

National HomeVisiting **Resource Center** Data in Action JULY 2018

Mapping the Need for Home Visiting Across and Within States

Introduction

Early childhood home visiting connects new and expectant parents with a designated support person—often a trained nurse, social worker, or early childhood specialist—to meet in their home or another preferred location. Research shows that home visiting can promote a <u>range of positive outcomes for children and families</u>, including improved maternal and child health, positive parenting, prevention of child abuse and neglect, and increased school readiness.¹

Given the <u>breadth of outcomes</u> targeted by home visiting programs, there is a large number of potential beneficiaries. We estimate that <u>approximately 18 million pregnant women and families</u> could benefit from home visiting nationally, including all pregnant women and families with children under 6 years old and not yet in kindergarten.² There are not enough resources to serve all these families, however, and it is not clear if all would benefit equally.

Some home visiting programs veer toward a universal model for delivering services, but most try to target families or communities at higher levels of need. Similarly, policy makers and administrators often rely on measures of need to direct resources to "priority" communities and families. The federal Maternal, Infant, and Early Childhood Home Visiting Program (MIECHV), for example, requires state awardees to identify high-priority communities through state needs assessments.

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This brief examines measures of need to map variation across states and to give states a framework for gauging need in their own communities. Using national data from the <u>Data</u> <u>Supplement to the 2017 Home Visiting Yearbook</u> (Data Supplement), we provide suggestions that use individual indicators and a composite index. Although there are a <u>variety of need indicators</u> to choose from,³ we focus our efforts on two broad areas:

- Maternal and child health (MCH), including prenatal care, birth outcomes, and child safety
- Family characteristics, including income level, maternal and child age, parental education, and marital status

Mapping Need Across States

Maternal and Child Health Indicators

MCH indicators are commonly recognized as measures of child well-being. They align with common home visiting goals such as promoting healthy birth outcomes and longterm child health and development.

The *Data Supplement* compiled data from several national databases to gauge the need for home visiting in individual states. Six of the indicators used in that publication are included in this brief (see exhibit 1), both as individual indicators and as part of a composite index.⁴

MCH indicators provide insight into states' unique contexts and challenges. In West Virginia, for example, 25 percent of women smoked during pregnancy in 2016, compared to 8 percent nationally and just 2 percent in California. That same year, Arkansas and New Mexico reported high rates of pregnant women without prenatal care (10 percent for both), and Mississippi experienced high rates of preterm births (13 percent) and lack of breastfeeding (43 percent). These indicators suggest possible ways for home visiting programs to identify priority participants. See <u>exhibit A-1 in the appendix</u> for more information.

Individual MCH indicators are important, but they do not paint a complete picture of need. To better understand each state's context, we developed a composite index that takes all six indicators into account. We computed

Exhibit 1. Relevant Maternal and Child Health Indicators for Assessing Need

- No or delayed prenatal care (percentage of births)
- Used tobacco during pregnancy (percentage of births)
- Preterm births (percentage of births)
- Never breastfed (percentage of infants)
- Infant mortality (rate of infant deaths per 1,000 live births)
- Emergency room visits (percentage of children age 0-5 with two or more visits)

Source: National Home Visiting Resource Center. (2018). *Data Supplement to the 2017 Home Visiting Yearbook*. Arlington, VA: James Bell Associates and the Urban Institute. Retrieved from <u>https://www.nhvrc.org/wpcontent/uploads/NHVRC_Data-</u> <u>Supplement_FINAL.pdf</u> standardized scores for each indicator and developed an equally weighted average of these scores.⁵ As shown in exhibit A-1, states' "need scores" on the MCH index ranged from a low of -1.2 in California to a high of 1.7 in Mississippi. Florida and Wyoming both earned a score of 0- the mean across all 50 states and the District of Columbia.

As depicted in exhibit 2, we identified 13 states and the District of Columbia as higher need, with an index score greater than +0.3. These locations (Alabama, Arkansas, Delaware, Georgia, Indiana, Kentucky, Louisiana, Mississippi, Ohio, Oklahoma, South Carolina, Tennessee, West Virginia, and the District of Columbia) are concentrated in the South, with a few in the Midwest.

