

# Health

# Children's Health Insurance

## DEFINITION

Children's health insurance is the percentage of children under age 19 who were covered by any kind of private or public health insurance, including Medicaid.

## SIGNIFICANCE

Children who have health insurance coverage are healthier and have fewer preventable hospitalizations than those who are uninsured. Insured children are more likely to receive preventive medical and dental care, be screened for the achievement of developmental milestones, obtain needed timely treatment, have access to prescription medications, and miss fewer days of school.<sup>1,2</sup> Children are more likely to be insured if their parents also have health insurance (especially continuous coverage).<sup>3,4</sup>

Medicaid and the Children's Health Insurance Program (CHIP) provide low-income children with affordable, comprehensive health benefits, which have been shown to increase access to primary and preventive care for children and improve long-term health, education and economic outcomes.<sup>5,6</sup>

RIte Care/RIte Share, Rhode Island's Medicaid/CHIP managed care health insurance program, is available to children and families who qualify based on family income. RIte Care also serves

as the health care delivery system for specific groups of children who qualify for Medical Assistance based on a disability or because they are in foster care or receiving an adoption subsidy.

On December 31, 2017, 77% of RIte Care members who qualified based on family income were children under age 19. There were 59,138 low-income parents with RIte Care coverage on December 31, 2017.<sup>7,8</sup> RIte Care managed care enrollment rose to a new high of 158,092 in December 2017 (up from 149,080 in December 2016).<sup>9,10</sup>

Rhode Island children who are older children, living in urban communities, or are Black, Hispanic, or Native American are the most likely to be uninsured. In 2016, an estimated 1.9% of Rhode Island children were uninsured.<sup>11,12,13,14</sup>

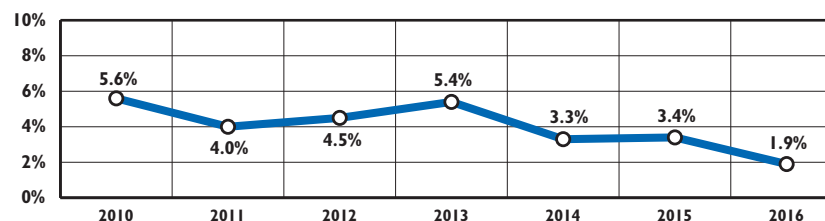
| Children Without Health Insurance |      |      |
|-----------------------------------|------|------|
|                                   | 2010 | 2016 |
| RI                                | 5.6% | 1.9% |
| US                                | 8.6% | 4.5% |
| National Rank*                    |      | 3rd  |
| New England Rank**                |      | 3rd  |

\*1st is best; 50th is worst

\*\*1st is best; 6th is worst

Source: For 2016: U.S. Census Bureau, American Community Survey, 2016. Table R2702. For 2010: U.S. Census Bureau, American Community Survey, 2014. Table CP03.

Children Without Health Insurance, Rhode Island, 2010-2016



Source: U.S. Census Bureau, American Community Survey, 2014 & 2016. Table CP03. Data are for children under 18 years of age and are not comparable to Factbooks prior to 2015.

◆ In 2016, 1.9% of Rhode Island's children under age 18 were uninsured. Rhode Island ranks third best in the U.S., with 98.1% of children having health insurance. 59% of Rhode Island children are covered by private health insurance, most of which is obtained through their parents' employers.<sup>15,16</sup>

◆ Approximately 68% (5,404) of the estimated 7,940 uninsured children under age 18 in Rhode Island between 2012 and 2016 were eligible for RIte Care coverage based on their family incomes, but were not enrolled. An estimated 2,536 uninsured children lived in families with incomes above 261% of the federal poverty level (the income limit for RIte Care child eligibility) and 57% (1,458) of them may have been eligible for financial assistance through HealthSource RI based on income.<sup>17,18</sup>

◆ The RIte Share premium assistance program helps low-income families afford the cost of employer-sponsored coverage. As of December 31, 2017, 4,956 children and 2,256 parents (7,212 total) were enrolled in RIte Share.<sup>19</sup>

◆ Between 2014 and 2016, the estimated percentage of children covered exclusively by their parents' employer-sponsored health plan increased from 51% to 53% and the percentage of children insured exclusively by Medicaid/RIte Care decreased from 33% to 31%.<sup>20</sup>

◆ Children and families in need of health insurance can enroll in coverage through HealthSource RI, Rhode Island's health insurance marketplace under the federal *Affordable Care Act*. As of October 2017, 1,694 children were enrolled in commercial coverage in the individual market of HealthSource RI, which is a 10% decrease from 2016 (1,877).<sup>21</sup>

Table 15. Children Under Age 19 Receiving Medical Assistance, Rhode Island, December 31, 2017

| CITY/TOWN          | RITE CARE | SSI   | KATIE BECKETT PROVISION | ADOPTION SUBSIDY | FOSTER CARE | TOTAL   |
|--------------------|-----------|-------|-------------------------|------------------|-------------|---------|
| Barrington         | 512       | 17    | 35                      | 26               | 9           | 599     |
| Bristol            | 1,039     | 29    | 18                      | 44               | 17          | 1,147   |
| Burrillville       | 1,128     | 42    | 23                      | 85               | 28          | 1,306   |
| Central Falls      | 5,127     | 293   | 4                       | 42               | 53          | 5,519   |
| Charlestown        | 482       | 15    | 10                      | 14               | 12          | 533     |
| Coventry           | 2,107     | 85    | 49                      | 130              | 62          | 2,433   |
| Cranston           | 7,321     | 243   | 75                      | 213              | 110         | 7,962   |
| Cumberland         | 1,822     | 95    | 49                      | 71               | 22          | 2,059   |
| East Greenwich     | 506       | 27    | 36                      | 36               | 16          | 621     |
| East Providence    | 4,103     | 171   | 38                      | 115              | 70          | 4,497   |
| Exeter             | 295       | 6     | 6                       | 19               | 7           | 333     |
| Foster             | 303       | 11    | 6                       | 10               | 7           | 337     |
| Glocester          | 385       | 14    | 6                       | 50               | 30          | 485     |
| Hopkinton          | 584       | 10    | 9                       | 36               | 14          | 653     |
| Jamestown          | 126       | 5     | 10                      | 4                | 4           | 149     |
| Johnston           | 2,436     | 119   | 41                      | 67               | 46          | 2,709   |
| Lincoln            | 1,445     | 58    | 25                      | 54               | 40          | 1,622   |
| Little Compton     | 145       | 5     | 4                       | 1                | 1           | 156     |
| Middletown         | 1,092     | 36    | 15                      | 34               | 21          | 1,198   |
| Narragansett       | 450       | 26    | 9                       | 25               | 31          | 541     |
| New Shoreham       | 63        | 0     | 2                       | 0                | 0           | 65      |
| Newport            | 2,133     | 120   | 6                       | 45               | 60          | 2,364   |
| North Kingstown    | 1,681     | 50    | 35                      | 59               | 35          | 1,860   |
| North Providence   | 2,694     | 93    | 28                      | 73               | 56          | 2,944   |
| North Smithfield   | 563       | 30    | 10                      | 44               | 28          | 675     |
| Pawtucket          | 12,159    | 585   | 34                      | 172              | 157         | 13,107  |
| Portsmouth         | 748       | 26    | 16                      | 42               | 27          | 859     |
| Providence         | 34,902    | 1826  | 49                      | 390              | 655         | 37,822  |
| Richmond           | 269       | 10    | 4                       | 5                | 6           | 294     |
| Scituate           | 557       | 15    | 19                      | 33               | 15          | 639     |
| Smithfield         | 798       | 22    | 24                      | 62               | 20          | 926     |
| South Kingstown    | 1,322     | 50    | 38                      | 66               | 21          | 1,497   |
| Tiverton           | 930       | 33    | 13                      | 29               | 20          | 1,025   |
| Warren             | 805       | 31    | 9                       | 35               | 37          | 917     |
| Warwick            | 5,369     | 228   | 105                     | 256              | 108         | 6,066   |
| West Greenwich     | 262       | 0     | 12                      | 22               | 8           | 304     |
| West Warwick       | 3,169     | 155   | 16                      | 80               | 59          | 3,479   |
| Westerly           | 1,985     | 72    | 21                      | 45               | 42          | 2,165   |
| Woonsocket         | 7,398     | 562   | 27                      | 151              | 113         | 8,251   |
| Unknown Residence  | 19        | 1     | 0                       | 0                | 0           | 20      |
| Four Core Cities   | 59,586    | 3,266 | 114                     | 755              | 978         | 64,699  |
| Remainder of State | 49,629    | 1,949 | 822                     | 1,930            | 1,089       | 55,419  |
| Rhode Island       | 109,234   | 5,216 | 936                     | 2,685            | 2,067       | 120,138 |

### Source of Data for Table/Methodology

Rhode Island Executive Office of Health and Human Services, MMIS Database, December 31, 2017.

The table includes children enrolled in Rite Care managed care, fee-for-service, and Rite Share as of December 31, 2017. Children with special health care needs who are covered through Rite Care or Medical Assistance are also included because they receive SSI, adoption subsidies, are in foster care, or qualify for the Katie Beckett provision.

The Rite Care numbers include children who are also enrolled in RI Works. Prior to the 2015 Factbook, children enrolled in both Rite Care and RI Works were reported separately. Due to eligibility system changes and enrollment changes to RI Works and Rite Care, these data are no longer able to be reported.

The Providence numbers include some children in substitute care who live in other towns because the Medicaid database lists some foster children as Providence residents for administrative purposes.

Unknown residence: All children are Rhode Island residents, but specific city/town information was unavailable.

Core cities are Central Falls, Pawtucket, Providence, and Woonsocket.

Beginning with the 2015 Factbook, the children without health insurance trend line is based on U.S. Census Bureau American Community Survey (ACS) data due to changes in survey protocol and methodology with the Current Population Survey (CPS). Trend data reported prior to 2015 Factbook are not comparable.

### References

- Murphy, David. *Health insurance coverage improves child well-being*. (2017). Washington, DC: Child Trends.
- Foutz, J., Squires, E., Garfield, R., & Damico, A. (2017). *The uninsured: A primer. Key facts about health insurance and the uninsured under the Affordable Care Act*. Washington, DC: The Henry J. Kaiser Family Foundation.
- Yamauchi, M., Carlson, M. J., Wright, B. J., Angier, H., & DeVoe, J. E. (2013). Does health insurance continuity among low-income adults impact their children's insurance coverage? *Maternal and Child Health Journal*, 17(2), 248-255.

(continued on page 178)

# Childhood Immunizations

## DEFINITION

*Childhood immunizations* is the percentage of children ages 19 months to 35 months who have received the entire 4:3:1:3:3:1:4 series of vaccinations as recommended by the Advisory Committee on Immunization Practices. In 2016, the complete series included four doses of diphtheria, tetanus and pertussis (DTaP); three doses of polio; one dose of measles, mumps, rubella (MMR); three to four doses of Haemophilus influenzae type b (Hib); three doses of hepatitis B (HepB); one dose of varicella (chickenpox); and four doses of pneumococcal conjugate (PCV).

## SIGNIFICANCE

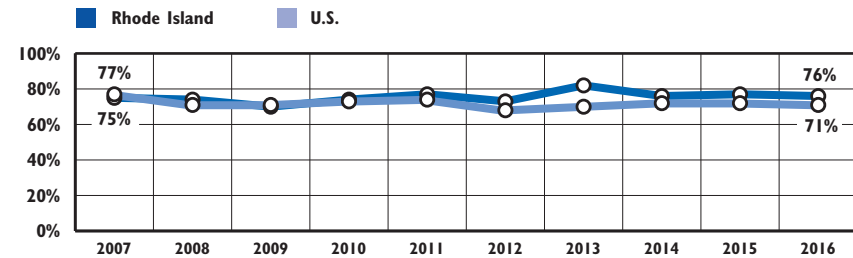
Timely and complete immunization protects children against a number of infectious diseases that were once common and resulted in death or disability. Vaccines interact with the immune system to produce antibodies that protect the body if it is later exposed to disease. The benefits of immunization include improved quality of life and productivity, reduced health spending, and prevention of illness and death. Society benefits from high vaccination levels because disease outbreaks are minimized. Although many of the diseases against which children are vaccinated are rare, it is important to continue to immunize against them until the diseases are completely eradicated.<sup>1,2,3</sup>

The federal *Vaccines for Children* program is used to eliminate cost as a barrier to vaccination. It allows states to obtain vaccines at a discounted price. Local providers then administer the vaccines at no cost to eligible children under age 19, including those who are uninsured, underinsured, or Medicaid-eligible.<sup>4</sup> Due to the federal *Affordable Care Act (ACA)*, children and individuals enrolled in new health insurance plans now have access to recommended vaccines without deductibles or copays, when delivered by an in-network provider.<sup>5</sup>

Rhode Island obtains vaccines for all children and distributes them to health care providers. In order to ensure that vaccines reach all children, the Rhode Island Department of Health works in partnership with local health care providers to maintain and share KIDSNET immunization data for children from birth to age 18.<sup>6</sup>

Rhode Island requires vaccination against the following diseases prior to entry into child care, preschool, Head Start, or Kindergarten: diphtheria, tetanus, and pertussis; Haemophilus influenzae type b; hepatitis A; hepatitis B; influenza; measles, mumps, and rubella; pneumococcal conjugate; polio; rotavirus; and chickenpox. Kindergarten entry requires vaccinations for all of these diseases except hepatitis A, Haemophilus influenzae type b, influenza, pneumococcal conjugate, and rotavirus.<sup>7,8</sup>

**Fully Immunized Children\*, Ages 19 Months to 35 Months, Rhode Island and United States, 2007-2016**

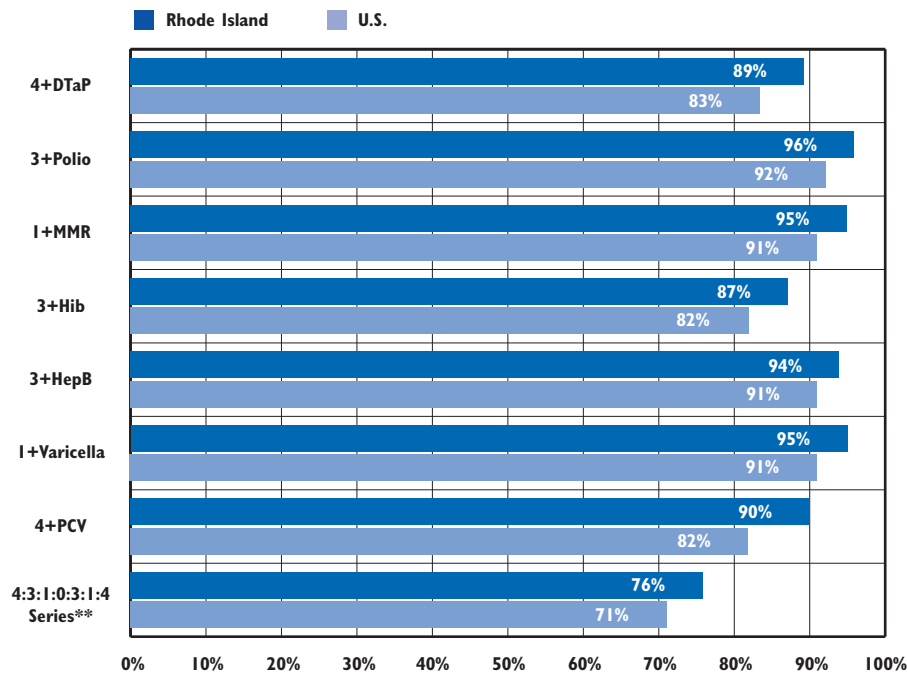


\*Fully immunized children received the 4:3:1:3:3:1 series from 2006 to 2007; the 4:3:1:0:3:1:4 series in 2008 to 2010; and the 4:3:1:3:3:1:4 series in 2011-2016.

Source: Centers for Disease Control and Prevention, *National Immunization Survey*, 2007-2016.

- ◆ In 2016, Rhode Island's rate of children ages 19 months to 35 months that were fully immunized (76%) was above the national average of 71% and 14th best in U.S.<sup>9</sup>
- ◆ In 2016, the U.S. rate for fully immunized children ages 19 months to 35 months ranged from 66% for children living below the federal poverty level to 73% for children living at or above the federal poverty level. The 2016 U.S. rate was 72% for Asian, non-Hispanic children, 72% for White, non-Hispanic children, 71% for Hispanic children, and 64% for Black, non-Hispanic children.<sup>10</sup>
- ◆ Vaccine concerns have led some parents to request alternative vaccination schedules or to refuse some or all immunizations, which contribute to under-immunization.<sup>11,12</sup> Federal law requires that families be provided with information about each vaccine and given the opportunity to clarify issues or concerns with their health care provider.<sup>13</sup>
- ◆ In Rhode Island, children may be exempt from receiving one or more vaccines for medical or religious reasons.<sup>14</sup> In the 2016-2017 school year, 1.18% (129) of kindergarten students and 5.19% (599) of seventh grade students received exemptions from vaccination requirements. Of the 728 exemptions, 91% were for religious reasons and 9% were for medical reasons. Religious exemptions for seventh graders increased from 0.5% (60) in the 2014-2015 school year to 4.8% (553) in the 2016-2017 school year, mainly due to the addition of HPV vaccine to the seventh grade immunization requirements. Despite the increase in exemptions, the Rhode Island HPV vaccination rate for young adolescents is the best among 50 states and DC.<sup>15,16</sup>

**Vaccination Coverage Among Children, Ages 19 Months to 35 Months, Rhode Island and United States, 2016**



Source: Rhode Island Department of Health analysis of data from the *National Immunization Survey-Children*, 2016.  
 \*\*Depending on the product type received, 3+ or 4+ doses of Hib vaccine is a full dose.

◆ In 2016, Rhode Island ranked first in the U.S. for the rotavirus vaccines; second in the U.S. for the 4+PCV vaccine; third in the U.S. for 1+VAR vaccine; fifth in the U.S. for the 4+DTaP; sixth for 3+Polio, and twelfth for 3+HepB vaccines.<sup>17</sup>

◆ In 2016, Rhode Island's rate of completion for the 4:3:1:0:3:1:4 (76%) did not reach the national *Healthy People 2020* target (80%), but a number of individual vaccine coverage rates in Rhode Island did. Polio, MMR, HepB, and chickenpox had coverage rates that met or surpassed the *Healthy People 2020* targets (90%) set for each type of vaccine for children ages 19 months to 35 months.<sup>18</sup>

## Child and Adolescent Immunization

◆ The 2016-2017 *Rhode Island School Immunization Assessment* reported the immunization status of 98% of kindergarten students and more than 90% of seventh grade students. Of the immunizations needed for school entry, entering kindergarteners had coverage rates between 95% and 98%, while entering seventh grade students had rates between 74% and 99%.<sup>19</sup>

◆ The human papillomavirus (HPV), tetanus, diphtheria, pertussis (Tdap), and meningococcal conjugate (MCV) vaccines as well as any needed catch-up doses are required for all Rhode Island adolescent students before entering certain grade levels.<sup>20</sup>

◆ According to the 2016 *National Immunization Survey-Teen*, Rhode Island adolescents ranked first in the U.S. for the 1+MenACWY vaccine; first for the 1+HPV and 3+HPV vaccines for males and females; and second for the 1+Tdap vaccine. In 2016, 96% Rhode Island adolescents received the 1+MenACWY vaccine, 97% received the 2+MMR vaccine, 95% received the 1+Tdap vaccine, 94% received the 2+VAR vaccine, 95% received the 3+HepB vaccine, and 73% of females and 69% of males received the 3+HPV vaccine.<sup>21</sup>

◆ To ensure that all high school seniors are fully vaccinated before beginning college or work, the Rhode Island Office of Immunization runs the *Vaccinate Before You Graduate (VBYG)* program in high schools throughout the state. The program holds vaccination clinics at each participating school. The immunizations are offered at no cost to students.<sup>22,23</sup>

◆ During the 2016-2017 school year, 107 schools participated in VBYG. In total, 5,060 vaccine doses were administered to 2,433 students. Vaccines administered included influenza, HPV, MCV4, hepatitis A (HepA), hepatitis B (HepB), measles, mumps, and rubella (MMR), polio (IPV), tetanus, diphtheria, pertussis (Tdap), and varicella (chicken pox).<sup>24</sup>

◆ The School Located Vaccination (SLV) program administered over 25,932 doses of the influenza vaccine to both children and adults at school-based clinics throughout Rhode Island from October to December 2017. The goal of SLV is to ensure all Rhode Island children receive their annual flu vaccination with no out-of-pocket cost.<sup>25</sup>

### References

<sup>1</sup> Centers for Disease Control and Prevention. (2017). *Why are childhood vaccines so important?* Retrieved November 21, 2017, from www.cdc.gov  
<sup>2</sup> *Immunization*. (2015). Washington, DC: Child Trends.  
 (continued on page 178)



# Access to Dental Care

## DEFINITION

*Access to dental care* is the percentage of children under age 21 who were enrolled in RIte Care, RIte Share, or Medicaid fee-for-service on June 30 who had received dental services at any point during the previous State Fiscal Year.

## SIGNIFICANCE

Dental caries (tooth decay) is a common chronic disease among children. Poor oral health has immediate and significant negative impacts on children's overall health, growth and development, school attendance, and academic achievement.<sup>1,2</sup>

Insurance is a strong predictor of access to health and dental care. Fifteen percent of uninsured children in the U.S. have unmet dental needs, compared with 4% of those with Medicaid and 3% of those with private health insurance.<sup>3</sup> In 2014, 94% of children in Rhode Island had dental insurance that paid for routine dental care, up from 73% in 2001 and 62% in 1990.<sup>4,5</sup>

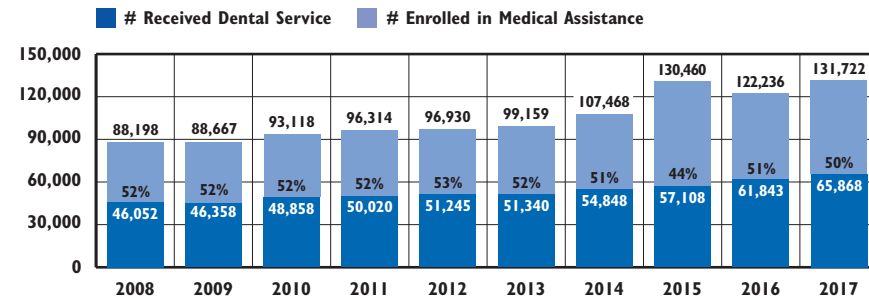
Children living in poverty are more likely to have untreated tooth decay than higher-income children. Medicaid-eligible children are more than three times as likely to have untreated tooth decay as higher-income children. For children in low-income families, the efficacy and continuity of public dental insurance is a critical factor in access to dental care. In the U.S. and in Rhode

Island, children who have public health insurance coverage have greater access to dental and medical care than children who have no insurance.<sup>6,7,8</sup>

Minority children have the highest rates of tooth decay and untreated dental problems. In Rhode Island and the U.S., non-Hispanic White children are more likely to have had a recent dental visit than non-Hispanic Black or Hispanic children.<sup>9,10,11</sup> Poor oral health during pregnancy has been shown to be a potential risk factor contributing to pregnancy complications and poor birth outcomes, including preterm birth and low birthweight infants.<sup>12,13</sup> Although oral health care can be safely delivered during pregnancy, about half (53%) of Rhode Island women report having a dental visit during their pregnancy. Women with low incomes are less likely to see a dentist; 41% of women with RIte Care coverage and 42% of women participating in WIC reported a dental visit during their pregnancy.<sup>14</sup>

Children with special health care needs may have problems finding and accessing providers who are trained and equipped to address their special dental, medical, behavioral, and mobility needs. A dental home can provide comprehensive, continuously accessible, coordinated, and family-centered dental care for all children, especially those with special needs.<sup>15,16</sup>

**Children Enrolled in Medical Assistance\* Programs Who Received Any Dental Service, Rhode Island, SFY 2008-2017**



Source: Rhode Island Executive Office of Health and Human Services, State Fiscal Years (SFY) 2008-2017. \*Medical Assistance includes RIte Care, RIte Share, and Medicaid fee-for-service.

