files/working_papers/w24787/w24787.pdf)
61. Greenwood BN, Hardeman RR, Huang L, Sojourner A. Physician–patient racial concordance and disparities in birthing mortality for newborns. *Proc Natl Acad Sci*. 2020;117(35):21194–21200. doi:10.1073/pnas.1913405117
62. López CL, Wilson MD, Hou MY, Chen MJ. Racial and Ethnic Diversity Among Obstetrics and Gynecology, Surgical, and Nonsurgical Residents in the US From 2014 to 2019. *JAMA Netw Open*. 2021;4(5):e219219. doi:10.1001/jamanetworkopen.2021.9219
63. American College of Obstetricians and Gynecologists. CREOG Health Equity Curriculum. ACOG. Published September 2022. Accessed May 13, 2024. <https://www.acog.org/education-and-events/creog/curriculum-resources/additional-curricular-resources/health-equity>
64. Carlson NS, Neal JL, Tilden EL, et al. Influence of Midwifery Presence in United States Centers on Labor Care and Outcomes of Low-Risk Parous Women: A Consortium on Safe Labor Study. *Birth*. 2019;46(3):487–499.
65. Sciscione A, Berghella V, Blackwell S, et al. Society for Maternal-Fetal Medicine (SMFM) Special Report: The Maternal-Fetal Medicine Subspecialists' Role Within a Health Care System. *Am J Obstet Gynecol*. 2014;211(6):607–616.
66. American Medical Association. D-35.989: *Midwifery Scope of Practice and Licensure*. Vol Policy D-35.989.; 2008. Accessed May 13, 2024. <https://policysearch.ama-assn.org/policyfinder/detail/certified%20nurse%20midwife?uri=%2FAMADoc%2Fdirectives.xml-0-1180.xml>
67. American College of Nurse-Midwives, American College of Obstetricians and Gynecologists. Joint Statement of Practice Relations Between ACNM and ACOG. ACOG. Published November 2022. Accessed March 15, 2024. <https://www.acog.org/clinical-information/policy-and-position-statements/statements-of-policy/2018/joint-statement-of-practice-relations-between-ob-gyns-and-cnms>
68. Sabbath EL, McKetchnie SM, Arora KS, Buchbinder M. US Obstetrician-Gynecologists' Perceived Impacts of Post–Dobbs v Jackson State Abortion Bans. *JAMA Netw Open*. 2024;7(1):e2352109.
69. Health Resources & Services Administration. Rural Maternity and Obstetrics Management Strategies (RMOMS) Program. HRSA. Published September 2023. Accessed March 15, 2024. <https://www.hrsa.gov/rural-health/grants/rural-community/rmoms>
70. Hans SL, Edwards RC, Zhang Y. Randomized Controlled Trial of Doula-Home-Visiting Services: Impact on Maternal and Infant Health. *Matern Child Health J*. 2018;22(Suppl 1):105–113.
71. Illinois Legislative Black Caucus. *Illinois Health Care and Human Service Reform Act*; 2021. Accessed March 15, 2024. <https://ilga.gov/legislation/BillStatus.asp?GA=102&SessionID=110&DocTypeID=HB&DocNum=158#:~:text=Creates%20the%20Sickle%20Cell%20Prevention,the%20Medicaid%20Technical%20Assistance%20Act.>
72. Waitzman NJ, Jalali A, Grosse SD. Preterm birth lifetime costs in the United States in 2016: An update. *Semin Perinatol*. 2021;45(3):151390. <https://linkinghub.elsevier.com/retrieve/pii/S0146000521000033>