We also identified 15 states as lower need because they had an index score lower than -0.3, These states are concentrated in the West and Northeast, with some in the Midwest (California, Colorado, Idaho, Iowa, Maine, Massachusetts, Minnesota, Nebraska, New Hampshire, New York, Oregon, Rhode Island, Utah, Vermont, and Washington). The remaining 22 states were classified as medium need with an MCH index score between -0.3 and +0.3.⁶



Exhibit 2. State Need Based on Maternal and Child Health Index Scores

Source: U.S. Department of Health and Human Services data. See detailed source information in exhibit A-1.

Family Characteristics

Data on demographic, economic, and social characteristics can also help states prioritize the delivery of home visiting services to families in need. These characteristics are associated with poor outcomes but do not measure maternal and child health outcomes directly. The data often coexist in a single survey, allowing agencies to crosscut data to identify families who are eligible for services and who meet one or more targeting criteria.

The *Data Supplement* used the <u>American Community Survey (ACS)</u> to estimate each state's number of potential beneficiaries, defined as pregnant women and families with children under 6 years old and not yet in kindergarten. In 2016, this estimated number ranged from 28,900 families in Vermont to 2.27 million families in California.⁷

The supplement also used ACS data to estimate the percentage of potential beneficiaries who may be deemed high priority because they met two or more targeting criteria:⁸

- Having an infant under 12 months
- Family income below the federal poverty threshold
- Pregnant woman or mother under 21
- Single/never married mother or pregnant woman⁹
- Parents without a high school education

These criteria were chosen to be useful to states, whether they aim to serve all infants or to focus on families with characteristics associated with poor developmental outcomes. The criteria also align with several priority areas from the MIECHV legislation, as well as enrollment requirements established by several home visiting models.

Nationwide, 22 percent of potential beneficiaries met two or more targeting criteria in 2016, with the percentage ranging from 13 percent in Utah to 30 percent in Mississippi. As shown in exhibit 3–

- Seven states and the District of Columbia had a higher share of families who met two or more targeting criteria (26–30 percent)
- Twenty-two states had a medium share of families who met two or more targeting criteria (21–25 percent)
- Twenty-one states had a lower share of families who met two or more targeting criteria (13– 20 percent)

<u>Exhibit A-2 in the appendix</u> provides more information on the share of families that met two or more targeting criteria in each state, as well as the share of families with each individual characteristic.



Exhibit 3. State Need Based on Share of Families Who Met Two or More Targeting Criteria

Source: American Community Survey, 2011-2015. Ruggles, S., Genadek, K., Goeken, R., Grover, J., & Sobek, M. (2017). Integrated public use microdata series: Version 7.0 [Machine-readable database]. Minneapolis, MN: University of Minnesota. https://doi.org/10.18128/D010.V7.0

Notes: The characteristics of families that may designate them as "high priority" are (1) the presence of an infant under 12 months, (2) family income below the federal poverty threshold, (3) pregnant woman or mother under 21, (4) single/never married mother or pregnant woman, and (5) parents without high school education.

A comparison of exhibits 2 and 3 reveals that some states fall within the same category whether looking at the MCH index or family characteristics. Five states (Alabama, Georgia, Louisiana, Mississippi, South Carolina) and the District of Columbia qualify as higher need according to both measures, while seven states qualify as lower need (Colorado, Idaho, Massachusetts, Minnesota, New Hampshire, Utah and Vermont).

No state is designated as higher need according to one set of measures and lower need according to the other. Using both sets of measures, however, results in a combination of medium need and lower or higher need for many states. California is classified as medium need when measured by family characteristics, for example, but has the lowest need among all states

according to the MCH index. In contrast, West Virginia is identified as medium need when gauged by family characteristics and higher need according to the MCH index.

Mapping Need Within States

In allocating limited home visiting resources, states and territories generally target the needs of specific communities, such as counties or other substate regions. Available data tend to vary in comprehensiveness and accuracy at the substate level.

