

# Ready, Set, Go!

## Investing in Infants and Toddlers



### Set: Birth and Healthy Development

“Birth and Healthy Development” is the second brief in the three-part series, *Ready, Set, Go: Investing in Infants and Toddlers*, published by the Colorado Children’s Campaign. The foundations for lifelong success start in the earliest stages of life, beginning with a healthy mother and continuing through early childhood. These briefs are intended to help frame discussion around children from the prenatal stage to age 3 and the importance of health, education and family and community supports in helping them grow into healthy and strong individuals. Each brief includes recommendations for policy makers and leaders to help ensure Colorado kids get the best start in life.



Children are constantly growing and learning in the early years of life. Infants continually develop new physical abilities and skills that are further mastered and refined through early childhood. From tummy time to crawling to walking to running, the physical and gross motor development that occurs during infancy and toddlerhood is dramatic. At the same time, infants and toddlers are also developing the internal systems that are harder to see, but essential to growing up healthy and strong, including their immune and sensory systems.

Cognitive, social and emotional development during infancy and toddlerhood occurs rapidly, creating the foundation for lifelong learning and well-being. This is equally important as, and connected to, the physical development children experience in this period of life. The brains of young children develop rapidly as they interact with those around them and with their environment. Each experience helps them to make new neural connections.

For healthy brain development to occur, infants and toddlers need positive, trusting relationships, safe environments and stimulating interactions with nurturing adults who care for them, including parents, friends or family members, child care providers and teachers. As their learning continues, children’s brains begin to strengthen the connections that are most frequently used, while the less-used connections fade away. Positive and stable relationships between children and their caregivers lay a strong foundation for learning, relationships and emotional expression throughout early childhood. Additionally, such relationships help children cope with stress and adversity in a way that is protective of their health.



The healthy physical, social and emotional development of young children ages birth to 3 is powerfully influenced by the support of parents and other primary caregivers. The home is the most influential environment of a young child. Positive relationships between caregivers and children offer the best protection against a child experiencing toxic stress and other adverse outcomes later in life. Early childhood services and policies help ensure that all Colorado families are able to provide a positive environment for healthy development of their children.

## Healthy Birth

Infant health is intimately affected by maternal prenatal health. A pregnant woman's health status has a serious effect on her child's birth outcomes.<sup>1</sup> For more on this topic, refer to brief one of this series, "Ready: Prenatal Health and Care". Two of the earliest indicators of a child's health are gestational age (how long the mother was pregnant before giving birth) and birth weight. These two indicators are closely related as being born early is the leading cause of having lower birth weights.

Premature birth is defined as birth before 37 weeks; a normal gestation is 40 weeks. In Colorado, 10.3 percent of newborns were born prematurely in 2011.<sup>2</sup> This rate is better than the national average of 11.7 percent; however it does not meet the Healthy People 2020 goal of 7.8 percent.<sup>3</sup> Prematurity is the leading cause of newborn deaths in the United States. A reduction in the rate of premature birth among Colorado babies would lead to a decreased incidence of health complications and death among newborns and infants.

Newborns weighing fewer than 5.5 pounds are considered to have low birth weights. In 2011, 8.7 percent of all babies born in Colorado were low birth-weight.<sup>4</sup> These babies are at high risk for developing a number of immediate health complications, such as respiratory distress and heart problems, and a higher risk of infant death.<sup>5</sup> Later in life these children are at greater risk for obesity, diabetes and cardiovascular disease.<sup>6</sup> Both birth weight and gestational age are influenced by many factors, including access to prenatal care, health behaviors both before and during pregnancy, maternal educational level, socio-economic status, nutrition and other environmental influences. A mother's exposure to poverty, stress and violence during pregnancy can increase the risk for prematurity and low birth weights.<sup>7</sup>

Not all populations have the same risk for delivering a low birth-weight baby. Colorado's rates of low birth weights reflect disparities based on geography and race/ethnicity. In addition, studies have demonstrated that babies born at elevations higher than 3,000 feet are at a greater risk of preterm birth than babies born below this elevation.<sup>8</sup> All Colorado-born babies are born at an elevation higher than 3,000 feet; however the risk of preterm birth grows with increasing altitude.<sup>9</sup> Black women in Colorado are more likely to have low birth-weight babies than non-Hispanic white, Hispanic or American Indian women.<sup>10</sup> The percentage of black babies in Colorado born with low birth weights is 14 percent versus 9 percent of white babies. Racial and ethnic health disparities are fueled by a complex interaction of social, environmental and historical contexts. This makes it difficult to identify which factors contribute most strongly to disparities in birth outcomes. Variables that have been determined to correlate closely with birth weight are smoking, maternal educational attainment, exposure to violence and access to prenatal care.<sup>11</sup>

Some factors associated with preterm birth cannot be modified, such as high altitude and multiple births. However other factors such as smoking, low educational attainment and lack of access to prenatal care can be addressed through policy measures that can reduce risk and improve birth outcomes. Access to health care and multidisciplinary initiatives targeting health disparities in maternal health can minimize the risk for premature birth and low birth weights among Colorado infants.