- ◆ Fifty percent (65,868) of the children who were enrolled in RIte Care, RIte Share, or Medicaid fee-for-service on June 30, 2017 received a dental service during State Fiscal Year (SFY) 2017. The number of children receiving dental services has increased by 52% since 2006, when RIte Smiles launched.<sup>17</sup>
- ◆ The federal Early and Periodic Screening, Diagnostic and Treatment (EPSDT) mandate requires that states provide comprehensive dental benefits to children with Medicaid coverage, including preventive dental services.<sup>18</sup> In Rhode Island, 46% of children with Medicaid in Rhode Island received a preventive dental visit in FFY 2016, which is an increase from FFY 2015 (42%).<sup>19</sup>
- ◆ RIte Smiles, Rhode Island's managed care oral health program for children born on or after May 1, 2000, has been credited with improving access to dental care (both preventive and treatment services) for young children.<sup>20,21,22</sup> As of December 31, 2017, there were 103,584 children enrolled in RIte Smiles.<sup>23</sup>
- ◆ The federal Affordable Care Act (ACA) made pediatric dental benefits mandatory offerings for plans sold in the individual and small group market.<sup>24</sup> As of October 2017 1,694 children under age 19 were enrolled in commercial coverage in the individual market of HealthSource RI (Rhode Island's state-based insurance marketplace). Thirty-three percent obtained commercial dental coverage through HealthSource RI, whereas 39% obtained dental coverage through HealthSource RI in 2016.<sup>25,26</sup>

## Dental Provider Participation in Medicaid and RIte Smiles

- ◆ Nationally, children and adults with public insurance coverage face access problems because many private dentists do not accept Medicaid for payment. Dental providers cite low reimbursement rates, administrative requirements, and patient-related issues (e.g., missed appointments and poor treatment compliance) as reasons why they do not see more patients with Medicaid coverage. Additional access barriers for children and families with public insurance include difficulty with transportation, limited language proficiency, lack of oral health literacy, and negative provider experiences.<sup>27,28</sup>
- ◆ Since RIte Smiles (Rhode Island's managed care oral health program) started in 2006, reimbursement rates have been raised for participating dental providers.<sup>29</sup> The number of dentists accepting qualifying children increased from 27 before RIte Smiles began to 90 at the launch of RIte Smiles.<sup>30</sup> In June 2017, there were 385 unduplicated dentists in 250 practice locations participating in RIte Smiles.<sup>31</sup>
- ◆ General dentists and dental specialists who provide dental care to older children who do not qualify for enrollment in the RIte Smiles program continue to be reimbursed at the Medicaid fee-for-service reimbursement rate.<sup>32</sup> Medicaid reimbursement rates often lag behind fees charged by dental providers and private commercial rates, which reduces incentives for providers to treat children with Medicaid coverage. Rhode Island had the second lowest Medicaid fee-for-service reimbursement rate for pediatric dental services in the nation in 2013.<sup>33</sup>

## Consequences of Untreated Dental Disease

- ◆ Between 2012 and 2016, an average of 593 children under age 21 were treated for a primary dental-related condition in Rhode Island emergency departments annually. Of these children and youth, 22% were ages five and under, 17% were ages six to 11, 16% were ages 12 to 17, and 44% were age 18-20.<sup>34</sup>
- ◆ Each year between 2012 and 2016 in Rhode Island, an average of 73 children under age 19 were hospitalized with a diagnosis that included an oral health condition. During this time period, an average of 18 children per year under age 19 were hospitalized with an oral health condition as the primary reason for the hospitalization.<sup>35</sup>

*Note: Effective October 1, 2015, the International Classification of Disease (ICD) Codes changes from the 9th classification to the 10th classification, which may impact comparability across the years.*

## Importance of Early Dental Visits for Very Young Children

- ◆ Clinical recommendations are that children first visit the dentist before age one.<sup>36</sup> However, only 1.8% of infants and one year old children in the U.S. have ever visited a dentist, compared with 89% who have seen a physician annually.<sup>37</sup> In Rhode Island, children under age six (63%) are less likely to have received a dental check-up or cleaning in past 12 months than children over age six (97% of 6-11 year olds and 93% of 12-17 year olds).<sup>38</sup>
- ◆ There are too few dentists trained to treat very young children, and too few who treat children with special health care needs or those who have public insurance.<sup>39</sup>
- ◆ In 2016, 39% of Rhode Island children under age five with Medicaid coverage received any dental service, and 36% received a preventive dental service.<sup>40</sup>
- ◆ In 2015, the Rhode Island General Assembly passed legislation to increase access to oral health care for children by allowing dental hygienists to perform approved services in public health settings, including for young children.<sup>41</sup>
- ◆ Primary care providers can conduct oral health risk assessment, refer for dental care, and provide preventive services, all of which can improve oral health outcomes.<sup>42</sup>
- ◆ In addition to covering dental visits for children before the age of one, Rhode Island is one of 49 state Medicaid programs that reimburse primary care medical providers for preventive oral health services for very young children, including risk assessment, anticipatory guidance, and fluoride varnish application.<sup>43,44</sup>

### References

<sup>1,6,9,15,27,36,39</sup> *The state of little teeth.* (2014). Chicago, IL: American Academy of Pediatric Dentistry.

<sup>2</sup> *Oral health in America: A report of the Surgeon General.* (2000). Rockville, MD: U.S. Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health.

<sup>3,10</sup> National Health Interview Survey. (2016). *Table C-11a: Age-adjusted percent distributions (with standard errors) of unmet dental need due to cost in the past 12 months and of length of time since last visit with a dentist or other dental health care professional for children aged 2-17 years, by selected characteristics: United States, 2016.* Retrieved February 15, 2018, from [www.cdc.gov/nchs/nhis/shs/tables.htm](http://www.cdc.gov/nchs/nhis/shs/tables.htm)

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# Children's Mental Health

## DEFINITION

*Children's mental health* is the number of acute care hospitalizations of children under age 18 with a primary diagnosis of a mental disorder. Hospitalization is the most intensive type of treatment for mental disorders and represents only one type of treatment category on a broad continuum available to children with mental health problems in Rhode Island.

## SIGNIFICANCE

Mental health in childhood and adolescence is defined as the achievement of expected developmental, cognitive, social, and emotional milestones and the ability to use effective coping skills. Mental health status influences children's health and behavior at home, in child care or school, and in the community. Mental health conditions can impair daily functioning, prevent or affect academic achievement, increase involvement with the juvenile justice and child welfare systems, result in high treatment costs, diminish family incomes, and increase the risk for suicide. Children with mental health issues are also likely to have other chronic health conditions.<sup>1,2,3,4</sup>

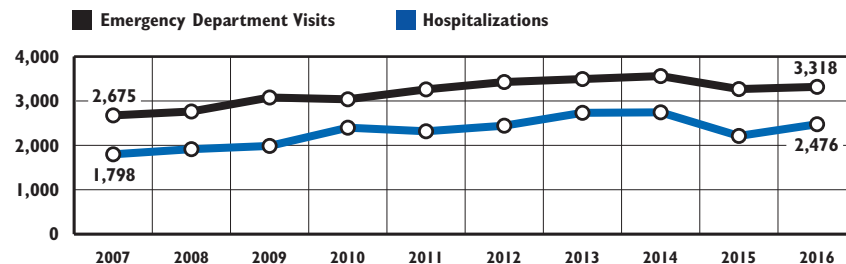
Mental health problems affect children of all backgrounds. Nationally, 10% of children under age five experience a significant mental health issue.<sup>5</sup> In Rhode Island, one in five (19.0%) children ages six to 17 has a

diagnosable mental health problem; one in ten (9.8%) has significant functional impairment.<sup>6</sup>

Risk factors for childhood mental disorders include prenatal exposure to alcohol, tobacco and other drugs; low birthweight; abuse and neglect; toxic stress; a family history of mental health issues and/or an inherited predisposition to a mental disorder; involvement with juvenile justice and child welfare systems; and living in poverty.<sup>7,8,9</sup>

Mental health treatment systems tend to be fragmented and crisis-driven with disproportionate spending on high-end care and often lack adequate investments in prevention and community-based services.<sup>10,11,12</sup> In Rhode Island, an estimated 55% of children ages three to 17 who needed mental health treatment or counseling had a problem obtaining needed care.<sup>13</sup> In Federal Fiscal Year (FFY) 2017, 462 Rhode Island children and youth awaited psychiatric inpatient admission for an average of four days on medical floors at Hasbro Children's Hospital. This is up from 212 children and three days in FFY 2016. Also during that time, an average of nine children per day were ready to leave the psychiatric hospital (up from the FFY 2016 average of six kids per day), but were unable due to a lack of step-down availability or there being no other safe placement (including at home).<sup>14,15</sup>

### Emergency Care for Primary Diagnosis of Mental Disorder, Children Under Age 18, Rhode Island, 2007-2016\*



Source: Rhode Island Department of Health, Hospital Discharge Database, 2007-2016. \*Data are for emergency department visits and hospitalizations, not children. Children may visit emergency department or be hospitalized more than once. Trend line is comparable to Factbooks since 2012. Note: Effective October 1, 2015, the International Classification of Disease (ICD) codes changed from the 9th to the 10th classification, which may impact comparability across the years.

◆ In 2016, there were 3,318 emergency department visits and 2,476 hospitalizations of Rhode Island children with a primary diagnosis of mental disorder. Between 2007 and 2016, emergency department visits increased 24% and hospitalizations increased 38%.<sup>16</sup>

### Type of Care for Primary Diagnosis of Mental Disorder by Select Subgroups, Children Under Age 18, Rhode Island, 2016

|                      | EMERGENCY DEPARTMENT VISITS |     | HOSPITALIZATIONS |     |
|----------------------|-----------------------------|-----|------------------|-----|
|                      | #                           | %   | #                | %   |
| Female               | 1,789                       | 54% | 1,395            | 56% |
| Male                 | 1,529                       | 46% | 1,081            | 44% |
| Age 6 and Under      | 129                         | 4%  | 92               | 4%  |
| Age 7-12             | 755                         | 23% | 620              | 25% |
| Age 13-17            | 2,434                       | 73% | 1,764            | 71% |
| Medicaid/Rite Care   | 2,063                       | 62% | 1,305            | 53% |
| Commercial Insurance | 1,100                       | 33% | 1,119            | 45% |
| Black                | 319                         | 10% | 209              | 8%  |
| White                | 2,116                       | 64% | 1,622            | 66% |
| Hispanic*            | 691                         | 21% | 464              | 19% |
| <b>TOTAL</b>         | <b>3,318</b>                |     | <b>2,476</b>     |     |

Source: Rhode Island Department of Health, Hospital Discharge Database, 2016. Totals may not sum to 100% due to small categories not being reported. \*Hispanic children can be of any race. Note: Effective October 1, 2015, the International Classification of Disease (ICD) codes changed from the 9th to the 10th classification, which may impact comparability across the years.



## Psychiatric Hospitals

Children Under Age 19 Treated at Rhode Island Psychiatric Hospitals, October 1, 2016 – September 30, 2017 (FFY 2017)

|                            | BRADLEY HOSPITAL<br>GENERAL PSYCHIATRIC<br>SERVICES |                              | BRADLEY HOSPITAL<br>DEVELOPMENTAL<br>DISABILITIES PROGRAM |                              | BUTLER HOSPITAL<br>ADOLESCENT<br>PSYCHIATRIC SERVICES |                              |
|----------------------------|---|------------------------------|---|------------------------------|---|------------------------------|
|                            | #<br>TREATED  | AVERAGE<br>LENGTH<br>OF STAY | #<br>TREATED  | AVERAGE<br>LENGTH<br>OF STAY | #<br>TREATED  | AVERAGE<br>LENGTH<br>OF STAY |
| Inpatient                  | 791   | 21 days                      | 116   | 38 days                      | 509*  | 8 days                       |
| Residential                | 41  | 235 days                     | 34  | 238 days                     | --  | --                           |
| Partial<br>Hospitalization | 824   | 20 visits                    | 102   | 20 visits                    | 166   | 5 visits                     |
| Home-Based                 | 0   | 0                            | 20  | 27 visits                    | --  | --                           |
| Outpatient                 | 1,609**   | **                           | **  | **                           | 55  | NA                           |

Source: Lifespan, 2016-2017 and Butler Hospital, 2016-2017. Programs can have overlapping enrollment. Number treated is based on the hospital census (i.e., the number of patients seen in any program during FFY 2017). The average length of stay is based on discharges. \*An additional 81 youth were treated in adult programs. \*\*Only total number treated with outpatient services by the Lifespan Physician Group is available for Bradley Hospital this year.

-- = Service not offered. NA = Data not available for this service.

◆ The two hospitals in Rhode Island that specialize in providing psychiatric care to children and youth are Bradley Hospital and Butler Hospital. Inpatient treatment at a psychiatric hospital is the most intensive type of mental health care. The most common diagnoses for youth treated at Butler or Bradley Hospitals in FFY 2017 in an inpatient setting were depressive disorders, anxiety disorders, adjustment disorders, bipolar disorders, and schizophrenia.<sup>18,19</sup>

◆ Bradley Hospital has a Developmental Disabilities Program that offers highly specialized inpatient and residential services to children and adolescents who show signs of serious emotional and behavioral problems in addition to developmental disabilities. Lifespan School Solutions owns and operates six Bradley schools and eight community based classrooms/public school partnerships for children with behavioral health problems and developmental disabilities. Together, the programs had an average daily enrollment of 348 students in FFY 2017. Lifespan School Solutions previously operated the East Providence High School partnership program and the Martin Middle School Program, which were closed in 2017.<sup>20</sup>

## Children with Medicaid and RIte Care with a Mental Health Diagnosis

◆ In State Fiscal Year (SFY) 2017, 21% (25,084) of children under age 19 enrolled in Medicaid/RIte Care had a mental health diagnosis, including but not limited to anxiety, alcohol/drug dependence, or psychosis as well as depressive, mood, and personality disorders. Of those children with a mental health diagnosis, 21% were ages 6 and under, 39% were ages seven to 12, and 40% were ages 13 to 18. In addition, 41% were females and 59% were males.<sup>21</sup>

◆ In SFY 2017, 1,168 children under age 19 enrolled in Medicaid/RIte Care were hospitalized due a mental health related condition (up from 983 in SFY 2016) and 2,401 children had a mental health related emergency department visit (up from 1,690 in SFY 2016). Ninety-one percent of those mental health-related emergency department visits did not result in a hospitalization.<sup>22</sup>

## Suicide Among Rhode Island Children and Youth

◆ Children and youth with mental health conditions are at increased risk for suicide.<sup>23</sup> In 2017, 11% of Rhode Island high school students reported attempting suicide one or more times during the past year.<sup>24</sup> In Rhode Island between 2012 and 2016, there were 864 emergency department visits and 522 hospitalizations of youth ages 13-19 due to suicide attempts. Twenty-two children under age 20 died due to suicide in Rhode Island between 2012-2016.<sup>25</sup>

## Rhode Island's Community Mental Health Organizations

◆ The six Community Mental Health Organizations (CMHOs) in Rhode Island are the primary source of public mental health treatment services available in the state for children and adults. During 2017, 4,506 children under age 18 were treated at CMHOs, and 3,915 children were receiving treatment as of December 31, 2017.<sup>26</sup>

### References

<sup>1</sup> Centers for Disease Control and Prevention. (2013). Mental health surveillance among children: United States, 2005-2011. *Morbidity and Mortality Weekly Report*, 62(Supp.2):1-35.

<sup>2,23</sup> Murphey, D., Barry, M., & Vaughn, B. (2013). *Adolescent health highlight: Mental health disorders*. (Publication No. 2013-1). Washington, DC: Child Trends.

(continued on page 179)

# Children with Special Needs

## DEFINITION

*Children with special needs* are those who have a chronic disease or disability that requires educational services, health care, and/or related services of a type or amount beyond that required generally by children. Special needs can be physical, developmental, behavioral, and/or emotional. This indicator measures the number of children with special health care needs enrolled in Early Intervention, special education, Supplemental Security Income (SSI), and Medical Assistance.

## SIGNIFICANCE

In 2016, an estimated 19% of children in the U.S. and 22% of children in Rhode Island had at least one special health care need.<sup>1</sup> Children with special health care needs (CSHCN) can have impairments of varying degrees in physical, developmental, emotional, and/or behavioral functioning.<sup>2</sup> In Rhode Island in 2016, 32% of parents with young children reported developmental screenings, compared to 27% of parents nationally.<sup>3</sup> Nationally, 18% of children have two or more health conditions, compared to 21% of children in Rhode Island. Commonly reported health conditions include Attention Deficit Disorder or Attention Deficit Hyperactivity Disorder, asthma, learning disabilities, speech disorders, developmental delays, behavioral problems, anxiety, and depression.<sup>4</sup>

In Rhode Island in 2015, high school students with disabilities reported experiencing physical fights and being bullied at school more than their non-disabled peers. They were also more than three times as likely to feel sad or hopeless and more than four times as likely to have attempted suicide as their non-disabled peers. They also reported higher rates of physical inactivity, poor grades, sexual activity, forced sexual intercourse, cigarette smoking, drinking, and using marijuana.<sup>5</sup>

CSHCN may require physical health, mental health, and education services, special equipment, or assistive technology. Health-related needs are best met via a comprehensive, coordinated, and family-centered medical home. Families may also need help with transportation, child care, family support, and home modifications. Having children with special needs can significantly upset parents' finances, employment, and family lives.<sup>6,7,8</sup>

In 2014, Congress passed the *Achieving a Better Life Experience Act (ABLE)*, which created tax-exempt saving accounts for people who become disabled before age 26. *ABLE* accounts cover a range of expenses related to living a life with disabilities, including health care, education, housing, transportation, and employment training.<sup>9,10</sup> In 2015, the Rhode Island General Assembly established *ABLE* savings accounts for Rhode Islanders with special health care needs.<sup>11</sup>

## Children Enrolled in Early Intervention

- ◆ States are required by the federal *Individuals with Disabilities Education Act (IDEA) Part C* to identify and provide appropriate Early Intervention (EI) services to all infants and toddlers under age three who have developmental delays or have a diagnosed physical or mental condition that is associated with a developmental delay.<sup>12</sup>
- ◆ As of June 30, 2017, nine certified EI provider agencies served 2,040 children in Rhode Island. Nearly two-thirds (63%) of those children receiving EI services were male and just over one-third (37%) were female. Of these children, 59% were White, 28% were Hispanic, 8% were Black, 3% were Mixed Race, 2% were Asian, and <1% were American Indian or Alaska Native.<sup>13</sup>

## Children Enrolled in Special Education

- ◆ Under *IDEA Part B*, local school systems are responsible for identifying, evaluating, and serving students ages three to 21 who have disabilities that might require special education and related services.<sup>14</sup>
- ◆ As of June 30, 2017 in Rhode Island, there were 3,045 children ages three to five who received preschool special education services.<sup>15</sup>
- ◆ In Rhode Island as of June 30, 2017, 21,008 students in public schools ages six to 21 received special education services (15% of all students). Thirty-seven percent of students receiving special education services in Rhode Island had a learning disability.<sup>16</sup>
- ◆ Early Intervention (EI) programs are required to provide transition services for children who are enrolled in EI and who may be eligible for special education services at age three. In 2017, 65% of the 1,002 children who reached age three while in EI were determined to be eligible for preschool special education, 18% were found not eligible, and 14% did not have eligibility determined when exiting EI. The remainder completed their service plan prior to reaching the maximum age for EI, moved out of state, withdrew, or were otherwise unreachable for follow-up.<sup>17</sup>

## Medical Assistance for Children With Special Health Care Needs

◆ As of December 31, 2017, there were 5,216 Rhode Island children and youth under age 19 receiving Medical Assistance benefits through their enrollment in the federal SSI program.<sup>18,19</sup>

◆ In Rhode Island, the Katie Beckett eligibility provision provides Medical Assistance coverage to children under age 19 who have serious disabling conditions, in order to enable them to be cared for at home instead of in an institution.<sup>20</sup> As of December 31, 2017, there were 936 Rhode Island children enrolled through the Katie Beckett provision, a decline of 47% from the peak enrollment of 1,770 in 2007.<sup>21,22</sup>

◆ Children with special health care needs have a variety of coverage options under Medicaid. Medicaid coverage also provides access to the Early and Periodic Screening, Diagnostic, and Treatment benefit, which requires that children receive all of the services they need, either as a direct benefit or wrap-around benefit to commercial coverage they might have.<sup>23,24</sup>

## Children With Special Needs in the Child Welfare System

◆ Children and youth who are in the child welfare system are more likely to have special needs, including behavioral and emotional problems, developmental delays, and serious health problems than other children. They often enter the child welfare system in poor health and face difficulties accessing services while in care.<sup>25,26</sup>

◆ As of December 31, 2017, 2,067 children in Rhode Island were enrolled in Medical Assistance through the child welfare system.<sup>27</sup> Per provisions of the federal *Affordable Care Act*, all youth who turned age 18 while in foster care are eligible for Medicaid coverage until they reach age 26 in the state in which they aged out of care.<sup>28</sup> In Rhode Island, estimates show that 66% of all eligible former foster youth were enrolled in Medicaid coverage as of December 31, 2017, up from 61%\* in 2016.<sup>29</sup>

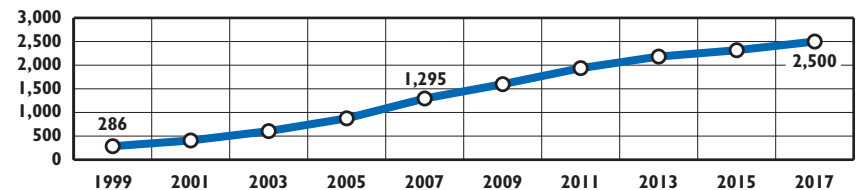
◆ Children who are adopted through the Rhode Island Department of Children, Youth and Families and have special needs may qualify for Medical Assistance coverage.<sup>30</sup> As of December 31, 2017, 2,685 children were enrolled in Medical Assistance because of special needs adoptions.<sup>31</sup>

## Children With Autism Spectrum Disorder (ASD)

◆ Autism Spectrum Disorder (ASD) is a developmental disability that can cause significant social, communication, and behavioral challenges. Children diagnosed with ASD have a variety of symptoms and experience challenges and abilities that range widely in severity. Many children with ASD face challenges in social interaction, speech/language, and communication and demonstrate repetitive behaviors and routines.<sup>32,33</sup>

◆ The national ASD prevalence among children age eight is estimated to be 14.6 per 1,000 children. ASD prevalence is significantly higher among boys (23.6 per 1,000 boys) than girls (5.3 per 1,000 girls). ASD prevalence is higher among non-Hispanic White children than non-Hispanic Black children and Hispanic children (15.5 per 1,000 children, compared to 13.2 and 10.1 per 1,000).<sup>34</sup>

## Children Ages Three to 21 With Autism Spectrum Disorder (ASD), Rhode Island, December 1999 – June 2017



Source: Rhode Island Department of Education, December 1999-June 2017. All data prior to 2000 is a December point in time run, and all data starting in 2000 and beyond is a June point in time run. Numbers include parentally placed students.