MIECHV provides grants to support home visiting services for high-priority communities. To assess community need, states examine data in eight areas:

0	Child and maternal health	0	High school dropout
0	Poverty	0	Substance abuse
0	Crime	0	Unemployment
0	Domestic violence	0	Child maltreatment

MIECHV legislation also identifies several high-need populations, including pregnant women and mothers under 21, families with children with low student achievement, families with children with developmental delays or disabilities, and families with the needs identified above. States are required to report on associated <u>outcomes in benchmark domains</u> related to addressing these needs.¹⁰ In practice, states have implemented <u>varied approaches to identify high-need</u> communities and populations.¹¹

In earlier sections of this brief, we highlighted nationally available data that can be used to measure need across several of the areas identified by MIECHV:

- Various maternal and child health indicators, including one indicator of substance use (used tobacco during pregnancy)
- ACS data on poverty, high school completion of parents, and age of mothers and pregnant women (under 21)

Although some of the data in our analysis are not available at the substate level (e.g., emergency room visits from children 0-5), all ACS data and many maternal and child health data can be found at the substate level. In addition, states may have access to additional data, as shown in exhibit 4. States may find it useful to develop their own composite measures of need to address priority areas in their states or to use other state data or indicators.¹²

Exhibit 4. Potential Indicators of Need at County and Other Substate Levels

Maternal and Child Health: Preterm births, low birthweight births, infant mortality, neonatal mortality, prenatal care, fatalities due to neglect, births to females under 20 years old, incidence of postpartum depression

Poverty: Percentage of children under 18 living in families with incomes below 100 percent of the federal poverty threshold

Crime: Juvenile arrests as a percentage of arrests, rate of all crimes, rate of violent crimes, rate of property crimes

Domestic Violence: Incidence of domestic violence, types of domestic violence

High School Dropout: 100 - (number of high school diplomas awarded divided by number of 9th graders who entered high school in the associated year)

Substance Abuse: Use and abuse of cigarettes, alcohol, and other controlled substances among youth and adults

Unemployment: Percentage of the labor force that is unemployed (monthly, annually)

Child Maltreatment: Substantiated cases of maltreatment or neglect

School Readiness: Proficiency on statewide tests

Source: Anderson Moore, K., Murphey, D., Terzian, M. A., Cooper, H., McCoy-Roth, M., & Kahn, J. (2010). *Home visiting application process: A guide for planning state needs assessments*. Bethesda, MD: Child Trends. Retrieved from https://www.childtrends.org/wp-content/uploads/2013/06/2010-15HomeVisitingGuide1.pdf

Summary

Home visiting has the potential to help millions of children and families in the United States across a range of outcomes. Faced with limited resources, policy makers, administrators, and other home visiting stakeholders often rely on measures of need to prioritize service delivery. Mapping variations of need across and within states can support this process. This brief examines the use of MCH indicators and family characteristics to indicate need, using both individual indicators and composite measures. These assessments, while not the only approach for measuring need, provide valuable insight into understanding local contexts and challenges.

Exhibit A-1. State Need by Individual Measures of Maternal and Child Health and Composite Index Score