### Policy Recommendations:

- Continue to support policies to ensure all Colorado women have access to affordable health insurance to improve access to timely, high-quality preconception and prenatal care.
- Educate women and their partners early and often about the importance of preconception and prenatal health, wellness and access to care.
  - o Collaborate across sectors to address factors contributing to birth outcome disparities that are fueled by inequitable educational opportunity, poverty and access to health care and social services.



## Developmental Screenings

A child's physical, social and emotional development can be monitored by observing how they play, learn, speak and behave. As they grow and learn, children develop skills such as walking, talking and interacting with others. Child development across different domains occurs within a wide range of normal variability. The range for a particular developmental milestone helps determine whether, at a given age, a child should have achieved the milestone. If milestones are not achieved by a particular age, children may be at risk for developmental delay.

The costs of developmental delays and lack of intervention expand beyond those directly affected to also include higher health care costs and educational support like special education. Estimated costs for the lost productivity of individuals affected by developmental delays (including mental retardation and hearing loss) range from \$400,000 per person to more than \$1 million.<sup>12</sup> The good news is that early identification of developmental and behavioral delays and disabilities provides an opportunity for early intervention, increasing the likelihood that children will be able to meet their full potential and succeed socially and academically, even if they have a long-term disability. Early intervention produces potential long-term cost savings by reducing the need for intensive therapies and remediation later in the child's life.<sup>13</sup>



Screening with the use of standardized tools has been shown to correctly identify between 70 percent and 80 percent of developmental disabilities, and 80 percent to 90 percent of mental health problems.<sup>14</sup> Screening does not determine if a child is eligible for services, but it is a quick and low-cost assessment that may indicate the need for further evaluation. The American Academy of Pediatrics (AAP) advises primary care providers to conduct developmental screening at age 9 months, 18 months and 30 months with an approved, standardized tool.<sup>15</sup> The general guidelines are to conduct three developmental screenings by the time a child reaches age 3, and an autism screening two times by age 2. Scores in the abnormal range on standardized instruments suggest that milestones are delayed in one or more areas of development when compared with other same-aged peers.<sup>16</sup> Children identified as at-risk for developmental delays (i.e., their scores on developmental screening instruments fall in the abnormal range) should be referred to Early Intervention Colorado.<sup>17</sup> Children who are eligible for early intervention services after the initial evaluation can benefit from in-home services that address delays to help improve quality of life for children and their families. Such services decrease the need for more intensive intervention later in life. Early Intervention Colorado aims to serve 2.5 percent of the children in Colorado from birth to 2 years of age.

In Colorado, about 16 percent of children have disabilities including speech and language delays, learning disabilities, emotional and behavioral problems, mental retardation and others. Just 30 percent of these disabilities are detected prior to entering school.<sup>18</sup> After screenings that indicate a need for further evaluation, only half of families go on to in-depth evaluation and even fewer are referred to services. There are a number of factors that contribute to this high drop-off rate in follow up. In some cases families never receive the results of the screening and, therefore, are unaware that further evaluation or intervention is needed. In other cases, an adequate network for referral does not exist, so primary care providers don't know how to or cannot access specialists, or use a "wait and see" approach instead of referring. In other cases, families are unable to seek services due to cost or geographic barriers and many are hesitant to access services for various reasons. Further data are needed to determine whether families access and use evaluation and intervention services, along with learning more about what information about the evaluation process gets back to the primary care setting.

Health care providers play a unique role in early childhood developmental screenings because they are some of the few professionals who see children and their families regularly during the critical ages between birth and 3 years old. Colorado's Assuring Better Child Health and Development (ABCD) program works with providers to improve physician's use of standardized screening tools.<sup>19</sup> Current data show that 60 percent of Colorado pediatricians use standardized screening tools.<sup>20</sup> Some providers use developmental milestone checklists that are embedded into electronic medical records. While these checklists contribute to increased screenings, they do not meet APP's policy for standardized screening. Improving access to health care for children and working to increase the rates of standardized developmental screening by health care providers could improve identification of more Colorado children in need of early intervention. In addition, for families who are nervous or unsure about the process of developmental screenings, primary care providers can play a critical role in highlighting the potential long-term benefits of early identification and intervention. The National Centers for Disease Control's Developmental Milestones Moment and the Colorado Early Learning and Development Guidelines can serve as key resources for providers and families in developmental screening.