◆ In June 2017, there were 2,500 Rhode Island children ages three to 21 with ASD who received special education services.<sup>35</sup> The increase in number of children with ASD has been attributed, in part, to improved awareness and better screening and evaluation tools, as well as the broadening of the definition of ASD.<sup>36</sup> Early and appropriate identification and sustained interventions by skilled professionals can result in improvements in the levels of independent functioning of children and youth with ASD.<sup>37,38</sup>

### Methodology & References

\*Data for 2016 should be interpreted with caution. In September 2016, the state of Rhode Island instituted a new integrated eligibility determination system (Unified Health Infrastructure Project/UHIP), which may have affected data counts for Rte Care, Rte Smiles, Katie Beckett, former foster youth, and special needs adoptions.

References are on page 179.

# Infants Born at Risk

## DEFINITION

*Infants born at risk* is the number of babies born in Rhode Island to Rhode Island women who were low-income, single, did not have a high school diploma, and/or were under age 20.

## SIGNIFICANCE

The basic architecture of the human brain develops during the infant and toddler years. By age three, a child's brain has grown to 90% of its adult size and the foundation of many cognitive structures and systems are in place. Early experiences lay the foundation for future learning, and strong, positive relationships are the building blocks for healthy development. Babies who have positive, predictable relationships with parents and other caregivers have a sturdy foundation to achieve healthy growth and development, while babies who do not have a strong relationship with a nurturing caregiver often encounter challenges in future learning and development.<sup>1,2,3</sup>

Infancy is a time of great opportunity and vulnerability. A child's development can be compromised by "toxic stress" caused by a variety of adverse childhood experiences and risk factors, including poverty, maternal depression, family chaos, exposure to violence, child maltreatment, parental substance abuse, and/or parental incarceration. These negative experiences in early childhood place a

child at increased risk for chronic disease, reduced quality of life in adulthood, reduced life expectancy, and lower rates of school engagement.<sup>4,5,6</sup>

Economic hardship in early childhood is associated with poor educational and health outcomes. Differences in development are evident by age two, with children born into low-income families lagging behind children born into higher income families. When economic insecurity is combined with other risk factors such as having a single parent, a parent with low education levels, and/or a teen parent, children are at markedly increased risk for poor outcomes.<sup>7</sup> In the U.S., 45% of all infants and toddlers live in low-income families (below 200% of the federal poverty line), a significantly higher proportion than older children and adults. In fact, children under age three are more than twice as likely to live in poverty as adults age 65 or older.<sup>8</sup>

Family planning programs help individuals avoid unintended pregnancies which are associated with negative educational, health, and economic outcomes for women and children.<sup>9,10</sup> In addition, evidence-based home visiting programs for vulnerable families beginning during pregnancy (or as early as possible) and continuing through infancy and toddlerhood help parents develop critical nurturing skills and improve outcomes for children.<sup>11</sup>

**Births by Key Risk Factors, Four Core Cities and Rhode Island, 2017**

| CITY/TOWN           | BIRTHS        | # TO LOW-INCOME MOTHERS | # TO SINGLE MOTHERS | # TO MOTHERS WITHOUT A HIGH SCHOOL DIPLOMA | # TO MOTHERS YOUNGER THAN 20 |
|---------------------|---------------|-------------------------|---------------------|--|------------------------------|
| Central Falls       | 321           | 277                     | 209                 | 85   | 35                           |
| Pawtucket           | 864           | 588                     | 514                 | 121  | 30                           |
| Providence          | 2,366         | 1,737                   | 1,395               | 493  | 158                          |
| Woonsocket          | 519           | 381                     | 317                 | 95   | 45                           |
| <i>Rhode Island</i> | <i>10,050</i> | <i>4,992</i>            | <i>4,524</i>        | <i>1,098</i>                               | <i>397</i>                   |

Source: Rhode Island Department of Health, KIDSNET Database, 2017.

- ◆ The U.S. birth rate has been declining since 2007, reaching an historic low in 2016. The U.S. teen birth rate also reached a record low in 2016. Rhode Island had the fifth lowest overall birth rate and the seventh lowest teen birth rate in the U.S. in 2016, with 10.2 births per 1,000 women ages 15 to 44 and 12.9 births per 1,000 women ages 15 to 19.<sup>12</sup>
- ◆ The total number of babies born in Rhode Island to Rhode Island women declined 16% between 2007 and 2017, from 12,010 to 10,050 births. The proportion of Rhode Island births that were to mothers without a high school diploma fell from 18% to 11% and the proportion of all births that were to teen mothers fell from 10% to 4% of all births during the same time period.<sup>13</sup>
- ◆ All babies born in Rhode Island are screened through the Rhode Island Department of Health's Newborn Risk Assessment Program. In 2017, there were 6,303 newborns (63%) who "screened positive," indicating the presence of one or more risk factors associated with poor developmental outcomes.<sup>14</sup>
- ◆ Of the 10,050 babies born in Rhode Island to Rhode Island women in 2017, nearly one-third (3,129) had a mother with a documented history of treatment for mental health conditions. Also, 571 (6%) had a mother with a documented history of substance abuse problems, and 211 (2%) had a mother with documented involvement in the child welfare system (either as an adult or as a child).<sup>15</sup>

Table 16.

## Infants Born at Risk, Rhode Island, 2017

| CITY/TOWN          | TOTAL # OF BIRTHS | # OF BIRTHS TO LOW-INCOME MOTHERS | # OF BIRTHS TO SINGLE MOTHERS | BIRTHS TO MOTHERS WITHOUT A HIGH SCHOOL DIPLOMA | # OF BIRTHS TO MOTHERS YOUNGER THAN AGE 20 |
|--------------------|-------------------|-----------------------------------|-------------------------------|---|--|
| Barrington         | 103               | 12                                | 10                            | 1   | *  |
| Bristol            | 128               | 44                                | 47                            | 5   | *  |
| Burrillville       | 116               | 36                                | 44                            | 6   | *  |
| Central Falls      | 321               | 277                               | 209                           | 85  | 35   |
| Charlestown        | 36                | 9                                 | 14                            | 0   | 0  |
| Coventry           | 301               | 78                                | 113                           | 19  | *  |
| Cranston           | 772               | 346                               | 305                           | 68  | 20   |
| Cumberland         | 325               | 81                                | 73                            | 12  | 5  |
| East Greenwich     | 108               | 13                                | 13                            | 1   | 0  |
| East Providence    | 447               | 175                               | 181                           | 22  | 12   |
| Exeter             | 44                | 11                                | 16                            | 1   | *  |
| Foster             | 42                | 15                                | 16                            | 0   | 0  |
| Glocester          | 47                | 16                                | 19                            | 1   | 0  |
| Hopkinton          | 30                | 9                                 | 8                             | 0   | *  |
| Jamestown          | 26                | 7                                 | 5                             | 1   | 0  |
| Johnston           | 250               | 103                               | 106                           | 9   | *  |
| Lincoln            | 171               | 50                                | 60                            | 8   | *  |
| Little Compton     | 7                 | 3                                 | 2                             | 0   | 0  |
| Middletown         | 162               | 45                                | 49                            | 7   | *  |
| Narragansett       | 53                | 14                                | 15                            | 1   | *  |
| New Shoreham       | 5                 | 4                                 | 3                             | 1   | 0  |
| Newport            | 226               | 101                               | 94                            | 28  | 9  |
| North Kingstown    | 211               | 58                                | 58                            | 10  | 7  |
| North Providence   | 291               | 121                               | 131                           | 14  | 8  |
| North Smithfield   | 63                | 19                                | 22                            | 3   | *  |
| Pawtucket          | 864               | 588                               | 514                           | 121   | 30   |
| Portsmouth         | 110               | 21                                | 18                            | 2   | *  |
| Providence         | 2,366             | 1,737                             | 1,395                         | 493   | 158  |
| Richmond           | 43                | 9                                 | 9                             | 0   | 0  |
| Scituate           | 79                | 17                                | 15                            | 1   | 0  |
| Smithfield         | 142               | 28                                | 27                            | 2   | *  |
| South Kingstown    | 150               | 40                                | 39                            | 7   | 6  |
| Tiverton           | 75                | 28                                | 25                            | 6   | *  |
| Warren             | 88                | 28                                | 27                            | 4   | *  |
| Warwick            | 737               | 227                               | 265                           | 32  | 19   |
| West Greenwich     | 46                | 8                                 | 14                            | 1   | 0  |
| West Warwick       | 330               | 161                               | 182                           | 24  | 13   |
| Westerly           | 144               | 51                                | 42                            | 7   | *  |
| Woonsocket         | 519               | 381                               | 317                           | 95  | 45   |
| Unknown            | 72                | 21                                | 22                            | 0   | 0  |
| Four Core Cities   | 4,070             | 2,983                             | 2,435                         | 794   | 268  |
| Remainder of State | 5,908             | 1,988                             | 2,067                         | 304   | 129  |
| Rhode Island       | 10,050            | 4,992                             | 4,524                         | 1,098   | 397  |

### Source of Data for Table/Methodology

Rhode Island Department of Health, KIDSNET Database, 2017. Birth data from 2017 are provisional. Data include only births that occurred in Rhode Island to Rhode Island residents. This table shows the number of births with key risk factors that place a child at high risk for poor developmental outcomes. Births to low-income women are births to women with public health insurance (Medicaid/RIteCare) or no insurance. Of the 4,992 births to low-income families in 2017, 4,947 had Medicaid/RIte Care coverage and 45 had no insurance.

\* Fewer than 5 births to mothers younger than age 20 are suppressed by the RI Department of Health due to the policy regarding sensitive reproductive health information of a potentially socially-stigmatizing age group. These births are still counted in the four core cities, remainder of state, and state totals.

The definition for this indicator changed in 2016. The percentage of births with specific risk factors (births to women under age 20, single, and without a high school diploma) and the number and percentage of all births with all three risk factors is no longer being reported.

Core cities are Central Falls, Pawtucket, Providence, and Woonsocket.

### References

- <sup>1</sup> U.S. Department of Health and Human Services. (2011). *Supporting brain development in traumatized children and youth*. Washington, DC: Child Welfare Information Gateway.
- <sup>2</sup> U.S. Department of Health and Human Services. (2009). *Understanding the effects of maltreatment on brain development*. Washington, DC: Child Welfare Information Gateway.
- <sup>34</sup> *Early experiences matter: A guide to improved policies for infants and toddlers*. (2009). Washington, DC: Zero to Three National Center for Infants and Toddlers.
- <sup>3</sup> Shonkoff, J. P., Garner, A. S. & The Committee on Psychosocial Aspects of Child and Family Health, Committee on Early Childhood, Adoption, and Dependent Care, and Section on Developmental and Behavioral Pediatrics. (2012). The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*, 129(1), e232-e246.

(continued on page 180)



# Evidence-Based Family Home Visiting

## DEFINITION

*Evidence-based family home visiting* is the number of families enrolled in evidence-based home visiting programs funded/coordinated by the Rhode Island Department of Health.

## SIGNIFICANCE

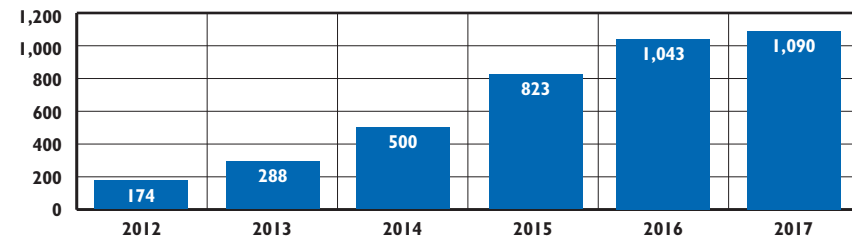
Parents are the most important individuals in a child's life, particularly during infancy and early childhood. Infants and toddlers who receive responsive, nurturing care and are provided with opportunities to learn have a strong foundation for success. When parents face obstacles that impact their ability to meet the needs of their babies, their child's health, development, and learning trajectory are threatened.<sup>1,2</sup>

Home visiting programs are designed to reach young children and their families at home. Each program is different, but all provide parenting education to foster healthy, safe, and stimulating environments for young children. Children in at-risk families who participate in high-quality home visiting programs have improved language, cognitive, and social-emotional development and are less likely to experience abuse and neglect. Families who participate are more likely to provide an enriching home environment, use appropriate discipline strategies, and become more

economically secure through education and employment. Some home visiting programs can also improve maternal and child health, reducing long-term health care costs.<sup>3,4,5</sup>

In 2010, federal legislation established the Maternal, Infant, and Early Childhood Home Visiting (MIECHV) program to expand and improve state-administered home visiting programs for at-risk families with young children. This funding must be spent by states on approved models that meet rigorous evidentiary standards.<sup>6</sup> In 2017, there were 20 home visiting models that were identified as effective, evidence-based programs for families during the prenatal period and early childhood years, with evidence showing they produced statistically significant improvements in outcomes for children and families.<sup>7</sup> Rhode Island uses MIECHV funding to implement three of these evidence-based models: Healthy Families America, Nurse-Family Partnership, and Parents as Teachers, and the federal government directly funds the Early Head Start home visiting model.<sup>8</sup> In order to achieve improved outcomes for children, evidence-based programs must follow national program guidelines, use professional staff trained in the model, be implemented in the appropriate timeframes, and be implemented with fidelity.<sup>9</sup>

**Families Enrolled in Evidence-Based Family Home Visiting Coordinated by the Rhode Island Department of Health, Rhode Island, 2012-2017**



Source: Rhode Island Department of Health, enrollment in MIECHV-funded evidence-based home visiting programs, October 2012-2017.

- ◆ As of October 2017, of the 1,090 families enrolled in evidence-based home visiting programs 12% had mothers under age 20, 26% had mothers ages 20 to 24, and 62% had mothers age 25 or older at enrollment. Thirty percent of the mothers had less education than a high school diploma or GED, 35% had a high school diploma or GED, 25% had some college or vocational training, 5% had a four-year college degree, and 5% had an unknown amount of education. At the time of enrollment, 53% of the mothers were single (had never married), 33% were married or had a domestic partner, 3% were divorced or separated, less than 1% were widowed, and 11% had an unknown marital status. Among the enrolled children, 6% were not born yet, 36% were under age one, 28% were age one, 18% were age two, 11% were age three, and 1% were age four.<sup>10</sup>
- ◆ Home-based Early Head Start is also recognized as an evidence-based home visiting program that improves child outcomes.<sup>11</sup> As of October 2017 in Rhode Island, there were 383 children enrolled in home-based Early Head Start.<sup>12</sup>
- ◆ Early Intervention (EI) programs serve infants and toddlers with developmental delays and disabilities in Rhode Island and deliver nearly all (95%) services through home visits. As of June 2017, there were 2,040 children enrolled in EI in Rhode Island.<sup>13</sup>
- ◆ Rhode Island also operates First Connections, a statewide, short-term home visiting program designed to help families get connected to needed resources.<sup>14</sup> In 2017, 2,900 children received at least one First Connections home visit (57% lived in one of the four core cities and 43% in the remainder of the state).<sup>15</sup>

# Evidence-Based Family Home Visiting

Table 17.

## Evidence Based Family Home Visiting, Rhode Island, 2017

| CITY/TOWN          | COMMUNITY CONTEXT, 2017 |   |                                    | # RECEIVED FIRST CONNECTIONS VISIT IN 2017 | # FAMILIES ENROLLED IN EVIDENCE-BASED HOME VISITING PROGRAMS, OCTOBER 1, 2017 |                          |                      |       |
|--------------------|-------------------------|---|------------------------------------|--|---|--------------------------|----------------------|-------|
|                    | TOTAL # OF BIRTHS       | # OF BIRTHS WITH 1 OR MORE RISK FACTORS | # OF BIRTHS TO LOW-INCOME FAMILIES |  | HEALTHY FAMILIES AMERICA  | NURSE-FAMILY PARTNERSHIP | PARENTS AS TEACHERS* | TOTAL |
| Barrington         | 103                     | 21                                      | 12                                 | 4  | 1   | 0                        | 0                    | 1     |
| Bristol            | 128                     | 72                                      | 44                                 | 25   | 1   | 1                        | 0                    | 2     |
| Burrillville       | 116                     | 65                                      | 36                                 | 22   | 2   | 0                        | 1                    | 3     |
| Central Falls      | 321                     | 273                                     | 277                                | 154  | 36  | 14                       | 20                   | 70    |
| Charlestown        | 36                      | 22                                      | 9                                  | 21   | 5   | 0                        | 0                    | 5     |
| Coventry           | 301                     | 163                                     | 78                                 | 83   | 10  | 0                        | 7                    | 17    |
| Cranston           | 772                     | 443                                     | 346                                | 179  | 50  | 7                        | 27                   | 84    |
| Cumberland         | 325                     | 128                                     | 81                                 | 33   | 4   | 3                        | 2                    | 9     |
| East Greenwich     | 108                     | 33                                      | 13                                 | 13   | 1   | 1                        | 1                    | 3     |
| East Providence    | 447                     | 276                                     | 175                                | 71   | 14  | 1                        | 7                    | 22    |
| Exeter             | 44                      | 24                                      | 11                                 | 12   | 1   | 0                        | 0                    | 1     |
| Foster             | 42                      | 23                                      | 15                                 | 2  | 0   | 0                        | 0                    | 0     |
| Glocester          | 47                      | 26                                      | 16                                 | 8  | 0   | 0                        | 0                    | 0     |
| Hopkinton          | 30                      | 15                                      | 9                                  | 9  | 3   | 0                        | 0                    | 3     |
| Jamestown          | 26                      | 14                                      | 7                                  | 4  | 0   | 0                        | 0                    | 0     |
| Johnston           | 250                     | 147                                     | 103                                | 43   | 2   | 2                        | 1                    | 5     |
| Lincoln            | 171                     | 80                                      | 50                                 | 21   | 3   | 2                        | 2                    | 7     |
| Little Compton     | 7                       | 5                                       | 3                                  | 2  | 0   | 0                        | 0                    | 0     |
| Middletown         | 162                     | 70                                      | 45                                 | 26   | 1   | 0                        | 4                    | 5     |
| Narragansett       | 53                      | 22                                      | 14                                 | 14   | 0   | 0                        | 1                    | 1     |
| New Shoreham       | 5                       | 5                                       | 4                                  | 0  | 0   | 0                        | 0                    | 0     |
| Newport            | 226                     | 131                                     | 101                                | 54   | 6   | 1                        | 6                    | 13    |
| North Kingstown    | 211                     | 102                                     | 58                                 | 64   | 6   | 0                        | 0                    | 6     |
| North Providence   | 291                     | 181                                     | 121                                | 38   | 4   | 3                        | 1                    | 8     |
| North Smithfield   | 63                      | 33                                      | 19                                 | 13   | 0   | 0                        | 1                    | 1     |
| Pawtucket          | 864                     | 644                                     | 588                                | 334  | 82  | 19                       | 56                   | 157   |
| Portsmouth         | 110                     | 35                                      | 21                                 | 15   | 2   | 0                        | 3                    | 5     |
| Providence         | 2,366                   | 1,836                                   | 1,737                              | 1,027                                      | 259   | 76                       | 100                  | 435   |
| Richmond           | 43                      | 16                                      | 9                                  | 12   | 0   | 0                        | 0                    | 0     |
| Scituate           | 79                      | 33                                      | 17                                 | 8  | 0   | 0                        | 1                    | 1     |
| Smithfield         | 142                     | 61                                      | 28                                 | 10   | 0   | 0                        | 0                    | 0     |
| South Kingstown    | 150                     | 71                                      | 40                                 | 48   | 12  | 0                        | 4                    | 16    |
| Tiverton           | 75                      | 38                                      | 28                                 | 9  | 4   | 0                        | 0                    | 4     |
| Warren             | 88                      | 51                                      | 28                                 | 12   | 2   | 1                        | 2                    | 5     |
| Warwick            | 737                     | 396                                     | 227                                | 198  | 23  | 3                        | 5                    | 31    |
| West Greenwich     | 46                      | 18                                      | 8                                  | 9  | 3   | 0                        | 0                    | 3     |
| West Warwick       | 330                     | 229                                     | 161                                | 112  | 17  | 3                        | 10                   | 30    |
| Westerly           | 144                     | 70                                      | 51                                 | 54   | 11  | 0                        | 34                   | 45    |
| Woonsocket         | 519                     | 402                                     | 381                                | 137  | 45  | 10                       | 36                   | 91    |
| Unknown            | 72                      | 29                                      | 21                                 | 0  | 1   | 0                        | 0                    | 1     |
| Four Core Cities   | 4,070                   | 3,155                                   | 2,983                              | 1,652                                      | 422   | 119                      | 212                  | 753   |
| Remainder of State | 5,908                   | 3,119                                   | 1,988                              | 1,248                                      | 188   | 28                       | 120                  | 336   |
| Rhode Island       | 10,050                  | 6,303                                   | 4,992                              | 2,900                                      | 611   | 147                      | 332                  | 1,090 |

### Source of Data for Table/Methodology

Birth and home visiting data are from the Rhode Island Department of Health KIDSNET database. Birth data from 2017 are provisional. Number of births with one or more risk factor is the "risk positive" definition from the Developmental Risk Assessment. Births to low-income women are births to women with public health insurance (Medicaid/RtCare) or no insurance.

\*The city/town table includes families enrolled in MIECHV-funded programs as well as three additional Parents as Teachers programs that report data to the Department of Health. There were also 113 families enrolled in Parents as Teachers programs serving Bristol Warren, North Kingstown, and Warwick.

Unknown: Specific city/town information is unavailable.

Core cities are Central Falls, Pawtucket, Providence, and Woonsocket

### References

- <sup>1,5</sup> DiLauro, E. & Schreiber, L. (2012). *Reaching families where they live: Supporting parents and child development through home visiting*. Washington, DC: Zero to Three.
- <sup>2,6</sup> *States and the new federal home visiting initiative: An assessment from the starting line*. (2011). Washington, DC: The Pew Charitable Trusts.
- <sup>4,7,11</sup> Sama-Miller, et al. (2017). *Home visiting evidence of effectiveness review: Executive summary*. Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research, and Evaluation.
- <sup>5</sup> *Home visiting family support programs: Benefits of the Maternal, Infant, and Early Childhood Home Visiting Program*. (2015). Washington, DC: The Pew Charitable Trusts.
- <sup>8,10,14,15</sup> Rhode Island Department of Health, 2017.
- <sup>9</sup> Howard, K. S. & Brooks-Gunn, J. (2009). The role of home-visiting programs in preventing child abuse and neglect. *The Future of Children*, 19(2), 119-146.
- <sup>12</sup> Rhode Island Early Head Start program reports to Rhode Island KIDS COUNT, October 2017.
- <sup>13</sup> Rhode Island Executive Office of Health and Human Services, Center for Child and Family Health, June 30, 2017.