State	Delayed prenatal care (%)	Used tobacco during pregnancy (%)	Preterm births (%)	Never breastfed (%)	Emergency room visits (%)	Infant mortality (%)	MCH composite index score	MCH composite index rating
Alabama	7	10	12	33	0.28	8.3	1.1	Higher
Alaska	6	12	9	11	0.34	6.9	0.2	Medium
Arizona	8	5	9	17	0.20	5.5	-0.3	Medium
Arkansas	10	14	11	36	0.33	7.5	1.5	Higher
California	4	2	8	11	0.20	4.4	-1.2	Lower
Colorado	8	6	9	8	0.17	4.6	-0.8	Lower
Connecticut	NA	NA	9	15	0.22	5.6	-0.3	Medium
Delaware	7	10	10	23	0.21	9	0.5	Higher
District of Columbia	9	3	10	19	0.30	7.3	0.5	Higher
Florida	6	6	10	24	0.21	6.2	0.0	Medium
Georgia	8	6	11	20	0.25	7.8	0.5	Higher
Hawaii	6	4	10	13	0.22	5.9	-0.3	Medium
Idaho	5	10	8	7	0.22	4.6	-0.8	Lower
Illinois	5	7	10	14	0.27	6	-0.1	Medium
Indiana	6	14	10	16	0.29	7.3	0.4	Higher
lowa	4	14	9	17	0.23	4.2	-0.4	Lower
Kansas	4	11	9	23	0.24	5.9	-0.2	Medium
Kentucky	5	20	11	25	0.34	6.7	1.0	Higher
Louisiana	7	7	12	35	0.30	7.7	1.1	Higher
Maine	3	16	8	12	0.18	6.6	-0.5	Lower
Maryland	8	6	10	15	0.26	6.7	0.2	Medium
Massachusetts	4	6	8	11	0.23	4.3	-0.9	Lower
Michigan	5	12	10	24	0.25	6.6	0.3	Medium
Minnesota	4	9	8	16	0.22	5.2	-0.6	Lower
Mississippi	5	10	13	43	0.36	9.3	1.7	Higher
Missouri	5	16	10	17	0.24	6.5	0.2	Medium
Montana	6	16	8	18	0.20	6	-0.1	Medium
Nebraska	5	10	10	12	0.15	5.7	-0.5	Lower
Nevada	8	5	10	18	0.20	5.2	-0.2	Medium
New Hampshire	4	12	8	15	0.15	4.2	-0.9	Lower
New Jersey	NA	NA	10	16	0.24	4.7	-0.3	Medium
New Mexico	10	7	10	17	0.26	5.1	0.1	Medium

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State	Delayed prenatal care (%)	Used tobacco during pregnancy (%)	Preterm births (%)	Never breastfed (%)	Emergency room visits (%)	Infant mortality (%)	MCH composite index score	MCH composite index rating
New York	5	5	9	16	0.24	4.6	-0.6	Lower
North Carolina	7	9	10	17	0.21	7.3	0.1	Medium
North Dakota	7	14	8	13	0.14	7.2	-0.2	Medium
Ohio	7	15	10	23	0.31	7.2	0.8	Higher
Oklahoma	7	12	10	21	0.26	7.3	0.5	Higher
Oregon	4	10	8	7	0.27	5.1	-0.7	Lower
Pennsylvania	7	12	9	18	0.28	6.1	0.2	Medium
Rhode Island	2	7	9	19	0.30	5.6	-0.5	Lower
South Carolina	7	10	11	28	0.22	7	0.6	Higher
South Dakota	5	14	9	17	0.12	7.3	-0.3	Medium
Tennessee	6	14	11	19	0.26	7	0.5	Higher
Texas	10	4	10	17	0.25	5.7	0.1	Medium
Utah	2	3	9	12	0.18	5.1	-1.1	Lower
Vermont	4	16	7	18	0.17	4.6	-0.7	Lower
Virginia	6	6	9	15	0.22	5.9	-0.3	Medium
Washington	5	7	8	8	0.25	4.9	-0.7	Lower
West Virginia	4	25	11	35	0.28	7.2	1.2	Higher
Wisconsin	6	12	9	18	0.22	5.8	-0.1	Medium
Wyoming	6	15	10	10	0.27	5	0.0	Medium

Sources

Delayed prenatal care: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics. (2015). *Natality public-use data* 2007-2015: [CDC WONDER Online Database, October 2017]. Retrieved from https://wonder.cdc.gov/

Used tobacco during pregnancy: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics. (2015). *Natality public-use data* 2007-2015: [CDC WONDER Online Database, October 2017]. Retrieved from https://wonder.cdc.gov/

Preterm births: Martin, J. A., Hamilton, B. E., Osterman, M. J. K., Driscoll, A. K., & Matthews, T. J. (2017). Births: Final data for 2015. Supplemental tables. Table I-8. Preterm births, by race and Hispanic origin of mother: United States, each state and territory, 2015. National Vital Statistics Reports, 66(1).