## Data sources

Source	Unit	Years	Variable
Chicago Health Atlas	Zip Code	2017-2021	Uninsured rate
	Zip Code	2017-2021	Poverty rate
	Zip Code	2017-2021	Median household income
	Zip Code	2017-2021	Internet access rate
	Zip Code & Community Area	2017-2021	Total Population
	Community Area	2017-2021	NH Black population
	Community Area	2017-2021	NH White population
	Community Area	2017-2021	Hispanic/Latino population
	Community Area	2016-2020	Birth Rate per 1000 population
	Community Area	2016-2020	Infant Mortality Rate per 1000 live births
	Community Area	2013-2017	Preterm Birth Rate (percentage of births less than 37 weeks)
	Community Area	2013-2017	Low Birthweight Rate (% of total births <2500 grams)
	Community Area	2013-2017	Very Low Birthweight Rate (% of births <1500g)
	Community Area	2017-2021	Hardship Index
US Census	Zip Code	2021	Number of women of childbearing age (15-44)
	Zip Code	2021	Percent of households with access to a vehicle
Illinois Health Care Report Card, IDPH	Zip Code	2023	Number of OB/GYN beds at Cook County hospitals
	Zip Code	2023	Number of NICU beds at Cook County hospitals
	Zip Code	2023	Labor and Delivery Unit closures from 2018 - 2023
Birth Certificate Data Files, IDPH	Zip Code	2018-2021	Fertility Rate (per 1000 women aged 15-44)
	Zip Code	2018-2021	Percent diagnosed with hypertension during pregnancy
	Zip Code	2018-2021	Pregnancies receiving inadequate prenatal care



Source	Unit	Years	Variable
	Zip Code	2018-2021	Pregnancies receiving no prenatal care in first trimester
City of Chicago Data Portal	Shapefile	2023	CTA "L" Stations
	Shapefile	2023	Community Area Boundaries
American Association of Birth Centers	Zip Code	2023	Birth Centers in Cook County
American Medical Association	Zip Code	2023	Obstetrics and Gynecology Physicians in Chicago, IL
HRSA Data Warehouse	Zip Code	2023	Federally Qualified Health Centers in Chicago, IL
Chicago Department of Public Health	Zip Code	2023	Maternal Morbidity Rates in Chicago, IL



## Appendix: Maternal health care access measure methodology

A maternal health care access measure was created for this report to show at a hyper-local level the variation in access to adequate care for birthing persons. The measure builds off the Maternity Care Desert Measure used in the 2022 March of Dimes report but considers the urban environment. It therefore incorporates measures of medical access, health outcomes, and social determinants of health at the zip code level. The three measures and their categorization are:

1. *Ratio of OB/GYN physicians to number of women of childbearing age* (ages 15-44) in a zip code. This ratio was categorized into three groups: (1) a ratio between 0-1,000; (2) a ratio between 1,000.1 and 9,999.9; and (3) a ratio between 10,000 and 20,000.
2. *Severe maternal morbidity*, defined as having one or more of a collection of diagnoses and procedures occurring at the time of delivery that may cause short- or long-term consequences to the mother's health.<sup>18</sup> Severe maternal morbidity rate, defined as the number of birthing persons with severe maternal morbid diagnosis or procedure per 10,000 birthing persons, was categorized into five groups ranging from lowest to highest rate: (1) a rate between 15.6 and 39.6; (2) a rate between 39.7 and 69.6; (3) a rate between 69.7 and 88.5; (4) a rate between 88.6 and 100.3; and (5) a rate between 100.4 and 172.8. These five groups are the same categories used by the Chicago Department of Public Health.
3. *Hardship Index*, a composite measure of hardship on a community made up of six indicators, crowded housing, poverty rate, unemployment rate, adults with a high school degree or equivalent, age dependency ratio, and per capita income.<sup>18,21</sup> Three Hardship Index categories were created: (1) an index ranging from 0 to 29.9; (2) an index ranging from 30.0 to 69.9; and (3) an index ranging from 70.0 and 100.0. These categories are based off the Chicago Health Atlas Hardship Index heatmap color scheme.

To obtain a composite measure, a total count was then taken of the three measures and ranged from 3 to 11. An overall measure of Maternal Health Care Access was categorized as: Low Access, a count ranging from nine to 11; Moderate Access, count of ranging from 6 to 8; and Full Access, a count ranging from 3 to 5. Three categories were used to mirror the March of Dimes "Nowhere to Go: Maternity Care Deserts Across the US 2022 Report."



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A native of the northwest suburbs of Chicago, Taylor Johnson, is the manager of physician practice development at the American Medical Association. She received her undergraduate degree in health systems management from Loyola University Chicago and her MBA in entrepreneurship from Pepperdine University. Taylor has over a decade of health care administrative experience in private practice, including managing business and clinical operations and consulting knowledge for large-scale health systems. She began her work in the maternal and infant health space five years ago after her youngest daughter, Everly, was born three months premature. Since then, she has used her health care expertise to aid the efforts to improve maternal and infant health in the United States.



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