# Women with Delayed Prenatal Care

## DEFINITION

*Women with delayed prenatal care* is the percentage of women beginning prenatal care in the second or third trimester of pregnancy. Data are reported by place of mother's residence, not place of infant's birth.

## SIGNIFICANCE

Early prenatal care is an important way to identify and treat health problems as well as influence health behaviors that can affect fetal development, infant health, and maternal health. Women receiving late or no prenatal care are at increased risk of poor birth outcomes such as having babies who are low birthweight or who die within the first year of life.<sup>1</sup>

Effective prenatal care screens for and intervenes with a range of maternal needs including nutrition, social support, mental health, smoking cessation, substance use, domestic violence, and unmet needs for food and shelter.<sup>2,3</sup> A prenatal visit is the first step in establishing an infant's medical home and can provide valuable links to other services.<sup>4,5</sup>

Timely initiation of prenatal care is especially important for women who face multiple risks for poor birth outcomes, as is ensuring access to health care services before pregnancy. Effective

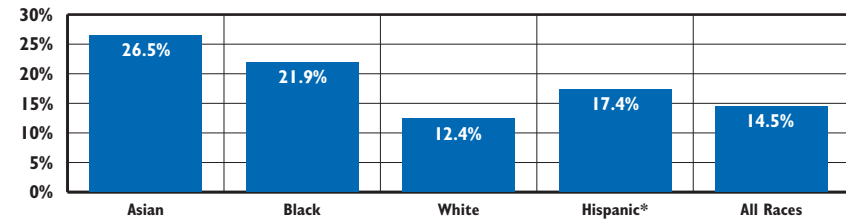
monitoring and treatment of chronic disease, education on preventive health practices, implementing and enhancing Medicaid policies to improve health insurance coverage, and ensuring access to culturally and linguistically competent health providers can improve health care for women of childbearing age.<sup>6</sup>

Barriers to prenatal care include not knowing one is pregnant, not being able to get an appointment or start care when desired, lack of transportation or child care, inability to get time off work, and financial constraints, including lack of insurance and/or money to pay for care.<sup>7</sup>

Rhode Island women with delayed or no prenatal care were more likely to report their pregnancy was unintended than women who initiated care in the first trimester.<sup>8</sup> Between 2009 and 2011, 22.0% of Rhode Island mothers with an unintended pregnancy had delayed or no prenatal care, compared with 7.9% of mothers with an intended pregnancy.<sup>9</sup>

In Rhode Island between 2012 and 2016, 14.5% of women who gave birth did not begin care until the second or third trimester. Of all age groups in Rhode Island, adolescents were the most likely to delay prenatal care.<sup>10</sup>

**Women With Delayed Prenatal Care by Race/Ethnicity, Rhode Island, 2012-2016**



Source: Rhode Island Department of Health, Center for Health Data and Analysis, Maternal and Child Database, 2012-2016. \*Hispanic may be included in any racial category. Data for births in 2015 are provisional.

- ◆ Between 2012 and 2016 in Rhode Island, Black women (21.9%), Hispanic women (17.4%), and Asian women (26.5%), were more likely to receive delayed prenatal care than White women (12.4%).<sup>11</sup>
- ◆ Between 2012 and 2016 in Rhode Island, women with a high school degree or less were more likely to receive delayed prenatal care than women with more than a high school education (19.4% compared to 11.1%). The percentage of pregnant women with delayed prenatal care in the four core cities was 18.6%. Rhode Island women who are older, married, and have higher levels of education were also most likely to initiate care in the first trimester.<sup>12,13</sup>

## Insurance Coverage Improves Access to Prenatal Care

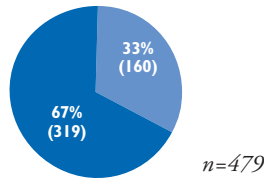
- ◆ In the U.S. and Rhode Island, women with commercial insurance have the highest rates of timely prenatal care. Between 2012 and 2016, pregnant women who were uninsured were most likely to receive delayed prenatal care (33%) compared to pregnant women with health coverage through RIte Care (Rhode Island's Medicaid managed care health program) (19%), and pregnant women with private insurance coverage (10%).<sup>14,15</sup>
- ◆ RIte Care has had a positive impact on health care services for its members. RIte Care health plans rank above the 90th percentile in member access to timely prenatal care when compared to other Medicaid health plans in the nation.<sup>16</sup>

# Women with Delayed Prenatal Care

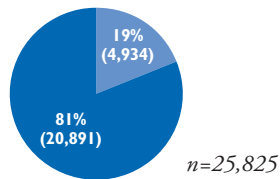
## Delayed Prenatal Care by Mother's Insurance Type, Rhode Island, 2012-2016

- Delayed Prenatal Care (2nd or 3rd Trimester)
- Prenatal Care in 1st Trimester

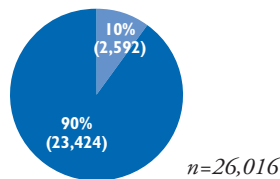
### Uninsured



### Public Insurance (Rite Care)



### Private Insurance



Source: Rhode Island Department of Health, Center for Health Data and Analysis, Maternal and Child Health Database, 2012-2016.

Table 18. Delayed Prenatal Care, Rhode Island, 2012-2016

| CITY/TOWN          | # BIRTHS | # DELAYED CARE | % DELAYED CARE     |
|--------------------|----------|----------------|--------------------|
| Barrington         | 537      | 56             | 10.4%              |
| Bristol            | 719      | 91             | 12.7%              |
| Burrillville       | 645      | 83             | 12.9%              |
| Central Falls      | 1,613    | 292            | 18.1%              |
| Charlestown        | 238      | 14             | 5.9% <sup>^</sup>  |
| Coventry           | 1,480    | 177            | 12.0%              |
| Cranston           | 3,927    | 514            | 13.1%              |
| Cumberland         | 1,661    | 176            | 10.6%              |
| East Greenwich     | 576      | 62             | 10.8%              |
| East Providence    | 2,347    | 310            | 13.2%              |
| Exeter             | 246      | 27             | 11.0%              |
| Foster             | 166      | 19             | 11.4% <sup>^</sup> |
| Glocester          | 337      | 40             | 11.9%              |
| Hopkinton          | 288      | 28             | 9.7%               |
| Jamestown          | 115      | 11             | 9.6% <sup>^</sup>  |
| Johnston           | 1,330    | 150            | 11.3%              |
| Lincoln            | 977      | 113            | 11.6%              |
| Little Compton     | 78       | 13             | 16.7%              |
| Middletown         | 804      | 91             | 11.3%              |
| Narragansett       | 330      | 27             | 8.2%               |
| New Shoreham       | 58       | 9              | *                  |
| Newport            | 1,305    | 162            | 12.4%              |
| North Kingstown    | 1,081    | 106            | 9.8%               |
| North Providence   | 1,625    | 215            | 13.2%              |
| North Smithfield   | 415      | 46             | 11.1%              |
| Pawtucket          | 4,885    | 884            | 18.1%              |
| Portsmouth         | 583      | 55             | 9.4%               |
| Providence         | 12,511   | 2,351          | 18.8%              |
| Richmond           | 307      | 22             | 7.2% <sup>^</sup>  |
| Scituate           | 385      | 57             | 14.8%              |
| Smithfield         | 641      | 62             | 9.7%               |
| South Kingstown    | 854      | 78             | 9.1%               |
| Tiverton           | 530      | 63             | 11.9%              |
| Warren             | 434      | 63             | 14.5%              |
| Warwick            | 3,831    | 449            | 11.7%              |
| West Greenwich     | 223      | 25             | 11.2%              |
| West Warwick       | 1,741    | 254            | 14.6%              |
| Westerly           | 873      | 52             | 6.0%               |
| Woonsocket         | 2,890    | 548            | 19.0%              |
| Unknown            | 166      | 22             | 13.3%              |
| Four Core Cities   | 21,899   | 4,075          | 18.6%              |
| Remainder of State | 31,687   | 3,720          | 11.7%              |
| Rhode Island       | 53,752   | 7,817          | 14.5%              |

### Source of Data for Table/Methodology

Rhode Island Department of Health, Center for Health Data and Analysis, Maternal and Child Health Database, 2012-2016.

The denominator is the total number of live births to Rhode Island residents from 2012-2016.

\*The data are statistically unreliable and rates are not reported and should not be calculated.

<sup>^</sup>The data are statistically unstable and rates or percentages should be interpreted with caution.

Unknown: Births were to Rhode Island residents, but specific city/town information was unavailable.

Core cities are Central Falls, Pawtucket, Providence, and Woonsocket.

Due to birth certificate changes that began in 2015 (the last two years in the 2012-2016 five-year average), comparisons with previous years should be made with caution. Delayed prenatal care is now a calculated variable that is based on the number of visits over 90 days (3 months). "No prenatal care" is not broken out.

### References

- <sup>1</sup> Late or no prenatal care: Indicators on children and youth. (2015). Washington, DC: Child Trends.
- <sup>2</sup> Zolotor, A. J. & Carlough, M. C. (2014). Update on prenatal care. *American Family Physician*, 89(3),199-208.
- <sup>3,4</sup> Hagan, J. F., Shaw, J. S., & Duncan, P. M. (Eds.). (2017). *Bright futures: Guidelines for health supervision of infants, children and adolescents (4th ed.)*. Elk Grove Village, IL: American Academy of Pediatrics.
- <sup>5,6</sup> Shore, R. & Shore, B. (2009). *KIDS COUNT indicator brief: Reducing infant mortality*. Baltimore, MD: The Annie E. Casey Foundation.
- <sup>7,8,13</sup> Kim, H., Cain, R., & Viner-Brown, S. (2014). *2014 Rhode Island Pregnancy Risk Assessment Monitoring System data book*. Providence, RI: Rhode Island Department of Health.
- <sup>9</sup> *Unintended pregnancy among women in Rhode Island, 2009-2011*. (2015). Providence, RI: Rhode Island Department of Health.

(continued on page 180)

# Preterm Births

## DEFINITION

*Preterm births* is the percentage of births occurring before the 37th week of pregnancy. The data are reported by place of mother's residence, not place of infant's birth.

## SIGNIFICANCE

Preterm birth is a major determinant of infant mortality and morbidity in the U.S. Infants born preterm (before 37 weeks of gestation) are at higher risk than full term infants for neurodevelopmental, respiratory, gastrointestinal, immune system, hearing, dental, and vision problems. Children who were born preterm may experience physical disabilities, learning difficulties, and behavioral problems later in life.<sup>1,2,3</sup> While the specific causes of preterm births are largely unknown, research indicates that there are a number of inter-related risk factors involved. The three leading risk factors are a history of preterm birth, current multifetal pregnancy, and uterine and/or cervical abnormalities. Other risk factors include maternal health conditions, maternal depression, late or no prenatal care, stress, domestic violence, and maternal use of tobacco, alcohol, and other drugs.<sup>4,5</sup>

Infants born very preterm (<32 weeks gestation) are at highest risk for death and enduring health problems, high hospitalization costs during their first year, and increased health care-related

costs later in life. Even "late preterm" infants (34-36 weeks gestation) can experience immediate and long-term complications.<sup>6,7</sup> Preventive interventions can improve outcomes for very preterm infants and their caregivers.<sup>8,9</sup>

The U.S. preterm birth rate rose between 2015 and 2016, from 9.6% to 9.9%. This is the second year of an increase after steady declines between 2007 and 2014. The preterm birth rate varies by race/ethnicity, with non-Hispanic Black women (13.8%) continuing to have the highest preterm birth rate in the U.S. in 2016. That same year, Hispanic women had a preterm birth rate of 9.5% and non-Hispanic white women had a rate of 9.0%. The rate increased for each group between 2015 and 2016.<sup>10,11</sup> Nationally, racial and ethnic disparities continue in the outcomes for preterm infants, with the preterm-related infant mortality rate for Black infants about three times the rate for White infants.<sup>12</sup>

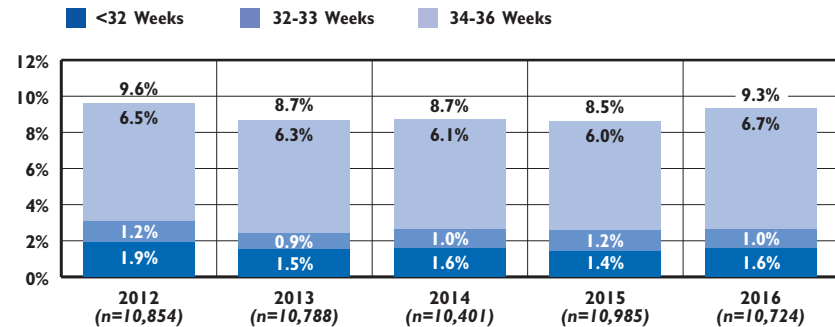
| Preterm Births     |       |      |
|--------------------|-------|------|
|                    | 2007  | 2016 |
| RI                 | 10.8% | 9.3% |
| US                 | 10.4% | 9.8% |
| National Rank*     |       | 20th |
| New England Rank** |       | 5th  |

\*1st is best; 50th is worst

\*\*1st is best; 6th is worst

Sources: For 2016: Martin, J. A., et al. (2018). Births: Final data for 2016. *NVSR*, 67(1), 1-54. For 2007: Martin, J. A., et al. (2015). Measuring gestational age in vital statistics data: Transitioning to the obstetric estimate. *NVSR*, 64(5), 1-19.

Preterm Births by Gestational Age\*, Rhode Island, 2012-2016



Source: Rhode Island Department of Health, Center for Health Data and Analysis, Maternal and Child Health Database, 2012-2016. Percentages by gestational age may not sum to total percentage of preterm births due to rounding.

\*See note regarding new methodology for calculating preterm births, starting with the 2016 Factbook. Data for births in 2015 are provisional.

- ◆ The single-year preterm birth rate in Rhode Island increased from 2015 to 2016 (8.5% to 9.3%). Between 2012 and 2016, 70.5% of all preterm births in Rhode Island were late preterm births (34-36 weeks gestation) and 17.7% of all preterm births were very preterm (<32 weeks gestation).<sup>13</sup>
- ◆ Multiple births are more likely to be born preterm. In Rhode Island between 2012 and 2016, 56.6% of multiple births were preterm, compared with 7.1% of singleton births.<sup>14</sup>
- ◆ Between 2012 and 2016, 11.3% of births of Black infants in Rhode Island were preterm, compared with 8.1% of Asian and 8.5% of White infants. During this same time period, 9.6% of births to Hispanic women in Rhode Island were preterm.<sup>15</sup>
- ◆ The rate of preterm births varies by age. In Rhode Island between 2012 and 2016, 9.4% of births among teen girls under age 20, 8.6% of births among women ages 20 to 34, and 10.4% of births among women age 35 and older were preterm.<sup>16</sup>
- ◆ Among women with private health insurance coverage in Rhode Island between 2012 and 2016, 8.4% of births were preterm, compared with 9.5% of those with public insurance coverage and 15.7% of births to women with no health insurance.<sup>17</sup>
- ◆ In Rhode Island between 2012 and 2016, 9.4% of births to women with a high school degree or less were preterm, compared with 8.2% of those with higher education levels.<sup>18</sup>



Table 19. Preterm Births, Rhode Island, 2012-2016

| CITY/TOWN          | # BIRTHS | # PRETERM BIRTHS | % PRETERM BIRTHS  |
|--------------------|----------|------------------|-------------------|
| Barrington         | 537      | 35               | 6.5%              |
| Bristol            | 719      | 54               | 7.5%              |
| Burrillville       | 645      | 61               | 9.5%              |
| Central Falls      | 1,613    | 144              | 8.9%              |
| Charlestown        | 238      | 22               | 9.2% <sup>^</sup> |
| Coventry           | 1,480    | 112              | 7.6%              |
| Cranston           | 3,927    | 372              | 9.5%              |
| Cumberland         | 1,661    | 118              | 7.1%              |
| East Greenwich     | 576      | 54               | 9.4%              |
| East Providence    | 2,347    | 191              | 8.1%              |
| Exeter             | 246      | 16               | 6.5% <sup>^</sup> |
| Foster             | 166      | 15               | 9.0% <sup>^</sup> |
| Glocester          | 337      | 34               | 10.1%             |
| Hopkinton          | 288      | 23               | 8.0%              |
| Jamestown          | 115      | 6                | *                 |
| Johnston           | 1,330    | 104              | 7.8%              |
| Lincoln            | 977      | 93               | 9.5%              |
| Little Compton     | 78       | 11               | 14.1%             |
| Middletown         | 804      | 64               | 8.0%              |
| Narragansett       | 330      | 22               | 6.7%              |
| New Shoreham       | 58       | 6                | *                 |
| Newport            | 1,305    | 123              | 9.4%              |
| North Kingstown    | 1,081    | 89               | 8.2%              |
| North Providence   | 1,625    | 160              | 9.8%              |
| North Smithfield   | 415      | 36               | 8.7%              |
| Pawtucket          | 4,885    | 490              | 10.0%             |
| Portsmouth         | 583      | 44               | 7.5%              |
| Providence         | 12,511   | 1,250            | 10.0%             |
| Richmond           | 307      | 28               | 9.1%              |
| Scituate           | 385      | 34               | 8.8%              |
| Smithfield         | 641      | 31               | 4.8%              |
| South Kingstown    | 854      | 66               | 7.7%              |
| Tiverton           | 530      | 48               | 9.1%              |
| Warren             | 434      | 38               | 8.8%              |
| Warwick            | 3,831    | 326              | 8.5%              |
| West Greenwich     | 223      | 16               | 7.2% <sup>^</sup> |
| West Warwick       | 1,741    | 140              | 8.0%              |
| Westerly           | 873      | 48               | 5.5%              |
| Woonsocket         | 2,890    | 273              | 9.4%              |
| Unknown            | 166      | 15               | 9.0% <sup>^</sup> |
| Four Core Cities   | 21,899   | 2,157            | 9.8%              |
| Remainder of State | 31,687   | 2,640            | 8.3%              |
| Rhode Island       | 53,752   | 4,812            | 9.0%              |

### Source of Data for Table/Methodology

Rhode Island Department of Health, Center for Health Data and Analysis, Maternal and Child Health Database, 2012-2016. Data for births in 2015 are provisional and 2014 data do not include births among Rhode Island residents that occurred out-of-state.

The denominator is the total number of live births to Rhode Island residents from 2012-2016.

Beginning in 2015, the federal Centers for Disease Control and Prevention and the Rhode Island Department of Health transitioned to a new standard for estimating the gestational age of the newborn. The new measure – the obstetric estimate of gestation at delivery (OE) – replaces the measure based on the date of the last normal menses (LMP).

The 2012-2016 five year preterm birth percentage and the single year average are measured by OE. Because of this change, preterm birth data reported prior to the 2016 Factbook are not comparable. National preterm birth data use the OE measurement as of the 2007 data year at the time of publication of this Factbook

\* The data are statistically unreliable and rates are not reported and should not be calculated.

<sup>^</sup> The data are statistically unstable and rates or percentages should be interpreted with caution.

Unknown: Births were to Rhode Island residents, but specific city/town information was unavailable.

Core cities are Central Falls, Pawtucket, Providence, and Woonsocket.

### References

- <sup>16</sup> *Preterm births*. (2015). Washington DC: Child Trends.
- <sup>25</sup> March of Dimes. (2017). *Preterm labor and premature birth: Are you at risk?* Retrieved February 9, 2018, from www.marchofdimes.org
- <sup>3</sup> Mayo Clinic. (2017). *Premature birth*. Retrieved February 9, 2018, from www.mayoclinic.org
- <sup>4</sup> Centers for Disease Control and Prevention. (2017). *Preterm birth*. Retrieved February 9, 2018, from www.cdc.gov
- <sup>7</sup> McCabe, E. R. B., Carrino, G. E., Russell, R. B., & Howse, J. L. (2014). Fighting for the next generation: U.S. prematurity in 2030. *Pediatrics*, 134(6), 1-7.
- <sup>8</sup> Spittle, A. J., et al. (2010). Preventive care at home for very preterm infants improves infant and caregiver outcomes at 2 years. *Pediatrics*, 126(1), e171-e178.
- <sup>9</sup> Spencer-Smith, M. M., et al. (2012). Long-term benefits of home-based preventive care for preterm infants: A randomized trial. *Pediatrics*, 130(6), 1094-1101.
- <sup>10</sup> Martin, J. A., Hamilton, B. E., Osterman, M. J. K., Driscoll, A. K., & Drake, P. (2018). Births: Final data for 2016. *National Vital Statistics Reports*, 67(1), 1-54.
- <sup>11</sup> Martin, J. A., Hamilton, B. E., Osterman, M. J. K., Driscoll, A. K., & Mathews, T. J. (2017). Births: Final data for 2015. *National Vital Statistics Reports*, 66(1), 1-69.
- <sup>12</sup> Mathews, T. J., MacDorman, M. F., & Thoma, M. E. (2015). Infant mortality statistics from the 2013 period linked birth/infant death data set. *National Vital Statistics Reports*, 64(9), 1-29.
- <sup>13,14,15,16,17,18</sup> Rhode Island Department of Health, Center for Health Data and Analysis, Maternal and Child Health Database, 2012-2016.

# Low Birthweight Infants

## DEFINITION

*Low birthweight infants* is the percentage of infants born weighing less than 2,500 grams (5 pounds, 8 ounces). The data are reported by place of mother's residence, not place of infant's birth.