Never breastfed: Authors' own calculations based on U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics. (2016). National Immunization Survey. Retrieved from https://www.cdc.gov/breastfeeding/data/nis_data/rates-any-exclusive-bf-state-2014.htm

Emergency room visits: National Health Interview Survey-Child and Family Core. NHIS-Child 2010-2013. Data query from the Child and Adolescent Health Measurement Initiative, Data Resource Center for Child and Adolescent Health website. Retrieved from http://www.childhealthdata.org

Infant mortality: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics. (2015). Natality public-use data 2007-2015: [CDC WONDER Online Database, October 2017]. Retrieved from https://wonder.cdc.gov/

Notes: NA=Not available. Lower = <-0.3; Medium = -0.3 to +0.3; Higher = >+0.3

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State Infant present Income below Pregnant woman Single/never Parents without a Two or more Two or more under 12 federal poverty or mother under married high school targeting targeting threshold (%) criteria (%) months (%) 21 (%) mother or education (%) criteria pregnant rating woman (%) Alabama Higher Alaska Lower Arizona Higher Arkansas Medium California Medium Colorado Lower Connecticut Lower Delaware Medium District of Columbia Higher Florida Medium Georgia Higher Hawaii Lower Idaho Lower Illinois Medium Indiana Medium Lower lowa Kansas Lower Kentucky Medium Louisiana Higher Maine Medium Marvland Lower Massachusetts Lower Michigan Medium Minnesota Lower Mississippi Higher Missouri Medium Medium Montana Nebraska Lower Nevada Medium New Hampshire Lower New Jersey Lower New Mexico Higher New York Medium North Carolina Medium

Exhibit A-2. State Need Based on Share of Families Who Met Demographic Targeting Criteria

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State	Infant present under 12 months (%)	Income below federal poverty threshold (%)	Pregnant woman or mother under 21 (%)	Single/never married mother or pregnant woman (%)	Parents without a high school education (%)	Two or more targeting criteria (%)	Two or more targeting criteria rating
North Dakota	21	20	21	4	3	17	Lower
Ohio	20	30	29	7	4	25	Medium
Oklahoma	19	29	24	9	5	23	Medium
Oregon	19	28	22	8	3	21	Medium
Pennsylvania	19	25	28	7	4	22	Medium
Rhode Island	19	27	32	9	3	25	Medium
South Carolina	19	31	33	9	5	27	Higher
South Dakota	20	22	23	6	3	19	Lower
Tennessee	19	31	28	7	5	25	Medium
Texas	19	28	26	13	5	24	Medium
Utah	22	18	13	5	3	13	Lower
Vermont	18	20	22	4	1	15	Lower
Virginia	19	19	22	6	3	17	Lower
Washington	19	23	20	7	3	18	Lower
West Virginia	17	32	27	7	5	23	Medium
Wisconsin	19	24	25	6	3	20	Lower
Wyoming	19	21	18	3	4	16	Lower

Source: American Community Survey. 2011-2015. Ruggles, S., Genadek, K., Goeken, R., Grover, J., & Sobek, M. (2017). Integrated public use microdata series: Version 7.0 [Machine-

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readable database]. Minneapolis, MN: University of Minnesota. https://doi.org/10.18128/D010.V7.0 **Note**: Lower = 13-20%; Medium = 21-25%; Higher = 26-30%

References and Notes

¹ U.S. Department of Health and Human Services, Administration for Children and Families. Home Visiting Evidence of Effectiveness (n.d.). *Effectiveness research*. Retrieved from <u>https://homvee.acf.hhs.gov/Models.aspx</u>

² National Home Visiting Resource Center. (2018). *Data supplement to the 2017 home visiting yearbook*. Arlington, VA: James Bell Associates and the Urban Institute. Retrieved from https://www.nhvrc.org/wp-content/uploads/NHVRC_Data-Supplement_FINAL.pdf

³ Anderson Moore, K., Murphey, D., Terzian, M. A., Cooper, H., McCoy-Roth, M., & Kahn, J. (2010). *Home visiting application process: A guide for planning state needs assessments*. Bethesda, MD: Child Trends. Retrieved from <u>https://www.childtrends.org/wp-content/uploads/2013/06/2010-15HomeVisitingGuide1.pdf</u>

⁴ Two additional indicators, fourth grade reading proficiency and child abuse, were included in the *Data Supplement to the 2017 Home Visiting Yearbook* but excluded from this analysis. We excluded fourth grade reading proficiency because it is a measure of educational development and did not fit with the other measures of maternal and child health. We excluded child abuse because of concerns about variability in definition and measurement of abuse and neglect across states. A factor analysis confirmed that the remaining indicators could be grouped as a single measure. Additionally, the reliability coefficient for the indicators we included was 0.76, meeting commonly accepted thresholds for how closely related items in an index should be.

⁵ For each state, we computed the z-scores of each maternal and child health indicator and then averaged across the six z-scores. A z-score provides a standardized measure of how far a state's value is from the national mean (in standard deviation units). By converting state values for each indicator into z-scores, and then averaging z-scores across indicators, we developed a composite MCH index that reflects the extent to which a state tends to be below or above average on MCH indicators compared to other states. We also considered two different methods: a weighted average of z-scores using weights produced by factor analysis and an index developed by counting the total number of indicators in which any particular state was above the average value across all states. Results were fairly similar to our MCH index.

⁶ We used Jenks natural breaks to classify our data into three categories: lower, medium, and higher. Natural breaks divide data based on "natural" groups inherent in the distribution, maximizing the difference between groups. We made small adjustments where the break suggested by the mapping software grouped two states with similar values in different groups. While these groupings would change somewhat if we used different thresholds to classify risk categories, this is a common, data-driven approach to identifying breaks using logical groupings.

⁷ National Home Visiting Resource Center. (2018). *Data supplement to the 2017 home visiting yearbook*. Arlington, VA: James Bell Associates and the Urban Institute. Retrieved from <u>https://www.nhvrc.org/wp-content/uploads/NHVRC_Data-Supplement_FINAL.pdf</u>

⁸ The *Data Supplement* identifies "high-priority" families under two definitions, those meeting any one of the five targeting criteria (53 percent of potential beneficiaries) and those meeting two or more targeting criteria (22 percent of potential beneficiaries). For this analysis, we used the tighter definition of high-priority families, i.e., those meeting two or more targeting criteria.

⁹ Because the ACS does not identify pregnancy status, estimates of pregnant women are based on adjusted counts of families with infants, assuming rough stability in the number of births from one year to the next. See appendix 1 of the *Data Supplement* for further information on how this and other ACS indicators were measured.

¹⁰ Health Resources and Services Administration, Maternal and Child Health Bureau. (n.d.). *Maternal, infant, and early childhood home visiting program* [Fact sheet]. Retrieved from <u>https://mchb.hrsa.gov/sites/default/files/mchb/MaternalChildHealthInitiatives/HomeVisiting/F</u> <u>ederal_Home_Visiting_Program_Performance_Indicators_and_Systems_Outcomes_Summary.pdf</u>

¹¹ Michalopoulos, C., Lee, H., Duggan, A., Lundquist, E., Tso, A., Crowne, S., ... Knox, V. (2015). *The mother and infant home visiting program evaluation: Early findings on the maternal, infant, and early childhood home visiting program* (OPRE Report No. 2015-11). Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.

¹² Methods for developing composite indices may differ from those used here. For example, we used our own tabulations of the ACS, allowing us to focus on poverty among potential beneficiaries and to identify families that met more than one demographic risk factor. States relying on published ACS data may use poverty rates across the population at large, poverty rates for children, or poverty rates for children under 5. Data on poverty rates can be combined with other data in composite indices using the methods discussed or other approaches.