## SIGNIFICANCE

An infant's birthweight is a key indicator of newborn health. Infants born weighing less than 5 pounds, 8 ounces are at greater risk for physical and developmental problems than infants of normal weights. Factors that influence infant birthweight include maternal smoking, poverty, periodontal health, level of educational attainment, violence, stress, prenatal nutrition, and environmental hazards.<sup>1,2,3</sup>

Low birthweight often is a result of a premature birth but also can occur after a full-term pregnancy. In 2015 in the U.S., 58.1% of all preterm infants (under 37 weeks gestation) were born at low birthweight, while 2.8% of fullterm infants (37 to 41 weeks gestation) were born at low birthweight.<sup>4</sup>

Cigarette smoking during pregnancy is a leading cause of low birthweight.<sup>5,6</sup> In Rhode Island, 7.1% of babies born between 2012 and 2016 had mothers who smoked during their pregnancy. During that time, Rhode Island smokers (13.2%) were nearly twice as likely to deliver a low birthweight infant as women who did not smoke (6.9%).<sup>7</sup>

Children born at low birthweight are at a greater risk of physical and developmental health problems and death than those born at a normal birthweight. Children born at very low birthweight (less than 1,500 grams or 3.3 pounds) are more than 100 times more likely to die within the first year of life than infants of normal birthweight. Those who survive are at significantly higher risk of severe problems, including physical and sensory difficulties, developmental delays, and cognitive impairments. Low birthweight babies are also at greater risk for long-term cognitive problems and school difficulties than their peers.<sup>8,9,10</sup>

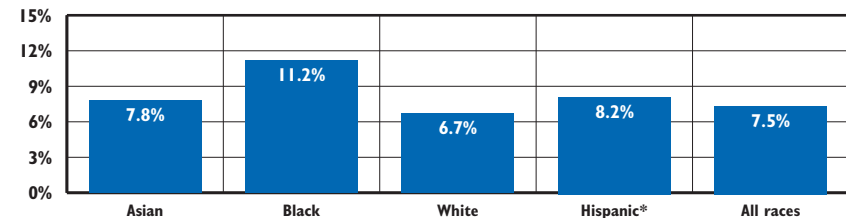
In the U.S. in 2016, 8.2% of infants were born at low birthweight, which was a 17% increase from 7.0% in 1990. Rhode Island's low birthweight rate increased from 6.2% in 1990 to 8.0% in 2016, a 29% increase.<sup>11,12</sup> The Healthy People 2020 national target is 7.8%.<sup>13</sup>

| Low Birthweight Infants |      |      |
|-------------------------|------|------|
|                         | 2006 | 2016 |
| RI                      | 8.0% | 8.0% |
| US                      | 8.3% | 8.2% |
| National Rank*          | 23rd |      |
| New England Rank**      | 6th  |      |

\*1st is best; 50th is worst  
 \*\*1st is best; 6th is worst

Source: For 2016: Martin, J. A., Hamilton, B. E., Osterman, M. J. K., Driscoll, A. K., & Drake, P. (2018). Births: Final data for 2016. *National Vital Statistics Reports*, 67(1), 1-55. For 2006: Martin, J. A., et al. (2009). Births: Final data for 2006. *National Vital Statistics Reports*, 57(7), 1-102.

**Low Birthweight Infants by Race/Ethnicity, Rhode Island, 2012-2016**



Source: Rhode Island Department of Health, Center for Health Data and Analysis, Maternal and Child Health Database, 2012-2016. \*Hispanic infants can be of any race. Data for births in 2016 are provisional.

- ◆ There are racial and ethnic disparities in rates of low birthweight.<sup>14</sup> In Rhode Island between 2012 and 2016, 7.8% of Asian infants, 8.2% of Hispanic infants, and 11.2% of Black infants, were born at low birthweight, compared to 6.7% of White infants.<sup>15</sup>
- ◆ Factors that persist throughout a woman's life, such as increased stress, insufficient health care, and/or lack of social supports, have been shown to increase the likelihood of delivering a low birthweight baby, particularly among Black women and other women of color.<sup>16,17</sup>
- ◆ Between 2012 and 2016 in Rhode Island, 9.0% of births among women under age 20 were low birthweight compared to 7.4% of those over age 20; 8.8% of infants born to women living in the four core cities were low birthweight compared to 6.7% in the remainder of the state; and 8.4% of infants born to women with a high school degree or less were low birthweight, compared to 6.4% of those born to women with higher education levels.<sup>18</sup>
- ◆ Among women with private health insurance coverage in Rhode Island between 2012 and 2016, 6.6% of births were low birthweight, compared with 8.4% of those with public insurance (RIte Care or Medicaid) and 12.3% of births to women with no insurance.<sup>19</sup>
- ◆ Rhode Island women who deliver a low birthweight infant are more likely to report smoking while pregnant, delayed or no prenatal care, a depression diagnosis, and intimate partner violence than those with a normal weight baby, as well as health issues during their pregnancy such as high blood pressure, hypertension, preeclampsia, or toxemia.<sup>20</sup>
- ◆ Between 2012 and 2016 in Rhode Island, 1.5% of all live births were born at very low birthweight (less than 1,500 grams).<sup>21</sup>

Table 20. Low Birthweight Infants, Rhode Island, 2012-2016

| CITY/TOWN          | # BIRTHS | # LOW BIRTHWEIGHT | % LOW BIRTHWEIGHT |
|--------------------|----------|-------------------|-------------------|
| Barrington         | 537      | 25                | 4.7%              |
| Bristol            | 719      | 40                | 5.6%              |
| Burrillville       | 645      | 39                | 6.0%              |
| Central Falls      | 1,613    | 132               | 8.2%              |
| Charlestown        | 238      | 10                | *                 |
| Coventry           | 1,480    | 99                | 6.7%              |
| Cranston           | 3,927    | 298               | 7.6%              |
| Cumberland         | 1,661    | 98                | 5.9%              |
| East Greenwich     | 576      | 46                | 8.0%              |
| East Providence    | 2,347    | 156               | 6.6%              |
| Exeter             | 246      | 13                | 5.3%^             |
| Foster             | 166      | 9                 | *                 |
| Glocester          | 337      | 19                | 5.6%^             |
| Hopkinton          | 288      | 20                | 6.9%^             |
| Jamestown          | 115      | 4                 | *                 |
| Johnston           | 1,330    | 94                | 7.1%              |
| Lincoln            | 977      | 66                | 6.8%              |
| Little Compton     | 78       | 5                 | *                 |
| Middletown         | 804      | 49                | 6.1%              |
| Narragansett       | 330      | 21                | 6.4%^             |
| New Shoreham       | 58       | 5                 | *                 |
| Newport            | 1,305    | 107               | 8.2%              |
| North Kingstown    | 1,081    | 76                | 7.0%              |
| North Providence   | 1,625    | 135               | 8.3%              |
| North Smithfield   | 415      | 31                | 7.5%              |
| Pawtucket          | 4,885    | 439               | 9.0%              |
| Portsmouth         | 583      | 35                | 6.0%              |
| Providence         | 12,511   | 1,107             | 8.8%              |
| Richmond           | 307      | 19                | 6.2%^             |
| Scituate           | 385      | 21                | 5.5%^             |
| Smithfield         | 641      | 25                | 3.9%              |
| South Kingstown    | 854      | 54                | 6.3%              |
| Tiverton           | 530      | 33                | 6.2%              |
| Warren             | 434      | 32                | 7.4%              |
| Warwick            | 3,831    | 252               | 6.6%              |
| West Greenwich     | 223      | 15                | 6.7%^             |
| West Warwick       | 1,741    | 118               | 6.8%              |
| Westerly           | 873      | 46                | 5.3%              |
| Woonsocket         | 2,890    | 241               | 8.3%              |
| Unknown            | 166      | 11                | 6.6%              |
| Four Core Cities   | 21,899   | 1,919             | 8.8%              |
| Remainder of State | 31,687   | 2,115             | 6.7%              |
| Rhode Island       | 53,752   | 4,045             | 7.5%              |

### Source of Data for Table/Methodology

Rhode Island Department of Health, Center for Health Data and Analysis, Maternal and Child Health Database, 2012-2016. Data for births in 2016 and 2015 are provisional. 2014 birth data do not include births among Rhode Island residents that occurred out-of-state.

The denominator is the total number of live births to Rhode Island residents between 2012 and 2016.

\* The data are statistically unreliable and rates are not reported and should not be calculated.

^ The data are statistically unstable and rates or percentages should be interpreted with caution.

Unknown: Births were to Rhode Island residents, but specific city/town information was unavailable.

Core cities are Central Falls, Pawtucket, Providence, and Woonsocket.

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- <sup>1</sup> 2017 KIDS COUNT data book: State trends in child well-being. (2017). Baltimore, MD: The Annie E. Casey Foundation.
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- <sup>8,13</sup> Low and very low birthweight infants. (2016). Washington, DC: ChildTrends.
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- <sup>11,14</sup> Martin, J. A., Hamilton, B. E., Osterman, M. J. K., Driscoll, A. K., & Drake, P. (2018). Births: Final data for 2016. *National Vital Statistics Reports*, 67(1), 1-55.
- <sup>12</sup> The Annie E. Casey Foundation, KIDS COUNT Data Center, datacenter.kidscount.org
- <sup>16</sup> Lu, M. C., et al. (2010). Closing the black-white gap in birth outcomes: A life-course approach. *Ethnicity & Disease*, 20, 62-76.
- <sup>17</sup> Janevic, T., et al. (2010). Neighborhood deprivation and adverse birth outcomes among diverse ethnic groups. *Annals of Epidemiology*, 20(6), 445-451.
- <sup>20</sup> Kim, H., Cain, R., Viner-Brown, S., & Roach, C. (2014). 2014 Rhode Island Pregnancy Risk Assessment Monitoring System data book: 2009-2011 data to guide evidence-based decision making. Providence, RI: Rhode Island Department of Health, Center for Health Data and Analysis.

# Infant Mortality

## DEFINITION

*Infant mortality* is the number of deaths of infants under one year of age per 1,000 live births. The data are reported by place of mother's residence, not place of infant's birth.

## SIGNIFICANCE

Infant mortality rates are associated with maternal health, quality of and access to medical care, socioeconomic conditions, and public health practices.<sup>1</sup> Communities with high poverty and disadvantaged social conditions tend to have higher infant mortality rates than more advantaged neighborhoods.<sup>2</sup>

The five main causes of infant death in the U.S. — congenital malformations, low birthweight, sudden infant death syndrome (SIDS), maternal complications, and unintentional injuries — account for 56% of all infant deaths with congenital malformations as the leading cause of infant deaths.<sup>3</sup> While infant mortality has declined nationally across all racial and ethnic groups, disparities remain. Nationally between 2005 and 2014, non-Hispanic Black women (10.9 per 1,000 live births) had twice the infant mortality rate of non-Hispanic White women (4.9 per 1,000 live births) and Hispanic women, (5.0 per 1,000 live births).<sup>4</sup>

The U.S. infant mortality rate declined from 26.0 deaths per 1,000 live births in 1960 to a low of 5.9

deaths per 1,000 live births in 2015 due to improvements in healthier behaviors, medical advances, improved access to care, and economic growth.<sup>5,6,7,8</sup> Relative to other industrialized countries, the U.S. has higher rates of infant mortality due in part to a relatively high number of preterm births that result in infant mortality.<sup>9,10</sup>

The overall infant mortality rate in Rhode Island between 2012 and 2016 was 5.6 deaths per 1,000 live births. The infant mortality rate was 6.9 per 1,000 live births in the four core cities, compared with 4.3 per 1,000 live births in the remainder of the state. Mothers with a high school degree or less had a higher infant mortality rate (5.7 per 1,000 live births) than mothers with higher educational attainment (4.1 per 1,000 live births) between 2012 and 2016.<sup>11</sup>

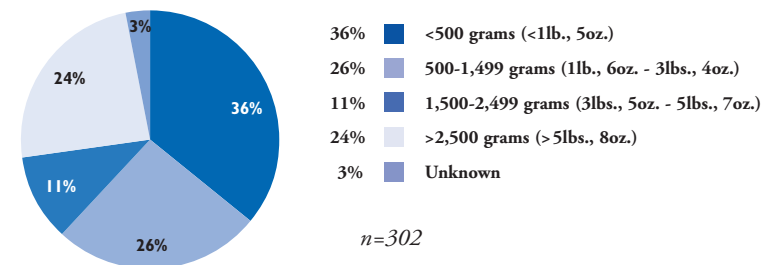
| Infant Mortality Rate<br>(rate per 1,000 live births) |      |      |
|---|------|------|
|   | 2005 | 2015 |
| RI  | 6.5  | 5.6  |
| US  | 6.9  | 5.9  |
| National Rank*  | 18th |      |
| New England Rank**                                    | 4th  |      |

\*1st is best; 50th is worst

\*\*1st is best; 5th is worst

Source: The Annie E. Casey Foundation, KIDS COUNT Data Center, [datacenter.kidscount.org](http://datacenter.kidscount.org)

## Infant Mortality by Birthweight, Rhode Island, 2012-2016



Source: Rhode Island Department of Health, Center for Health Data and Analysis, Maternal and Child Health Database, 2012-2016. Data for births in 2016 are provisional.

- ◆ Between 2012 and 2016, 302 infants died in Rhode Island before their first birthday, a rate of 5.6 per 1,000 live births. This is an improvement from the 2011-2015 infant mortality rate of 5.9 per 1,000 live births (when there were 316 infant deaths). Between 2012 and 2016, 73% of infants who died were low birthweight (less than 2,500 grams), 24% were born at normal weights, and 3% had unknown birthweights.<sup>12</sup>
- ◆ Preterm birth is the leading cause of infant death in Rhode Island.<sup>13</sup> Between 2012 and 2016, 70% (212) of all infant deaths were preterm (born before the 37th week of pregnancy).<sup>14</sup>
- ◆ Of the 302 infant deaths between 2012 and 2016 in Rhode Island, 77% (234) occurred in the neonatal period (during the first 27 days of life).<sup>15</sup> Generally, infant deaths in the neonatal period are related to short gestation and low birthweight (less than 2,500 grams), malformations at birth, and/or conditions occurring in the perinatal period.<sup>16</sup>
- ◆ Between 2012 and 2016, 23% (68) of the 302 infant deaths in Rhode Island occurred in the post-neonatal period (between 28 days and one year after delivery).<sup>17</sup>
- ◆ Racial and ethnic disparities exist in infant mortality. In Rhode Island between 2012 and 2016, the Black infant mortality rate was 9.9 deaths per 1,000 live births, the Asian infant mortality rate was 9.3 per 1,000 live births, and the White infant mortality rate was 4.3 per 1,000 live births. The Hispanic infant mortality rate was 5.7 per 1,000 live births, compared with 5.0 deaths per 1,000 live births among non-Hispanics in Rhode Island.<sup>18</sup>

## Reducing Infant Mortality

◆ Comprehensive state initiatives to reduce infant mortality should include the following seven broad strategies: improve health promotion efforts; ensure quality of care for all women and infants; improve maternal risk screening for all women of reproductive age; enhance service integration for women and infants; improve access to health care of women before, during and after pregnancy; develop data systems to understand and inform efforts; and promote social equity.<sup>19</sup>

◆ Infant mortality is a result of a variety of factors and interventions to prevent infant mortality should occur at multiple levels, including individual health education and counseling, ongoing evidence-based clinical interventions, long-lasting health protecting actions, creating health-promoting environments, and socioeconomic interventions to eliminate disparities.<sup>20</sup>

◆ Participation in enhanced prenatal and postnatal care programs, such as evidence-based family home visiting programs, have been shown to reduce the risk of infant death.<sup>21</sup> As of October 2017, there were 1,090 families enrolled in one of the evidence-based family home visiting programs coordinated by the Rhode Island Department of Health.<sup>22</sup>

Table 21. Infant Mortality by City/Town, Rhode Island, 2012-2016

| CITY/TOWN          | # OF BIRTHS | # OF INFANT DEATHS | RATE PER 1,000 LIVE BIRTHS |
|--------------------|-------------|--------------------|----------------------------|
| Barrington         | 537         | 1                  | *                          |
| Bristol            | 719         | 0                  | *                          |
| Burrillville       | 645         | 2                  | *                          |
| Central Falls      | 1,613       | 9                  | *                          |
| Charlestown        | 238         | 3                  | *                          |
| Coventry           | 1,480       | 3                  | *                          |
| Cranston           | 3,927       | 19                 | 4.8 <sup>^</sup>           |
| Cumberland         | 1,661       | 10                 | *                          |
| East Greenwich     | 576         | 4                  | *                          |
| East Providence    | 2,347       | 17                 | 7.2 <sup>^</sup>           |
| Exeter             | 246         | 2                  | *                          |
| Foster             | 166         | 0                  | *                          |
| Glocester          | 337         | 1                  | *                          |
| Hopkinton          | 288         | 4                  | *                          |
| Jamestown          | 115         | 0                  | *                          |
| Johnston           | 1,330       | 7                  | *                          |
| Lincoln            | 977         | 5                  | *                          |
| Little Compton     | 78          | 0                  | *                          |
| Middletown         | 804         | 5                  | *                          |
| Narragansett       | 330         | 0                  | *                          |
| Newport            | 1,305       | 6                  | *                          |
| New Shoreham       | 58          | 0                  | *                          |
| North Kingstown    | 1,081       | 2                  | *                          |
| North Providence   | 1,625       | 8                  | *                          |
| North Smithfield   | 415         | 3                  | *                          |
| Pawtucket          | 4,885       | 45                 | 9.2                        |
| Portsmouth         | 583         | 2                  | *                          |
| Providence         | 12,511      | 84                 | 6.7                        |
| Richmond           | 307         | 4                  | *                          |
| Scituate           | 385         | 3                  | *                          |
| Smithfield         | 641         | 2                  | *                          |
| South Kingstown    | 854         | 1                  | *                          |
| Tiverton           | 530         | 0                  | *                          |
| Warren             | 434         | 0                  | *                          |
| Warwick            | 3,831       | 11                 | 2.9 <sup>^</sup>           |
| Westerly           | 873         | 3                  | *                          |
| West Greenwich     | 223         | 0                  | *                          |
| West Warwick       | 1,741       | 7                  | *                          |
| Woonsocket         | 2,890       | 14                 | 4.8 <sup>^</sup>           |
| Unknown            | 166         | 15                 | *                          |
| Four Core Cities   | 21,899      | 152                | 6.9                        |
| Remainder of State | 31,687      | 135                | 4.3                        |
| Total              | 53,752      | 302                | 5.6                        |

### Source of Data for Table/Methodology

Rhode Island Department of Health, Center for Health Data and Analysis, Maternal and Child Health Database, 2012-2016.

The denominator is the total number of live births to residents between 2012 and 2016.

<sup>^</sup> The data are statistically unstable and rates or percentages should be interpreted with caution.

<sup>\*</sup> The data are statistically unreliable and rates are not reported and should not be calculated.

Unknown: Deaths were to Rhode Island residents, but specific city/town information was unavailable.

Core cities are Central Falls, Pawtucket, Providence, and Woonsocket.

### References

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(continued on page 180)



# Breastfeeding

## DEFINITION

*Breastfeeding* is the number and percentage of newborn infants who are breastfed at the time of hospital discharge.

## SIGNIFICANCE

Breastfeeding is widely recognized as the ideal method of feeding and nurturing infants and a critical component in achieving optimal infant and child health, growth, and development.<sup>1,2</sup> National health experts recommend exclusive breastfeeding for six months after birth, continuous breastfeeding for at least 12 months after birth, and thereafter as long as mutually desired by mother and child.<sup>3</sup>

Breastfeeding decreases infant mortality and morbidity. Infant benefits include optimal nutrition and reduced risk for sudden infant death syndrome, infectious disease, and chronic conditions such as childhood obesity, type 1 and 2 diabetes, and otitis media. Breastfeeding benefits mothers by creating a strong bond with infants and decreasing risk for postpartum depression, type 2 diabetes, and hypertension. Breastfeeding provides significant social and economic benefits, including reduced cost to the family, reduced health care costs, and reduced employee absenteeism.<sup>4,5,6</sup>

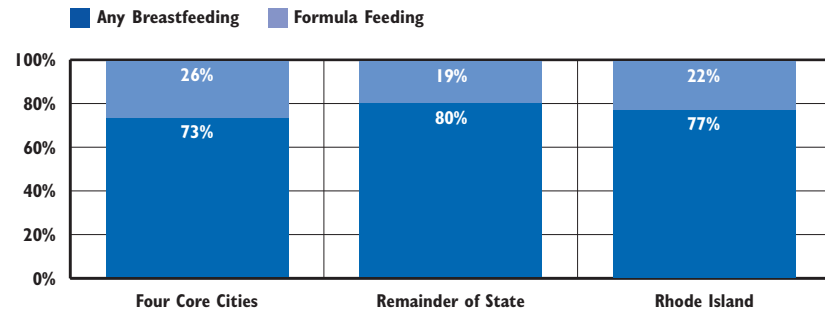
Breastfeeding can be effectively promoted by hospital and other birth

facility policies and practices that take place before, during, and after labor and delivery, including access to professional lactation consultants, and involvement in mother-to-mother lactation support networks.<sup>7</sup> In 2015, Women & Infants Hospital became the second-largest hospital in the U.S. to achieve the “Baby-Friendly” designation, which recognizes breastfeeding support and promotion by birth facilities. Rhode Island ranks best in the U.S. in the percentage of babies born at Baby-Friendly hospitals.<sup>8</sup>

Breastfeeding rates generally increase with maternal age, higher educational attainment, and higher income levels.<sup>9</sup> Whether or not the pregnancy was intentional or not also affects rate of breastfeeding. In Rhode Island between 2012-2015, 10% of babies from intended pregnancies were not breastfed at all, compared with 16% of babies from unintended pregnancies.<sup>10</sup>

Healthy People 2020 sets target breastfeeding rates of 82% of infants ever having been breastfed, 61% at six months of age, and 34% at one year of age.<sup>11</sup> Among babies born in the U.S. in 2013, 81% were ever breastfed, 52% were breastfed at six months, and 31% were breastfed at 12 months. In 2013, Rhode Island exceeded national rates in all three, reporting 82% of infants ever having been breastfed, 56% at six months, and 37% at one year of age.<sup>12</sup>

**Breastfeeding and Formula Feeding, Rhode Island, 2012-2016\***

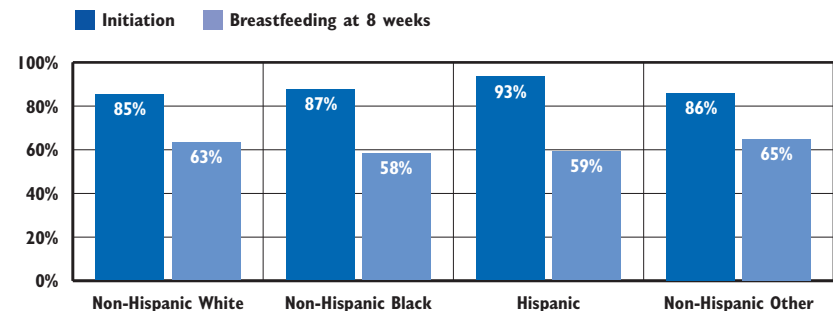


Source: Rhode Island Department of Health, Center for Health Data and Analysis, Newborn Developmental Risk Screening Program, 2012-2016. Breastfeeding and formula feeding are defined as intended feeding method at hospital discharge. Totals may not sum to 100% because data on feeding methods were not available for all births.

\*Note: The data collection process at the Rhode Island Department of Health was changed in 2015. Prior to 2015, breastfeeding was recorded as “Breast”, “Bottle”, or “Both”. Since 2015, a “Yes” or “No” question on the birth certificate worksheet “Is the infant being breastfed at discharge?” has been used. Data from and prior to 2015 for “Exclusive breastfeeding” and “Both breast and formula” have been combined into the “Any breastfeeding” category to align with current data collection practices.

◆ Between 2012 and 2016, 77% of new mothers in Rhode Island indicated that they intended to breastfeed when discharged from the hospital, 22% intended to formula feed.<sup>13</sup> Nearly nine out of ten (87%) new mothers in Rhode Island who were surveyed about three months after giving birth between 2012-2015 reported ever having breastfed. Forty-six percent reported continued breastfeeding at the time of the survey.<sup>14</sup>

**Breastfeeding Initiation and at Eight Weeks, Rhode Island, 2014**



Source: Rhode Island Department of Health, Division of Family Health, Pregnancy Risk Assessment Monitoring System (PRAMS), 2014.

## Rhode Island Supports for Breastfeeding

◆ Rhode Island is one of 45 states with legislation that provides mothers with the explicit right to breastfeed in public places.<sup>15</sup> Since 2015, Rhode Island law has prohibited job discrimination based on pregnancy, childbirth, and related medical conditions and requires employers to make reasonable accommodations for workers for conditions related to pregnancy and childbirth, including breastfeeding.<sup>16</sup>

◆ In 2014, Rhode Island became the first state in the U.S. to establish licensure for International Board Certified Lactation Consultants (IBCLCs). State-certified and trained lactation consultants provide comprehensive lactation support and counseling for pregnant and postpartum women. In 2016, Rhode Island had 55 IBCLCs.<sup>17,18</sup>

◆ Rhode Island is one of four states that have established paid family leave programs, which can support breastfeeding initiation and duration. U.S. mothers who have 12 or more weeks of paid maternity leave are nearly three times more likely to initiate breastfeeding and twice as likely to breastfeed for six or more months when compared to mothers with no paid leave.<sup>19</sup>

Table 22. Breastfeeding at Time of Birth, Rhode Island, 2012-2016

| CITY/TOWN          | NUMBER OF BIRTHS SCREENED | NUMBER ANY BREASTFEEDING | PERCENT ANY BREASTFEEDING |
|--------------------|---------------------------|--------------------------|---------------------------|
| Barrington         | 526                       | 486                      | 92%                       |
| Bristol            | 682                       | 542                      | 79%                       |
| Burrillville       | 605                       | 459                      | 76%                       |
| Central Falls      | 1,580                     | 1,152                    | 73%                       |
| Charlestown        | 232                       | 192                      | 83%                       |
| Coventry           | 1,454                     | 1,128                    | 78%                       |
| Cranston           | 3,873                     | 3,060                    | 79%                       |
| Cumberland         | 1,550                     | 1,273                    | 82%                       |
| East Greenwich     | 573                       | 495                      | 86%                       |
| East Providence    | 2,297                     | 1,745                    | 76%                       |
| Exeter             | 243                       | 206                      | 85%                       |
| Foster             | 163                       | 145                      | 89%                       |
| Glocester          | 324                       | 259                      | 80%                       |
| Hopkinton          | 287                       | 244                      | 85%                       |
| Jamestown          | 111                       | 107                      | 96%                       |
| Johnston           | 1,309                     | 977                      | 75%                       |
| Lincoln            | 942                       | 756                      | 80%                       |
| Little Compton     | 60                        | 50                       | 83%                       |
| Middletown         | 761                       | 644                      | 85%                       |
| Narragansett       | 318                       | 275                      | 86%                       |
| New Shoreham       | 55                        | 48                       | 87%                       |
| Newport            | 1,188                     | 943                      | 79%                       |
| North Kingstown    | 1,072                     | 910                      | 85%                       |
| North Providence   | 1,600                     | 1,207                    | 75%                       |
| North Smithfield   | 403                       | 331                      | 82%                       |
| Pawtucket          | 4,686                     | 3,477                    | 74%                       |
| Portsmouth         | 529                       | 465                      | 88%                       |
| Providence         | 12,231                    | 8,960                    | 73%                       |
| Richmond           | 307                       | 265                      | 86%                       |
| Scituate           | 389                       | 323                      | 83%                       |
| Smithfield         | 623                       | 509                      | 82%                       |
| South Kingstown    | 915                       | 793                      | 87%                       |
| Tiverton           | 349                       | 291                      | 83%                       |
| Warren             | 408                       | 316                      | 77%                       |
| Warwick            | 3,760                     | 2,940                    | 78%                       |
| West Greenwich     | 215                       | 173                      | 80%                       |
| West Warwick       | 1,710                     | 1,195                    | 70%                       |
| Westerly           | 781                       | 645                      | 83%                       |
| Woonsocket         | 2,687                     | 1,814                    | 68%                       |
| Four Core Cities   | 21,184                    | 15,403                   | 73%                       |
| Remainder of State | 30,614                    | 24,397                   | 80%                       |
| Rhode Island       | 51,798                    | 39,800                   | 77%                       |

### Sources of Data for Table/Methodology

Rhode Island Department of Health, Center for Health Data and Analysis, Newborn Developmental Risk Screening Program Database and Maternal and Child Health Database, 2012-2016.

Breastfeeding is defined as “breastfeeding as intended feeding method at hospital discharge.” “Percent With Any Breastfeeding” includes infants fed breast milk in combination with formula and those exclusively breastfed.

The number of births screened may differ from the total number of births reported elsewhere in the Factbook as not all documented births received a screening. Births to Rhode Island women that occurred outside Rhode Island are not included.

Core cities are Central Falls, Pawtucket, Providence, and Woonsocket.

### References

- <sup>1,3</sup> American Academy of Pediatrics. (2012). Policy statement: Breastfeeding and the use of human milk. *Pediatrics*, 129(3), 827-841.
- <sup>2,15,17</sup> *Breastfeeding: 2015-2020 Rhode Island strategic plan*. (2015). Providence, RI: Rhode Island Department of Health.
- <sup>4</sup> Kavanaugh, K. & Lessen, R. (2015). Position of the Academy of Nutrition and Dietetics: Promoting and supporting breastfeeding. *Journal of the American Dietetic Association*, 115, 444-449.
- <sup>5,9</sup> *Breastfeeding*. (2016). Washington, DC: Child Trends.
- <sup>6,19</sup> The Center for Law and Social Policy. (August, 2016). *Public policies to support breastfeeding: Paid family leave and workplace lactation accommodations*. Retrieved January 20, 2017, from www.clasp.org
- <sup>7,12</sup> *Breastfeeding report card – United States, 2016*. (2016). Atlanta, GA: Centers for Disease Control and Prevention.
- <sup>8</sup> Women & Infants Hospital. (2015). *Women & Infants achieves baby-friendly designation* [Press release]. Retrieved February 9, 2018, from www.womenandinfants.org
- <sup>10</sup> *Issue brief: Unintended pregnancy among women in Rhode Island, 2009-2011*. (2015). Providence, RI: Rhode Island Department of Health.

(continued on page 180)

# Children with Lead Poisoning

## DEFINITION

*Children with lead poisoning* is the percentage of three-year-old children with a confirmed elevated blood lead level (EBLL,  $\geq 5$   $\mu\text{g/dL}$ ) at any time prior to December 31, 2017.<sup>1,2</sup> These data are for children eligible to enter kindergarten in the fall of 2019 (i.e., children born between September 1, 2013 and August 31, 2014).

## SIGNIFICANCE

Lead poisoning is a preventable childhood disease. Infants, toddlers, and preschool-age children are most susceptible to the toxic effects of lead because they absorb lead more readily than adults and have inherent vulnerability due to developing central nervous systems.<sup>3</sup> Lead exposure, even at very low levels, can cause irreversible damage, including decreased hearing, delayed puberty, kidney damage, increased risk for behavioral problems, decreased cognitive abilities, and lower academic performance. Though rare, severe poisoning can result in seizures, comas, and even death.<sup>4,5</sup> The societal costs of childhood lead poisoning include the loss of future earnings due to decreased cognition, and increased medical, special education, and juvenile justice costs.<sup>6,7,8</sup> Children can be exposed to lead in the places they spend the most time. Homes, schools, child care settings, and the surrounding soil can be

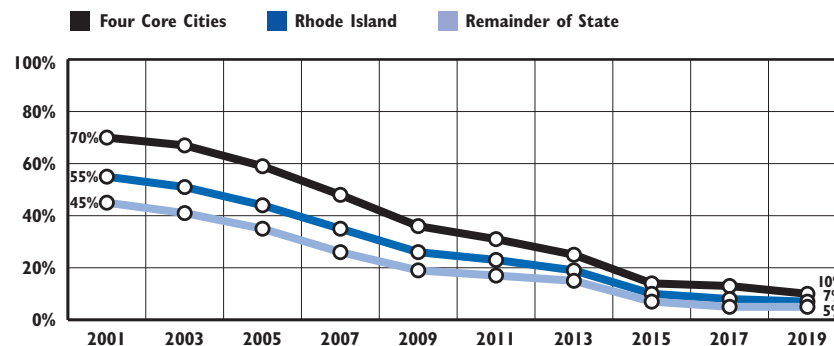
contaminated with lead from paint or paint dust if built before 1978. Children can also be exposed to lead poisoning through corrosion of lead service lines where a house or building's water pipe connects to the public water main.<sup>9</sup>

There is no safe blood lead level in children. In an effort to better alert health officials and families to the dangers of any lead exposure in children, in 2012 the CDC lowered the threshold for which a child is deemed to have an elevated blood lead level from 10  $\mu\text{g/dL}$  to 5  $\mu\text{g/dL}$ . This new lower reference value allows parents and health officials to take corrective actions sooner.<sup>10,11</sup>

Although the percentage of children with elevated blood lead levels is declining nationally and in Rhode Island, low-income children and children of color remain the most likely to be lead poisoned.<sup>12,13,14</sup> In Rhode Island, children living in the four core cities are at increased risk for lead exposure because the housing stock tends to be older.<sup>15</sup>

In 2017, 953 (4%) of the 24,501 Rhode Island children under age six who were screened had confirmed elevated blood lead levels of  $\geq 5$   $\mu\text{g/dL}$ . Children living in the four core cities (6%) were more than twice as likely as children in the remainder of the states (3%) to have confirmed elevated blood lead levels  $\geq 5$   $\mu\text{g/dL}$ .<sup>16</sup>

## Children Entering Kindergarten with History of Elevated\* Blood Lead Level Screening ( $\geq 5$ $\mu\text{g/dL}$ ), Rhode Island, Four Core Cities, and Remainder of State, 2001-2019



Source: Rhode Island Department of Health, Healthy Homes and Childhood Lead Poisoning Prevention Program, Children entering kindergarten between 2001 and 2019. \*Elevated blood lead level of  $\geq 5$   $\mu\text{g/dL}$ .

◆ The number of children with elevated blood lead levels has been steadily declining in all areas of Rhode Island over the past two decades. Compared to the remainder of the state, the core cities have twice the rate of children with elevated blood levels.<sup>17</sup>

## Lead Exposure and Academic Performance

◆ Exposure to lead has been shown to negatively impact academic performance in early childhood.<sup>18</sup> Rhode Island children with a history of lead exposure, even at low levels, have been shown to have decreased reading readiness at kindergarten entry and diminished reading and math proficiency in the third grade. The most significant declines in academic performance occurred among children with the highest blood lead levels living in the four core cities. Children with lead exposure are also at increased risk for absenteeism, grade repetition, and special education services.<sup>19,20</sup>

◆ In an effort to better inform school administrators about the prevalence of lead exposure, the Rhode Island Department of Health and the Rhode Island Department of Education provide detailed reports to superintendents and heads of private schools on rates of lead exposure and immunization among students within their respective districts. Information regarding screenings, regulations, associated risks, and parent communication are also included.<sup>21,22</sup>

Table 23. Lead Poisoning in Children Entering Kindergarten in the Fall of 2019, Rhode Island

| CITY/TOWN          | NUMBER TESTED FOR LEAD POISONING | CONFIRMED WITH BLOOD LEAD LEVEL $\geq 5$ $\mu\text{g}/\text{dL}$ |         |
|--------------------|----------------------------------|--|---------|
|                    |                                  | NUMBER   | PERCENT |
| Barrington         | 163                              | *  | *       |
| Bristol            | 157                              | 9  | 5.7%    |
| Burrillville       | 125                              | *  | *       |
| Central Falls      | 300                              | 32   | 10.7%   |
| Charlestown        | 44                               | *  | *       |
| Coventry           | 255                              | 10   | 3.9%    |
| Cranston           | 719                              | 49   | 6.8%    |
| Cumberland         | 334                              | 11   | 3.3%    |
| East Greenwich     | 156                              | *  | *       |
| East Providence    | 469                              | 40   | 8.5%    |
| Exeter             | 35                               | *  | *       |
| Foster             | 40                               | *  | *       |
| Glocester          | 65                               | *  | *       |
| Hopkinton          | 72                               | *  | *       |
| Jamestown          | 22                               | *  | *       |
| Johnston           | 250                              | 9  | 3.6%    |
| Lincoln            | 189                              | 9  | 4.8%    |
| Little Compton     | 11                               | 0  | 0.0%    |
| Middletown         | 193                              | 7  | 3.6%    |
| Narragansett       | 56                               | *  | *       |
| New Shoreham       | 8                                | 0  | 0.0%    |
| Newport            | 294                              | 23   | 7.8%    |
| North Kingstown    | 254                              | *  | *       |
| North Providence   | 294                              | 10   | 3.4%    |
| North Smithfield   | 87                               | 0  | 0.0%    |
| Pawtucket          | 841                              | 73   | 8.7%    |
| Portsmouth         | 134                              | 6  | 4.5%    |
| Providence         | 2,573                            | 292  | 11.3%   |
| Richmond           | 34                               | *  | *       |
| Scituate           | 96                               | 6  | 6.3%    |
| Smithfield         | 125                              | 6  | 4.8%    |
| South Kingstown    | 215                              | 12   | 5.6%    |
| Tiverton           | 122                              | 6  | 4.9%    |
| Warren             | 106                              | 9  | 8.5%    |
| Warwick            | 712                              | 21   | 2.9%    |
| West Greenwich     | 46                               | 0  | 0.0%    |
| West Warwick       | 302                              | 15   | 5.0%    |
| Westerly           | 186                              | 7  | 3.8%    |
| Woonsocket         | 603                              | 36   | 6.0%    |
| Unknown Residence  | 2                                | NA   | NA      |
| Four Core Cities   | 4,317                            | 433  | 10.0%   |
| Remainder of State | 6,370                            | 296  | 4.6%    |
| Rhode Island       | 10,689                           | 729  | 6.8%    |

## Significantly Lead Poisoned Children Under Age Six

◆ Starting in 2015, a child is considered to be “significantly lead poisoned” if she or he has a single venous blood test result of  $\geq 15$   $\mu\text{g}/\text{dL}$ . The number of children under age six who were significantly lead poisoned has decreased by 82% over the past 12 years, from 349 in 2005 to 64 in 2017.<sup>23</sup>

◆ Starting in 2015, an environmental inspection of a child’s home is offered when a single venous test is  $\geq 15$   $\mu\text{g}/\text{dL}$  (versus  $\geq 20$   $\mu\text{g}/\text{dL}$  previously). The Rhode Island Department of Health sends certified lead inspectors to determine whether lead hazards are present and works with owners to make the properties lead-safe. In 2017, 112 environmental inspections were offered, of which 64 were performed, 22 were refused, nine were pending, and 17 the child moved.<sup>24</sup>

## Lead Poisoning Screening for Children Age Three

◆ All Rhode Island children must have at least two blood lead screening tests by age three and annual screening through age six. Lead screening is a mandated covered health insurance benefit in Rhode Island. In 2017, 76% of Rhode Island three-year-olds with an active status in KIDSNET received one blood lead test, 56% received two blood tests, and 24% were never tested.<sup>25,26,27</sup>

### Source of Data for Table/Methodology

Rhode Island Department of Health, Healthy Homes and Childhood Lead Poisoning Prevention Program.

Data reported in this year’s Factbook is not comparable to editions prior to 2012, due to a change in definition and data improvements within the Healthy Homes and Childhood Lead Poisoning Prevention Program.

Data for children entering kindergarten in the fall of 2019 reflect the number of Rhode Island children eligible to enter school in the fall of 2019 (i.e., born between 9/1/13 and 8/31/14).

Children confirmed positive for lead poisoning (blood lead level  $\geq 5$   $\mu\text{g}/\text{dL}$ ) are counted if they screened positive with a venous test and/or had a confirmed capillary test at any time in their lives prior to the end of December 2017. The Rhode Island Healthy Homes and Childhood Lead Poisoning Prevention Program recommends that children under age six with a capillary blood lead level of  $\geq 5$   $\mu\text{g}/\text{dL}$  receive a confirmatory venous test.

The denominator for percent confirmed is the number of children entering kindergarten in the fall of 2019 who were tested for lead poisoning. Data include both venous and confirmed capillary tests.

Of the 743 children entering kindergarten in 2018 who had an initial blood lead screen of  $\geq 5$   $\mu\text{g}/\text{dL}$ , fourteen did not receive a confirmatory second test. Their lead poisoning status is unknown.

\* The data are statistically unreliable and rates are not reported and should not be calculated.

Unknown: Children were Rhode Island residents, but specific city/town information was unavailable.

Core cities are Central Falls, Pawtucket, Providence, and Woonsocket.

See Methodology Section for more information.

### References

- <sup>1,11</sup> Centers for Disease Control and Prevention. (n.d.). *Blood lead levels in children*. Retrieved February 20, 2018, from [www.cdc.gov](http://www.cdc.gov)
- <sup>2,25</sup> Rhode Island Department of Health. (2016). *Childhood lead poisoning prevention program referral intervention process*. Retrieved February 21, 2018, from [www.health.ri.gov](http://www.health.ri.gov)

(continued on page 180)



# Children with Asthma

## DEFINITION

*Children with asthma* is the rate of emergency department visits where asthma was the primary diagnosis per 1,000 children under age 18. Data are reported by place of child's residence at the time of the emergency department visit.

## SIGNIFICANCE

Asthma is a chronic respiratory disease that causes treatable episodes of coughing, wheezing, shortness of breath, and chest tightness, which can be life threatening. Asthma attacks can be triggered by respiratory infections, air pollutants, cigarette smoke, allergens, and exposure to cold air or sudden temperature change. While the exact cause of asthma is unknown, various genetic, environmental, birth, and health factors have been linked to an increased risk for asthma.<sup>1,2,3</sup>

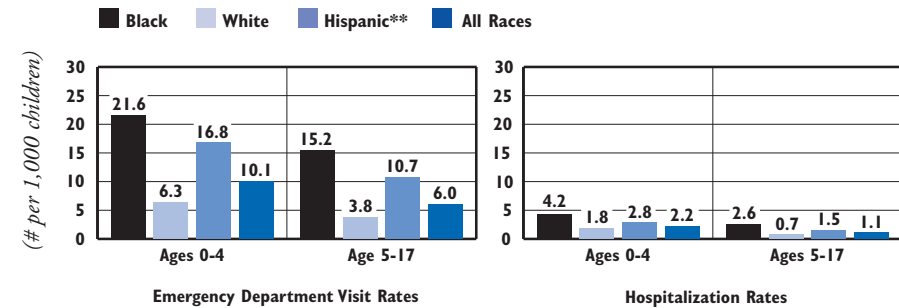
Nationally, asthma is one of the most common chronic conditions among children.<sup>4</sup> After peaking at 9.6% in 2009, asthma prevalence among U.S. children fell to 8.4% in 2016.<sup>5,6</sup> The highest rates of asthma are among males, Black and American Indian/Alaska Native children, and children living in poverty.<sup>7</sup> Racial and ethnic differences in asthma prevalence are believed to be correlated with poverty, exposure to indoor and outdoor air pollution, stress, acute exposure to violence, access to health care, and genetic factors.<sup>8,9</sup>

Compared with adults, children have higher rates for primary care and emergency department visits for asthma, similar hospitalization rates, and lower death rates.<sup>10</sup> Asthma remains the third leading cause of hospitalization for children under age 15, and one of the leading causes of school absenteeism.<sup>11</sup>

Proper asthma management requires continued assessment and monitoring, patient education, environmental control, and appropriate medication. Health care providers should work with the child and family to create an asthma action plan, which provides instruction on how to avoid asthma triggers and how to use medications properly. An asthma action plan can improve health outcomes and reduce costly asthma hospitalizations if adhered to and supported by enhanced care and community-based interventions.<sup>12,13,14,15,16</sup>

Rhode Island middle and high school staff provide information and referrals about asthma. In 2016, 73% of middle and high schools reported providing health care referrals for students diagnosed with or suspected of having asthma, 53% percent of schools reported providing asthma education to students, 31% percent reported using an assessment tool to evaluate school policies, activities, and programs related to asthma, and 18% provided families with information on asthma.<sup>17</sup>

**Asthma\* Emergency Department and Hospitalization Rates, by Age and Race/Ethnicity, Rhode Island Children, 2012-2016**



Source: Rhode Island Department of Health, Hospital Discharge Database, 2012-2016; U.S. Census Bureau, Census 2010.  
\*Rates are for primary diagnosis of asthma. \*\*Hispanic children can be of any race.

- ◆ In Rhode Island between 2012 and 2016, Black children, Hispanic children, and children under age five were the most likely to visit the emergency department or be hospitalized as a result of asthma. Children of all ages were more likely to visit the emergency department than to be hospitalized for asthma.<sup>18</sup>
- ◆ In Rhode Island between 2012 and 2016, boys under age 18 had higher asthma emergency department (7.1 per 1,000 boys) and hospitalization (1.5 per 1,000 boys) rates than girls under age 18 (5.6 and 1.0 per 1,000 girls respectively).<sup>19</sup>
- ◆ Among all children who had an emergency department visit for a primary diagnosis of asthma in Rhode Island between 2012 and 2016, 66% had RIte Care/Medicaid coverage, 27% had private health insurance, 5% were self-pay (which could mean they were uninsured or that their insurance did not cover the cost of care), and 2% were unknown. Among hospital admissions during that time, 52% had RIte Care/Medicaid coverage, 42% had private health insurance, 5% were self-pay, and 1% were unknown.<sup>20</sup>
- ◆ In 2015, Rhode Island parents reported higher rates of current asthma prevalence of their children (10%) than the national average (9%). Rhode Island has the ninth highest self-reported child asthma prevalence among ranked states.<sup>21</sup>



Table 24. Asthma Emergency Department Visits for Children Under Age 18, Rhode Island, 2012-2016

## Child Hospitalizations for Asthma, Rhode Island

◆ In Rhode Island between 2012 and 2016, there were 1,452 hospitalizations with primary asthma diagnosis of children under age 18, a rate of 1.3 per 1,000 children. The rate of primary asthma hospitalizations was twice as high in the four core cities (2.0 per 1,000 children) than in the remainder of the state (1.0 per 1,000 children).<sup>22</sup>

◆ Primary asthma hospitalization rates for children were highest in Providence (2.2 per 1,000 children), Central Falls (2.0), East Providence (1.8), Johnston (1.8), Pawtucket (1.8), Barrington (1.7), and Warren (1.4), between 2012 and 2016.<sup>23</sup>

| CITY/TOWN          | ESTIMATED # OF CHILDREN UNDER AGE 18 | # OF CHILD EMERGENCY DEPT. VISITS WITH PRIMARY ASTHMA DIAGNOSIS | RATE OF CHILD EMERGENCY DEPT. VISITS WITH PRIMARY ASTHMA DIAGNOSIS, PER 1,000 CHILDREN |
|--------------------|--------------------------------------|---|--|
| Barrington         | 4,597                                | 96  | 4.2  |
| Bristol            | 3,623                                | 54  | 3.0  |
| Burrillville       | 3,576                                | 47  | 2.6  |
| Central Falls      | 5,644                                | 325   | 11.5   |
| Charlestown        | 1,506                                | 21  | 2.8 ^  |
| Coventry           | 7,770                                | 166   | 4.3  |
| Cranston           | 16,414                               | 434   | 5.3  |
| Cumberland         | 7,535                                | 113   | 3.0  |
| East Greenwich     | 3,436                                | 39  | 2.3  |
| East Providence    | 9,177                                | 248   | 5.4  |
| Exeter             | 1,334                                | 24  | 3.6 ^  |
| Foster             | 986                                  | 5   | *  |
| Glocester          | 2,098                                | 23  | 2.2 ^  |
| Hopkinton          | 1,845                                | 38  | 4.1  |
| Jamestown          | 1,043                                | 14  | 2.7 ^  |
| Johnston           | 5,480                                | 145   | 5.3  |
| Lincoln            | 4,751                                | 96  | 4.0  |
| Little Compton     | 654                                  | 7   | *  |
| Middletown         | 3,652                                | 119   | 6.5  |
| Narragansett       | 2,269                                | 48  | 4.2  |
| New Shoreham       | 163                                  | 0   | 0.0  |
| Newport            | 4,083                                | 220   | 10.8   |
| North Kingstown    | 6,322                                | 102   | 3.2  |
| North Providence   | 5,514                                | 196   | 7.1  |
| North Smithfield   | 2,456                                | 36  | 2.9  |
| Pawtucket          | 16,575                               | 800   | 9.7  |
| Portsmouth         | 3,996                                | 58  | 2.9  |
| Providence         | 41,634                               | 2,859   | 13.7   |
| Richmond           | 1,849                                | 21  | 2.3 ^  |
| Scituate           | 2,272                                | 25  | 2.2 ^  |
| Smithfield         | 3,625                                | 33  | 1.8  |
| South Kingstown    | 5,416                                | 98  | 3.6  |
| Tiverton           | 2,998                                | 13  | 0.9 ^  |
| Warren             | 1,940                                | 57  | 5.9  |
| Warwick            | 15,825                               | 406   | 5.1  |
| West Greenwich     | 1,477                                | 27  | 3.7 ^  |
| West Warwick       | 5,746                                | 228   | 7.9  |
| Westerly           | 4,787                                | 143   | 6.0  |
| Woonsocket         | 9,888                                | 529   | 10.7   |
| Four Core Cities   | 73,741                               | 4,513   | 12.2   |
| Remainder of State | 150,215                              | 3,404   | 4.5  |
| Rhode Island       | 223,956                              | 7,917   | 7.1  |

### Source of Data for Table/Methodology

Rhode Island Department of Health, Hospital Discharge Database, 2012-2016.

The Rhode Island Department of Health defines emergency department visits with primary asthma diagnosis as those resulting in a home discharge or another facility, but not admitted to the hospital as an inpatient. As such, data are not comparable to Factbooks prior to 2017.

The denominator used to compute the 2012-2016 rate of emergency department visits is the number of children according to the 2010 U.S. Census, multiplied by five.

^ The data are statistically unstable and rates or percentages should be interpreted with caution.

\* The data are statistically unreliable and rates are not reported and should not be calculated.

Core cities are Central Falls, Pawtucket, Providence, and Woonsocket.

### References

- <sup>14</sup> *Asthma*. (2016). Washington, DC: Child Trends.
- <sup>2</sup> *The burden of asthma in Rhode Island*. (2014). Providence, RI: Rhode Island Department of Health, Asthma Control Program.
- <sup>38</sup> Ekerholm, S., Pearlman, D. N., Robinson, D., Sutton, N., & Goldman, D. (2012). *Measuring up: A health surveillance update on Rhode Island children with asthma*. Providence, RI: Rhode Island Department of Health, Division of Community, Family Health and Equity, Asthma Control Program.
- <sup>57</sup> National Health Interview Survey. (2016). *Table C-1a. Age-adjusted percentages (with standard errors) of ever having asthma and still having asthma for children under age 18 years, by selected characteristics: United States, 2016*. Retrieved March 2, 2018, from [www.cdc.gov/nchs/nhis](http://www.cdc.gov/nchs/nhis)
- <sup>6</sup> Centers for Disease Control and Prevention. (2012). National surveillance of asthma: United States, 2001-2010. *Vital and Health Statistics*, 3(35), 1-57.
- <sup>915</sup> President's Task Force on Environmental Health Risks and Safety Risks to Children. (2012). *Coordinated federal action plan to reduce racial and ethnic asthma disparities*. Retrieved March 6, 2018, from [www.epa.gov/childrenstaskforce](http://www.epa.gov/childrenstaskforce)

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# Housing and Health

## DEFINITION

*Housing and health* is the percentage of children under age 18 who live in low-income families that reside in older housing, defined as housing built before 1980. Low-income families are those with incomes less than 200% of the federal poverty level.

## SIGNIFICANCE

Homes that are dry, clean, pest free, safe, contaminant free, well-ventilated, well-maintained, and thermally-controlled can provide a healthy environment for children and residents.<sup>1</sup> Safe, affordable, and stable housing maintains the health and well-being of families and children, supporting mental and emotional health as well as physical safety.<sup>2</sup> Healthy housing also protects families from weather, environmental hazards, and injury and provides a safe place for children to eat, sleep, play, and grow.<sup>3</sup>

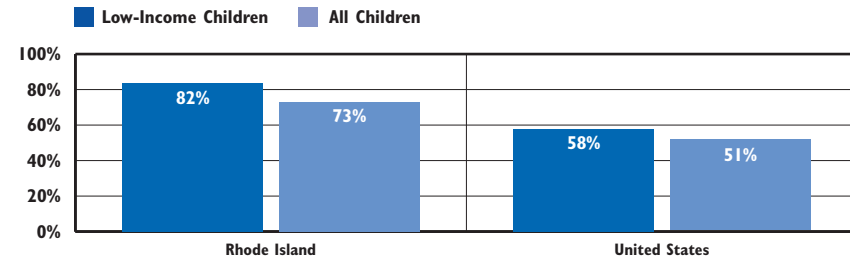
Unhealthy housing can cause or intensify many health conditions. Studies have connected poor quality construction, utility deficiencies, water intrusion, lead paint, radon, and pests to respiratory illnesses, asthma, unintentional injuries, lead poisoning, and cancer. Children under age 14, low-income children, and children of color under age five are at increased risk for fall injuries due to unsafe sleep and home environments, including aging and deteriorating housing.<sup>4,5,6</sup>

Poor quality housing is also a strong predictor of emotional and behavioral problems in low-income children and youth as well as academic achievement. Adolescents living in poorer quality homes have lower reading and math proficiency than their peers.<sup>7</sup>

The quality and stability of children's homes can have long-term effects on children. Lack of adequate and affordable housing puts safe, healthy, well maintained homes out of reach for many families. Families may be forced to move frequently in search of better, more affordable housing, or to raise their children in overcrowded and unsafe environments that can interfere with their growth, development, health, and academic performance. Overcrowded housing is associated with mental health concerns, stress, sleep problems, injury, and exposure to disease, while multiple moves are associated with behavioral and mental health concerns, academic difficulties, and substance use.<sup>8</sup>

Adopting a comprehensive "healthy homes" approach that addresses multiple housing deficiencies simultaneously can help prevent housing-related injuries and illnesses, reduce health costs, and improve children's quality of life. Because the causes of many health conditions related to the home environment are interconnected, it can be cost-effective to address multiple hazards simultaneously.<sup>9,10</sup>

## Children Living in Older Housing\*, 2012-2016, Rhode Island and the United States



Source: Population Reference Bureau analysis of 2012-2016 American Community Survey (ACS) Public Use Microsample (PUMS) data. \*Older housing is defined as built before 1980. The ACS reports housing year built by decade, so this is the best available approximation for housing built before 1978 when interior lead paint was banned. Factbooks prior to 2016 are not comparable due to the discontinuation of 3 year ACS data.

- ◆ **Between 2012 and 2016, Rhode Island had the highest percentage of low-income children (82%) and the second highest percentage of children of all incomes (73%) living in older housing in the U.S., after New York.<sup>11</sup>**
- ◆ **Lead Poisoning:** Children living in homes built before 1978 are at risk for lead poisoning. Even at low levels, lead exposure can negatively affect a child's health, development, and brain.<sup>12</sup> In 2017, 953 (4%) of Rhode Island children under age six had a confirmed blood lead level of  $\geq 5$   $\mu\text{g}/\text{dL}$ .<sup>13</sup>
- ◆ **Asthma:** Asthma is a common chronic condition in children and is a leading cause of school absences and hospitalization for children under age 15 in the U.S.<sup>14</sup> Between 2012 and 2016, there were 4,186 emergency department visits of Rhode Island children ages six and under (10.3 per 1,000) for which asthma was the primary diagnosis.<sup>15</sup>
- ◆ **Unintentional Injuries:** Falls are the leading cause of non-fatal unintentional injuries among children in the U.S.<sup>16</sup> In 2016, housing-related falls resulted in 1,629 emergency room visits by Rhode Island children age six and under.<sup>17</sup>
- ◆ **Weatherization Assistance Program:** The program helps income eligible households reduce heating bills by providing whole-house energy efficiency and safety services. In 2017, 1,159 Rhode Island children under age 18 benefited from 1,170 completed weatherization projects administered by seven Community Action Program agencies.<sup>18,19</sup>

Table 25.

## Housing and Health, Rhode Island

| CITY/TOWN          | # OF CHILDREN AGES 6 AND UNDER 2010 | CHILDREN WITH LEAD POISONING 2017 |        |      | PRIMARY ASTHMA ED VISITS 2012-2016 |                | HOUSING RELATED FALLS 2016 | WEATHERIZATION PROJECTS 2017 | % HOUSING STOCK PRE-1980 |
|--------------------|-------------------------------------|-----------------------------------|--------|------|------------------------------------|----------------|----------------------------|------------------------------|--------------------------|
|                    |                                     | #                                 | TESTED | %    | #                                  | RATE PER 1,000 |                            |                              |                          |
| Barrington         | 1,213                               | 9                                 | 452    | 2.0% | 50                                 | 8.2            | 25                         | 8                            | 82%                      |
| Bristol            | 1,316                               | 13                                | 367    | 3.5% | 33                                 | 5.0            | 16                         | 25                           | 70%                      |
| Burrillville       | 1,186                               | 8                                 | 299    | *    | 22                                 | 3.7 ^          | 20                         | 17                           | 66%                      |
| Central Falls      | 2,374                               | 46                                | 826    | 5.6% | 179                                | 15.1           | 49                         | 28                           | 88%                      |
| Charlestown        | 493                                 | 2                                 | 73     | 2.7% | 8                                  | *              | 10                         | 9                            | 51%                      |
| Coventry           | 2,508                               | 11                                | 561    | 2.0% | 95                                 | 7.6            | 51                         | 59                           | 66%                      |
| Cranston           | 5,814                               | 62                                | 1,765  | 3.5% | 215                                | 7.4            | 102                        | 243                          | 78%                      |
| Cumberland         | 2,603                               | 12                                | 699    | 1.7% | 46                                 | 3.5            | 31                         | 28                           | 63%                      |
| East Greenwich     | 930                                 | 4                                 | 289    | *    | 16                                 | 3.4 ^          | 14                         | 10                           | 69%                      |
| East Providence    | 3,545                               | 40                                | 1,076  | 3.7% | 130                                | 7.3            | 64                         | 92                           | 84%                      |
| Exeter             | 390                                 | 1                                 | 97     | *    | 9                                  | *              | 5                          | 7                            | 44%                      |
| Foster             | 315                                 | 1                                 | 68     | *    | 2                                  | *              | 9                          | 11                           | 66%                      |
| Glocester          | 633                                 | 3                                 | 143    | *    | 7                                  | *              | 13                         | 21                           | 64%                      |
| Hopkinton          | 618                                 | 6                                 | 122    | 4.9% | 15                                 | 4.9 ^          | 7                          | 6                            | 60%                      |
| Jamestown          | 287                                 | 0                                 | 44     | 0.0% | 10                                 | *              | 9                          | 3                            | 61%                      |
| Johnston           | 1,930                               | 11                                | 566    | 1.9% | 63                                 | 6.5            | 28                         | 71                           | 67%                      |
| Lincoln            | 1,490                               | 13                                | 429    | 3.0% | 42                                 | 5.6            | 32                         | 15                           | 72%                      |
| Little Compton     | 188                                 | 1                                 | 34     | *    | 3                                  | *              | 2                          | 8                            | 72%                      |
| Middletown         | 1,331                               | 3                                 | 326    | *    | 54                                 | 8.1            | 45                         | 5                            | 69%                      |
| Narragansett       | 739                                 | 5                                 | 98     | 5.1% | 21                                 | 5.7 ^          | 11                         | 12                           | 58%                      |
| New Shoreham       | 57                                  | 1                                 | 23     | *    | 0                                  | 0.0            | 2                          | 0                            | 56%                      |
| Newport            | 1,792                               | 25                                | 497    | 5.0% | 136                                | 15.2           | 43                         | 3                            | 82%                      |
| North Kingstown    | 1,965                               | 10                                | 493    | 2.0% | 49                                 | 5.0            | 37                         | 32                           | 67%                      |
| North Providence   | 2,040                               | 14                                | 658    | 2.1% | 114                                | 11.2           | 51                         | 82                           | 72%                      |
| North Smithfield   | 752                                 | 2                                 | 186    | *    | 13                                 | 3.5 ^          | 13                         | 13                           | 67%                      |
| Pawtucket          | 6,835                               | 88                                | 2,063  | 4.3% | 433                                | 12.7           | 126                        | 174                          | 88%                      |
| Portsmouth         | 1,206                               | 4                                 | 263    | *    | 29                                 | 4.8 ^          | 23                         | 13                           | 62%                      |
| Providence         | 16,934                              | 431                               | 6,683  | 6.4% | 1,600                              | 18.9           | 411                        | 325                          | 84%                      |
| Richmond           | 635                                 | 2                                 | 74     | *    | 10                                 | *              | 9                          | 12                           | 45%                      |
| Scituate           | 608                                 | 6                                 | 208    | 2.9% | 9                                  | *              | 7                          | 18                           | 68%                      |
| Smithfield         | 1,076                               | 4                                 | 298    | *    | 13                                 | 2.4 ^          | 12                         | 30                           | 61%                      |
| South Kingstown    | 1,707                               | 10                                | 392    | 2.6% | 50                                 | 5.9            | 29                         | 35                           | 58%                      |
| Tiverton           | 1,006                               | 11                                | 332    | 3.3% | 4                                  | *              | 11                         | 41                           | 63%                      |
| Warren             | 727                                 | 10                                | 234    | 4.3% | 28                                 | 7.7 ^          | 5                          | 19                           | 78%                      |
| Warwick            | 5,561                               | 29                                | 1,517  | 1.9% | 194                                | 7.0            | 121                        | 103                          | 81%                      |
| West Greenwich     | 446                                 | 0                                 | 71     | 0.0% | 10                                 | *              | 8                          | 6                            | 30%                      |
| West Warwick       | 2,351                               | 13                                | 620    | 2.1% | 128                                | 10.9           | 69                         | 46                           | 74%                      |
| Westerly           | 1,735                               | 6                                 | 336    | 1.8% | 67                                 | 7.7            | 22                         | 36                           | 62%                      |
| Woonsocket         | 4,212                               | 36                                | 1,218  | 3.0% | 279                                | 13.2           | 84                         | 44                           | 88%                      |
| Unknown            | 0                                   | 0                                 | 1      | 0.0% | 0                                  | 0.0            | 0                          | 0                            | -                        |
| Four Core Cities   | 30,355                              | 601                               | 10,790 | 5.6% | 2,491                              | 16.4           | 670                        | 571                          | 86%                      |
| Remainder of State | 51,193                              | 352                               | 13,711 | 2.6% | 1,695                              | 6.6            | 959                        | 1,139                        | 70%                      |
| Rhode Island       | 81,548                              | 953                               | 24,501 | 3.9% | 4,186                              | 10.3           | 1,629                      | 1,710                        | 74%                      |

### Source of Data for Table/Methodology

Children Age Six and Under: U.S. Census Bureau, Census 2010. Table PCT12.

Children with Lead Poisoning: Rhode Island Department of Health, Healthy Homes and Childhood Lead Poisoning Prevention Program, 2017. The numerator is the number of Rhode Island children with a confirmed blood lead level  $\geq 5$   $\mu\text{g}/\text{dL}$  in calendar year 2017. The denominator is the number of children who were tested in calendar year 2017. Data are for children under age six.

Children with Asthma: Rhode Island Department of Health, Hospital Discharge Database, 2012-2016. The Rhode Island Department of Health defines emergency department (ED) visits for children with a primary asthma diagnosis as those resulting in a home discharge or another facility, but not admitted to the hospital as an inpatient. For details, see Children with Asthma indicator. Data are for children age six and under.

Housing Related Falls: Rhode Island Department of Health, Center for Health Data and Analysis, 2016. Data are for children age six and under who are residents of Rhode Island.

Weatherization Projects: Rhode Island Department of Human Services, Weatherization Assistance Program data, 2017. Weatherization projects are defined as those receiving a final inspection by end of calendar year 2017.

Housing Stock Pre-1980: Population Reference Bureau analysis of 2012-2016 American Community Survey (ACS) data. Table B25034. Older housing is defined as built before 1980. The ACS reports housing year built by decade, so this is the best available approximation for housing built before 1978 when interior lead paint was banned.

\* The data are statistically unreliable and rates are not reported and should not be calculated.

^ The data are statistically unstable and rates or percentages should be interpreted with caution.

Effective October 1, 2015, the International Classification of Disease (ICD) codes changed from the 9th to the 10th classification, which may impact comparability across the years for *Housing Related Falls*.

Core cities are Central Fall, Pawtucket, Providence, and Woonsocket.

References are on page 181.

# Child and Adolescent Obesity

## DEFINITION

*Child and Adolescent Obesity* is the percentage of children and adolescents who have a body mass index (BMI) at or above the 95th percentile for gender and age. Adolescents with a BMI at or above the 95th percentile are considered to be obese. Children and youth with a BMI between the 85th and 95th percentiles are considered to be overweight or at risk for obesity.<sup>1</sup>

## SIGNIFICANCE

Children and adolescents who are overweight or obese are at immediate and/or long-term risk of many health problems, including type 2 diabetes, cardiovascular disease, asthma, joint pain, sleep apnea, and other acute and chronic health problems. Over time, these conditions may contribute to a shorter lifespan. They may also experience social and psychological problems, including depression, bullying, and social marginalization. Obese children and youth are also more likely to repeat a grade, be absent from school, and have reduced academic performance than their peers.<sup>2,3,4,5</sup>

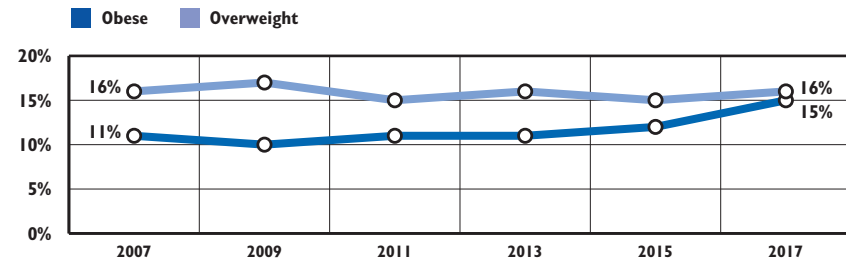
Nationally, there is a continued upward trend in obesity.<sup>6</sup> In 2015-2016 in the U.S., the prevalence of obesity in children ages 2-19 was 19% with a significant increase in severe obesity for children ages two to five years.<sup>7,8</sup> There were differences by race and ethnicity,

with non-Hispanic Black (22%) and Hispanic (26%) having higher prevalence of obesity than non-Hispanic White (14%) and non-Hispanic Asian (11%) children.<sup>9</sup>

No single factor is driving the increased prevalence of childhood obesity; rather it is the result of complex interactions among many factors, including excess calorie consumption, genes, metabolism, behavior, environment, and culture.<sup>10</sup> Low consumption of healthy foods, high consumption of sugar-sweetened beverages and energy dense foods, low levels of physical activity, and high levels of screen time are all associated with obesity.<sup>11</sup>

Prevention and intervention for at risk, overweight, and obese children should occur early and at all ages.<sup>12</sup> Reducing overweight and obesity will require a comprehensive, multi-system approach. Policy strategies to reduce obesity include improving access to nutritional and affordable foods and beverages, ensuring healthy food in schools, increasing options for physical activity before, during, and after school as well as with early learning programs, and improving access to safe and walkable neighborhoods and recreational areas.<sup>13</sup>

## Obesity and Overweight Among Rhode Island High School Students, 2007-2017



Source: *Youth Risk Behavior Survey*, Rhode Island, 2007-2017. BMI calculated using self-reported student response.

◆ Rhode Island's overall high school obesity prevalence has increased since 2007 while overweight prevalence has remained mostly level. In Rhode Island in 2017, 15% of high school students self-reported as obese and 16% self-reported being overweight. In Rhode Island, Hispanic students (21%), males (17%), and Black students (18%), were more likely to report being obese than their peers.<sup>14</sup> In the most recent national rankings from 2015, Rhode Island was seventh best for prevalence of obesity and ninth best for prevalence of overweight.<sup>15</sup>

◆ In September 2017, the BMI values of 9,157 electronic medical health records of children under age 18 residing in Providence who are active patients of a Providence Community Health Center site were examined. The analysis found 25% of Providence children were obese (down from 26% in 2016) and 19% were overweight (down from 20% the prior year). In 2017, obesity varied by age: 22% of children ages two to five, 29% of children ages six to 11, and 25% of children ages 12 to 17 were obese. Among Hispanic children, who accounted for 78% of all patients served, 27% were obese.<sup>16</sup>

## Nutrition and Eating Habits

◆ The total number of calories a child and adolescent needs varies depending on age, gender, height, weight, and level of physical activity, as well as their need to lose, maintain, or gain weight. Many children and adolescents consume diets with too many calories and not enough nutrients.<sup>17</sup> Among Rhode Island high school students in 2017, 11% reported consuming one or more cans of soda daily (down from 25% in 2007) and 88% reported eating less than three servings of vegetables per day.<sup>18</sup>

## Promoting Increased Physical Activity

◆ Recess is an important component in optimizing a child’s social, emotional, physical, and cognitive development.<sup>19</sup> In 2016, legislation passed requiring at least 20 consecutive minutes of free-play recess daily for Rhode Island public school children in kindergarten through grade six.<sup>20</sup> Prior to this legislation, only 10 public school districts required 20 minutes or more of daily recess.<sup>21</sup>

◆ Physical Education (PE) curriculum and instruction are designed to develop age appropriate motor skills, knowledge and behaviors of active living.<sup>22</sup> In Rhode Island, students are required to receive an average of 20 minutes per day of health *and* PE instruction.<sup>23</sup> Nationally, the daily recommended amount of PE alone is 30 minutes in elementary school and 45 minutes in middle and high school.<sup>24</sup>

◆ Regular physical activity, including school-based, has been shown to have physical, cognitive and academic benefits, including improved grades.<sup>25,26</sup> In Rhode Island in 2017, 25% of middle school students and 23% of high school students reported being physically active every day for at least 60 minutes, which is the recommended amount.<sup>27,28</sup>

## Sedentary Behavior and Physical Activity, Rhode Island Middle School and High School Students by Race and Ethnicity, 2017

|  | MIDDLE SCHOOL |        |          | HIGH SCHOOL |        |          |
|--|---------------|--------|----------|-------------|--------|----------|
|  | BLACK*        | WHITE* | HISPANIC | BLACK*      | WHITE* | HISPANIC |
| 2 or Fewer Days of Physical Education Weekly                   | 47%           | 43%    | 51%      | 41%         | 41%    | 45%      |
| 3 or Fewer Days of Physical Activity** Weekly                  | 51%           | 32%    | 57%      | 63%         | 43%    | 58%      |
| 3 or More Hours of TV on School Days                           | 36%           | 17%    | 29%      | 27%         | 18%    | 25%      |
| 3 or More Hours of Computer*** Time/Video Games on School Days | 51%           | 40%    | 46%      | 40%         | 42%    | 47%      |

Source: 2017 Rhode Island Youth Risk Behavior Survey, Rhode Island Department of Health. \*Non-Hispanic. \*\*Defined as at least 60 minutes per day. \*\*\*Non-school related. Hispanic can be of any race. For gender and overall results, see the 2016 Factbook.

## Obesity in Young Children in Rhode Island

### Children Enrolled in Head Start

◆ Head Start is a federally-funded comprehensive early childhood program for low-income preschool children and their families.<sup>29</sup> In Rhode Island during the 2016-2017 school year, 2,538 children aged three to five were enrolled in a Head Start program. Of those enrolled, 18% were obese, and 19% were overweight.<sup>30</sup> Comparable national data show that 16% of children enrolled in Head Start were obese and 13% were overweight during that time.<sup>31</sup> Overweight kindergartners are four times as likely as their healthy weight peers to become obese by eighth grade, and obese teens have a greater than 70% risk of becoming obese as adults.<sup>32,33,34</sup>

### Children Participating in WIC

◆ The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) is a federally funded preventive program that provides eligible participants with nutritious food, nutrition education, and access to health care and social services.<sup>35</sup> In Rhode Island in 2017, 12,042 children aged two to four were enrolled in WIC, 18% of whom were obese and 13% were overweight.<sup>36</sup>

◆ WIC also tracks the number of children under age five who are at risk for being obese, which is defined as having a biological parent who is obese (i.e., have a BMI over 30). In 2017, 17% of infants (1,613) and 19% of children aged one to four (2,818) enrolled in WIC in Rhode Island were deemed at risk for being obese.<sup>37</sup>

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(continued on page 181)



# Births to Teens

## DEFINITION

*Births to teens* is the number of births to teen girls ages 15 to 19 per 1,000 teen girls.

## SIGNIFICANCE

Teen pregnancy and parenting threaten the development of both teen parents and their children. Children of teen parents have higher risk of infant mortality, preterm delivery, low birthweight, child maltreatment and placement in foster care. Children of teen parents also have, lower test scores, academic outcomes, and are less likely to complete high school compared with children of older mothers. They are also more likely to become teen parents themselves.<sup>1</sup> There are strong links between maternal education among teen mothers and educational attainment, income, and well-being in their children.<sup>2</sup>

Only 50% of teen mothers have a high school diploma by age 22, compared with 90% of young women who did not give birth as a teen.<sup>3</sup> Teen girls in foster care are more than twice as likely as their peers to become pregnant by age 19.<sup>4</sup>

One in five births to teens are repeat births.<sup>5</sup> Repeat births to teens are more likely to be premature or have low birth weight than first teen births. In 2015, the prevalence of repeat teen births was highest among Hispanic teens (19%), non-Hispanic Black teens (18%), and non-Hispanic white teens (14%).<sup>6</sup>

Despite national declines in teen births, disparities in teen births persist. In 2016, the rate of teen birth for Hispanic teens (32 births per 1,000) and to non-Hispanic Black teens (29 per 1,000), were both more than twice the rate for non-Hispanic white teens (14 per 1,000).<sup>7</sup>

After peaking in 1991, the U.S. teen birth rate has steadily declined reaching a low in 2016, with decreases among all racial and ethnic backgrounds.<sup>8,9</sup> Despite this trend, the U.S. teen birth rate remains higher than many other developed countries.<sup>10</sup>

Rhode Island's teen birth rate mirrors national trends, peaking in 1993 at a rate of 48 per 1,000, and reaching a historic low in 2016 at a rate of 13 per 1,000.<sup>11</sup> In 2016 in Rhode Island, 474 babies were born to mothers under age 20, accounting for 4% of all babies born.<sup>12</sup> Nationally and in Rhode Island, fewer teens are having sex and those that are sexually active are more likely to use contraception.<sup>13,14</sup>

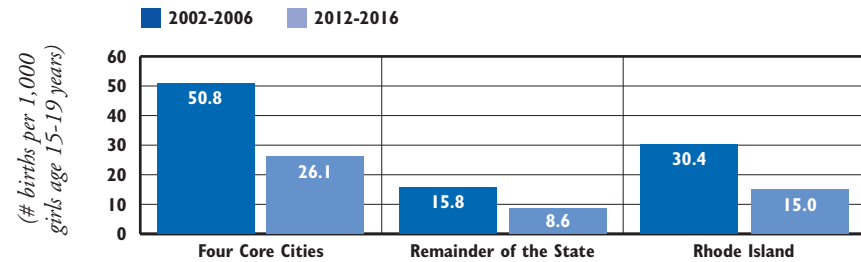
| Teen Birth Rates<br>(rate per 1,000 girls ages 15-19) |      |      |
|---|------|------|
|   | 1991 | 2016 |
| RI  | 44.7 | 12.9 |
| US  | 61.8 | 20.3 |
| National Rank*  |      | 7th  |
| New England Rank**                                    |      | 5th  |

\*1st is best; 50th is worst

\*\*1st is best; 6th is worst

Source: For 2016: Martin, J. A., et al. (2016). Births: Final data for 2016. *National Vital Statistics Reports*, 67(1), 1-54. For 1991: Ventura, S. J., et al. (2014). National and state patterns of teen births in the United States, 1940-2013. *NVSR*, 63(4), 1-33.

## Teen Birth Rates, Rhode Island, Five-Year Averages Comparisons: 2002-2006, 2012-2016



Source: Rhode Island Department of Health, Center for Health Data and Analysis, 2002-2016.

- ◆ In 2016, the birth rate for U.S. teens (20 births per 1,000 teen girls) and Rhode Island teens (13 births per 1,000 teen girls) were the lowest ever recorded.<sup>15</sup>
- ◆ The Rhode Island teen birth rate declined 51% between 2002-2006 and 2012-2016, from 30.4 births per 1,000 teen girls to 15.0. The teen birth rate in the four core cities declined by 49% during that time but remains three times higher than the remainder of the state.<sup>16</sup>
- ◆ Disparities persist in teen birth rates.<sup>17</sup> In Rhode Island between 2012 and 2016, the teen birth rates for Hispanic (37.9 per 1,000) and Black (24.9 per 1,000) teens were higher than rates for White (9.4 per 1,000) and Asian (8.3 per 1,000) teens.<sup>18</sup>

## Repeat Births to Teens, Rhode Island, 2012-2016

| AGE         | TOTAL NUMBER OF BIRTHS | NUMBER OF REPEAT BIRTHS | PERCENT REPEAT BIRTHS |
|-------------|------------------------|-------------------------|-----------------------|
| 15-17       | 775                    | 38                      | 5%                    |
| 18-19       | 2,212                  | 395                     | 18%                   |
| TOTAL 15-19 | 2,987                  | 433                     | 14%                   |

Source: Rhode Island Department of Health, Center for Health Data and Analysis, 2012-2016.

- ◆ Nationally, 17% of all births to teens ages 15-19 in 2015 were repeat births. Since 2004, repeat teen births have declined 54% nationwide.<sup>19</sup> To continue to reduce repeat teen births, pregnant and parenting teens should be connected with evidence-based home visiting programs that address their needs and educate mothers about effective contraception.<sup>20</sup>

## Teen Birth Rates by Age and Location

◆ In Rhode Island between 2012 and 2016, the rate of birth to teens ages 15-19 in the core cities (26.1 per 1,000) was more than three times higher than the remainder of the state (8.6 per 1,000). Among the core cities, Central Falls (at a rate of 59.5 per 1,000 teen births) and Woonsocket (at a rate of 43.7 per 1,000 teen births) have significantly higher rates than Pawtucket (26.1 per 1,000) and Providence (21.6 per 1,000).<sup>21</sup>

◆ Thirteen percent of teen births in the core cities were repeat births, while 7% of teen births in the rest of the state were repeat births.<sup>22</sup>

◆ Health care providers play a key role in reducing teen births, by integrating comprehensive reproductive health counseling to all women and men of reproductive age to help reduce unintended pregnancies.<sup>23</sup>

Table 26. Births to Teens, Ages 15-19, Rhode Island, 2012-2016

| CITY/TOWN          | # OF BIRTHS TO GIRLS AGES 15-17 | # OF BIRTHS TO GIRLS AGES 18-19 | # OF BIRTHS TO GIRLS AGES 15-19 | BIRTH RATE PER 1,000 GIRLS AGES 15-19 |
|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------------|
| Barrington         | 1                               | 2                               | 3                               | *                                     |
| Bristol            | 6                               | 18                              | 24                              | *                                     |
| Burrillville       | 7                               | 20                              | 27                              | 11.2                                  |
| Central Falls      | 59                              | 158                             | 217                             | 59.5                                  |
| Charlestown        | 4                               | 19                              | 23                              | 20.1 ^                                |
| Coventry           | 9                               | 35                              | 44                              | 7.7                                   |
| Cranston           | 36                              | 92                              | 128                             | 10.1                                  |
| Cumberland         | 6                               | 25                              | 31                              | 5.8                                   |
| East Greenwich     | 0                               | 9                               | 9                               | *                                     |
| East Providence    | 27                              | 65                              | 92                              | 13.8 ^                                |
| Exeter             | 5                               | 10                              | 15                              | 10.7 ^                                |
| Foster             | 2                               | 3                               | 5                               | *                                     |
| Glocester          | 3                               | 8                               | 11                              | *                                     |
| Hopkinton          | 3                               | 5                               | 8                               | *                                     |
| Jamestown          | 0                               | 1                               | 1                               | *                                     |
| Johnston           | 9                               | 39                              | 48                              | 11.9                                  |
| Lincoln            | 2                               | 22                              | 24                              | 6.9 ^                                 |
| Little Compton     | 0                               | 1                               | 1                               | *                                     |
| Middletown         | 9                               | 15                              | 24                              | 10.8 ^                                |
| Narragansett       | 2                               | 3                               | 5                               | *                                     |
| New Shoreham       | 0                               | 1                               | 1                               | *                                     |
| Newport            | 17                              | 45                              | 62                              | 12.1                                  |
| North Kingstown    | 9                               | 23                              | 32                              | 7.2                                   |
| North Providence   | 17                              | 61                              | 78                              | 17.6                                  |
| North Smithfield   | 4                               | 6                               | 10                              | *                                     |
| Pawtucket          | 83                              | 222                             | 305                             | 26.1                                  |
| Portsmouth         | 6                               | 5                               | 11                              | *                                     |
| Providence         | 303                             | 787                             | 1090                            | 21.6                                  |
| Richmond           | 2                               | 11                              | 13                              | 11.2 ^                                |
| Scituate           | 1                               | 9                               | 10                              | *                                     |
| Smithfield         | 1                               | 9                               | 10                              | *                                     |
| South Kingstown    | 1                               | 21                              | 22                              | 1.6 ^                                 |
| Tiverton           | 5                               | 8                               | 13                              | 6.0 ^                                 |
| Warren             | 2                               | 16                              | 18                              | 13.3 ^                                |
| Warwick            | 31                              | 87                              | 118                             | 10.6                                  |
| West Greenwich     | 1                               | 10                              | 11                              | 10.8 ^                                |
| West Warwick       | 27                              | 94                              | 121                             | 26.6                                  |
| Westerly           | 10                              | 30                              | 40                              | 18.6                                  |
| Woonsocket         | 65                              | 211                             | 276                             | 43.7                                  |
| Unknown            | 0                               | 6                               | 6                               | -                                     |
| Four Core Cities   | 510                             | 1,378                           | 1,888                           | 26.1                                  |
| Remainder of State | 265                             | 834                             | 1,099                           | 8.6                                   |
| Rhode Island       | 775                             | 2,212                           | 2,987                           | 15.0                                  |

### Source of Data for Table/Methodology

Rhode Island Department of Health, Center for Health Data and Analysis, Maternal and Child Health Database, 2012-2016.

\* The data are statistically unreliable and rates are not reported and should not be calculated.

^ The data are statistically unstable and rates or percentages should be interpreted with caution.

The denominators for girls ages 15-19 are from the Census 2010 Summary File 1, which are then multiplied by five.

In the 2012 *Factbook*, the denominators for the city/town table were updated with population data from Census 2010. *Factbooks* prior to 2012 used population data from Census 2000. Changes in rates are affected by the updated population data.

Factbooks published before 2007 reported only births to girls ages 15-17. The definition of teen childbearing was expanded to include teens ages 15-19 to align with reports from the U.S. Centers for Disease Control and Prevention's National Center for Health Statistics.

Births to teens ages 14 and younger are collected by the Rhode Island Department of Health but are not reported in the *Factbook*.

Unknown: Births were Rhode Island residents, but specific city/town information was unavailable.

Core cities are Central Falls, Pawtucket, Providence, and Woonsocket.

### References

<sup>1,8,13</sup> *Teen births: Indicator of child and youth well-being.* (2016). Washington, DC: Child Trends.

<sup>2</sup> Moore, K.A., Sacks, V.H., Manlove, J., Sawhill, I. (2014). *Research brief: "What if" you earned a diploma and delayed parenthood?* Bethesda, MD: Child Trends.

<sup>3</sup> Centers for Disease Control and Prevention . (2017). *About teen pregnancy.* Retrieved March 2, 2018, from [cdc.gov/teenpregnancy/about](http://cdc.gov/teenpregnancy/about)

<sup>4</sup> Matta Oshima, K. M., Narendorf, S. C., and McMillen, J. C. (2013). Pregnancy risk among older youth transitioning out of foster care. *Child Youth Services Review*, 35(10), 1760-1765.

(continued on page 181)

# Alcohol, Drug, and Tobacco Use

## DEFINITION

*Alcohol, drug, and tobacco use* is the percentage of middle school and high school students who report having used alcohol, illegal drugs, or tobacco products.

## SIGNIFICANCE

The use and/or abuse of substances such as alcohol, tobacco, and other drugs by youth poses health and safety risks to them, their families, their schools, and their communities.<sup>1,2</sup> Rhode Island ranks among the states with the highest percentages of adolescents reporting use of alcohol and many types of illicit drugs.<sup>3</sup>

Key risk periods for alcohol, tobacco, and other drug abuse occur during major life transitions. These transitions include shifts to middle school and high school, when youth experience new academic, social, and emotional challenges. Adolescents are especially vulnerable to developing substance abuse disorders because their brains are still developing; the prefrontal cortex, responsible for decision-making and risk-assessment, is not mature until the mid-20s.<sup>4,5</sup>

Pathways to substance use involve the relationship between risk and protective factors, which vary in their effect on different people. Risk factors include early aggressive behavior, poor school achievement, peer and parental

substance abuse, chaotic home environment, and poverty. Protective factors lessen the risk of substance use, and include a strong parent-child bond, healthy school environment, academic competence, and attachment to their communities.<sup>6,7</sup> For over three decades, Hispanic and Black high school seniors in the U.S. have generally had lower rates of substance use than their White peers, but recently these differences have narrowed due to an increased use of marijuana.<sup>8,9</sup>

Enacting policies that support prevention, screening, early intervention, treatment, and recovery can prevent and reduce teen substance abuse. Policy examples include preventing underage substance use and restricting sales to minors, improving school climate and academic achievement, enacting sentencing reform, and sustaining adequate funding for multi-sector youth development, treatment, and recovery services.<sup>10</sup>

In Rhode Island in 2013-2014, 3% of youth ages 12-17 needed but did not receive treatment for an alcohol use problem, which is the 15<sup>th</sup> highest rate nationally. Four percent of Rhode Island youth ages 12-17 needed but did not receive any treatment for illicit drug use, which is the seventh highest rate nationally on this measure.<sup>11</sup>

## Tobacco Use Among Rhode Island Youth

- ◆ In 2017, 26% of Rhode Island high school students reported currently smoking cigarettes or cigars, or using smokeless tobacco or e-cigarettes (i.e. e-cigars, e-pipes, vaping pipes/pens, e-hookahs/pens). Current use is defined as use on at least one day during the 30 days before the survey.<sup>12</sup>
- ◆ **Cigarettes:** Cigarette use has reached record low levels among U.S. middle and high school students.<sup>13</sup> In 2017, 6% of Rhode Island high school students reported currently smoking cigarettes. Fifty-nine percent of Rhode Island high school students who reported current cigarette use in 2017 also reported trying to quit smoking in the past year.<sup>14</sup>
- ◆ **E-Cigarettes:** Among U.S. adolescents in 2016, e-cigarette use was higher than use of traditional tobacco cigarettes or any other tobacco product.<sup>15</sup> In Rhode Island in 2017, 20% of high school students reported current use of e-cigarettes and 40% reported ever using e-cigarettes. The Rhode Island General Assembly passed legislation prohibiting the use of e-cigarettes in schools, effective January 1, 2018.<sup>16,17</sup>
- ◆ **Hookah:** The prevalence of smoking tobacco with a hookah has declined nationally for the past two years and most use is occasional.<sup>18</sup> In 2017, 5% of Rhode Island high school students reported currently smoking tobacco in a hookah.<sup>19</sup>
- ◆ **Cigars:** Use of small cigars, or cigarillos, among U.S. adolescents has declined significantly since 2010.<sup>20</sup> In Rhode Island in 2017, 7% of high school students reported currently smoking cigars.<sup>21</sup>
- ◆ **Smokeless Tobacco:** After rising in the mid-2000s, use of smokeless tobacco by U.S. adolescents has declined since 2010.<sup>22</sup> In 2017, 5% of Rhode Island high school students reported current use of smokeless tobacco.<sup>23</sup>
- ◆ **Tobacco to 21:** The Institute of Medicine and the Centers for Disease Control and Prevention (CDC) suggest that raising the minimum legal sale age (MLA) for tobacco products to 21 may prevent or delay initiation of tobacco use by adolescents. The American Academy of Pediatrics also recommends increasing the MLA to 21.<sup>24,25,26</sup> Rhode Island's minimum sale age is 18 years. Nationally, as of January 2018, five states have set the age to 21 (CA, HI, ME, NJ, OR).<sup>27,28</sup>

## Current Substance Use, Rhode Island High School Students by Select Subgroups, 2017

|                               | ALCOHOL USE* | E-CIGARETTE USE* | CIGARETTE USE* | MARIJUANA USE* | PRESCRIPTION DRUG MISUSE*** |
|-------------------------------|--------------|------------------|----------------|----------------|-----------------------------|
| Female                        | 26%          | 17%              | 5%             | 23%            | 3%                          |
| Male                          | 20%          | 22%              | 7%             | 23%            | 4%                          |
| Black, Non-Hispanic           | 19%          | 12%              | 1%             | 27%            | 4%                          |
| White, Non-Hispanic           | 25%          | 23%              | 7%             | 22%            | 3%                          |
| All other races, Non-Hispanic | NA           | 16%              | 1%             | 19%            | 2%                          |
| Multiple races, Non-Hispanic  | 29%          | 20%              | 6%             | 38%            | 1%                          |
| Hispanic                      | 20%          | 16%              | 6%             | 23%            | 4%                          |
| 9th Grade                     | 16%          | 17%              | 6%             | 15%            | 4%                          |
| 10th Grade                    | 20%          | 21%              | 5%             | 20%            | 5%                          |
| 11th Grade                    | 26%          | 22%              | 4%             | 26%            | 3%                          |
| 12th Grade                    | 33%          | 21%              | 9%             | 33%            | 2%                          |
| All Students                  | 23%          | 20%              | 6%             | 23%            | 4%                          |

Source: 2017 Rhode Island Youth Risk Behavior Survey, Rhode Island Department of Health, Center for Health Data and Analysis. \*Current use is defined as students who answered yes to using respective substances in the 30 days prior to the survey. \*\*Prescription drug misuse is defined as those without a doctor's prescription. NA is not available due to small sample size.

- ◆ Among Rhode Island high school students in 2017, 23% reported current alcohol consumption, 23% reported current marijuana use, 20% reported current use of e-cigarettes, 11% reported current binge drinking, 6% reported current cigarette use, 5% reported currently using over the counter drugs to get high, and 4% reported currently misusing prescription drugs.<sup>29</sup>
- ◆ In 2017, 81% of Rhode Island high school students reported that they have never smoked a cigarette and 60% reported they have never used an e-cigarette product.<sup>30</sup>
- ◆ Cigarette excise taxes pose a potential funding stream for state tobacco control programs.<sup>31</sup> Between SFY 2002-2017, Rhode Island cigarette tax revenue increased from \$79.4 million to \$138.7 million while state tobacco control funding decreased from \$3 million to \$377,000. Only 0.27% of the cigarette tax in SFY 2017 went toward tobacco control and smoking cessation programs.<sup>32,33,34</sup>

## Family and Community Risk Factors

- ◆ Having parents or friends who use tobacco, alcohol, and other drugs, as well as living in communities where there is drug dealing and substance use are risk factors for teen substance use.<sup>35</sup> In Rhode Island in 2017, 35% of middle school students and 33% of high school students reported living with someone who smokes cigarettes. One in six (17%) Rhode Island high school students under age 18 who used an e-cigarette during the past 30 days reported buying it in a store, despite laws prohibiting sales to minors. One in seven (14%) high school students who had ever taken a prescription drug without a doctor's prescription reported taking it from a friend or relative without their knowledge.<sup>36</sup>

## Babies Born with Exposure to Substances

- ◆ Babies born with exposure to opioids (pain medication) face immediate and potential long-term negative outcomes. Neonatal Abstinence Syndrome (NAS) refers to the withdrawal and negative effects experienced by newborns born to mothers who use opioids and other drugs during pregnancy.<sup>37</sup>
- ◆ In Rhode Island in 2016, 96 babies were diagnosed with NAS, a rate of 89.5 per 10,000 births; down from 114 babies (103.8 per 10,000 births) in 2015 but more than double the rate of 37.2 in 2006. Eighty-six percent of babies born with NAS between 2012 and 2016 in Rhode Island were born to White mothers, 86% were born to mothers who were covered by Medicaid, and 38% lived in the four core cities.<sup>38</sup>
- ◆ Smoking during pregnancy is associated with adverse outcomes for children, including preterm births, low birthweight, and infant mortality.<sup>39</sup> Nationally, one in ten women who gave birth in 2014 smoked during the three months before they became pregnant and nearly one-quarter of those women did not smoke during pregnancy.<sup>40</sup>
- ◆ In Rhode Island between 2012 and 2016, 7% (3,843) of all births were to women who smoked during their pregnancy. During that time, Rhode Island mothers who smoked had higher percentages of low birthweight (13%) and preterm births (12%) compared to mothers who did not smoke (7% and 9% respectively).<sup>41</sup>

### References

<sup>1,4,6</sup> Facing addiction in America: The Surgeon General's report on alcohol, drugs, and health. (2016). Washington, DC: U.S. Department of Health and Human Services, Office of the Surgeon General.

<sup>2</sup> Substance-free youth. (2015). Washington, DC: Child Trends.

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