Families and caregivers spend the most time with children and know them best. Accordingly, caregiver knowledge of healthy development is critical to the early identification and intervention of developmental delays and disorders. Despite health care providers' increasing use of standardized screening tools, 75 percent of parents surveyed in the 2011 Colorado Child Health Survey said their child's health care providers did not give them specific information to address their concerns about their child's learning, development or behavior.<sup>21</sup> A clear opportunity exists for health care providers and other professionals such as child care workers to work with parents to identify and address delays in children's development. Programs that empower parents to enhance their knowledge of healthy child development, such as home visiting, bridge the knowledge and communication gap between parents and health providers on child development issues.

Colorado's Department of Human Services recently developed Early Learning and Development Guidelines for children ages birth to 8. Making the guidelines accessible and easy to understand for families and caregivers provides an opportunity to educate parents and caregivers about developmental milestones and how they can advocate for their children. For more information on this topic, refer to brief three of this series, "Go: Early Care and Learning".

## Home Visiting

Home visiting programs offer a unique opportunity to promote healthy growth for the Colorado children who need the most support. A number of models of home visiting programs share a common purpose of supporting Colorado families, and connecting them to the resources they need to promote healthy development for young children.

Parents are a child's first and most important teachers. Parenthood education has a greater impact on the educational and social success of children than efforts focused on educating the children themselves.<sup>22</sup> As a result, many home visitation models focus on providing parents with skills and information to build strong and positive relationships with their children and foster learning and emotional bonding.

Home visiting programs have received more exposure and funding with the passage of the Maternal, Infant and Early Childhood Home Visiting (MIECHV) Program enacted under the federal Patient Protection and Affordable Care Act. The program provides comprehensive home visiting services for families living in at-risk communities. Services supported through MIECHV must meet standards to demonstrate that they are evidence-based.

Colorado receives federal funding to expand four evidence-based home visiting programs: Nurse Family Partnership (NFP), Healthy Steps for Young Children, Home Instruction for Parents of Preschool Youngsters (HIPPY) and Parents as Teachers (PAT). A description of each of these programs can be found in Table 1. A number of other home-visiting programs also serve Colorado families, including two other evidence-based programs: Early Head Start, and Healthy Families America. All home visiting programs in Colorado play an important role in meeting families where they are in the community and empowering parents with information and resources to advance the health of their children as they grow and develop.

**Table 1. Colorado’s MIECHV Funded Home Visitation Programs<sup>23</sup>**

Program	Timing	Program Description
Home Instruction for Parents of Preschool Youngsters (HIPPY)	Weekly home visits and monthly group visits beginning at age 3 or 4	<p><u>Staff</u>: Paraprofessionals guided by professional coordinator.</p> <p><u>Reach</u>: Approximately 750 children and families per year in eight counties.</p> <p><u>Clientele</u>: 90 percent below FPL; 10 percent low-income.</p> <p><u>Program Focus</u>: Empower parents as primary educators of their children and foster parent involvement in school and community.</p>
Healthy Steps for Young Children	Home visits beginning at birth and at key developmental stages	<p><u>Staff</u>: Based out of pediatric primary care offices, a Healthy Steps Specialist serves as liaison between families and pediatricians and is either a registered nurse or a child care development specialist.</p> <p><u>Reach</u>: Approximately 350 families per year at three sites.</p> <p><u>Clientele</u>: 95 percent low-income with 85 percent below FPL.</p> <p><u>Program focus</u>: Enhanced development and pediatric primary care with an emphasis on relationship building between families and primary care providers during well-child visits in the first three years of life.</p>
Nurse Family Partnership (NFP)	Home visits every two weeks beginning mid-pregnancy until child is 2 years	<p><u>Staff</u>: Professional registered nurses.</p> <p><u>Reach</u>: Approximately 3,000 mothers per year in 50 counties.</p> <p><u>Clientele</u>: First-time mothers; less than 200 percent FPL</p> <p><u>Program focus</u>: Promotion of child health and development; economic self-sufficiency for families.</p>
Parents as Teachers (PAT)	Monthly home visits; monthly group meetings; annual health exam; beginning in pregnancy until child enters kindergarten	<p><u>Staff</u>: Paraprofessionals certified as Parent Educators.</p> <p><u>Reach</u>: More than 2,600 children in 33 counties.</p> <p><u>Clientele</u>: Approximately 90 percent of clients have major risk factors (e.g. low-income/poverty, low educational attainment, single parent-hood etc.).</p> <p><u>Program Focus</u>: Education and family support to promote optimal child development.</p>

**Policy Recommendations:**

- Ensure all Colorado children have access to adequate developmental screening to promote early intervention and limit costly interventions later in childhood.
  - o Work with health care providers to ensure use of high-quality standardized screening tools approved by the American Academy of Pediatrics to train them on appropriate communications protocols with families and familiarize them with referral resources available in the state.
  - o Create a monitoring system to collect data regarding screening and referral processes to ensure that primary care providers who screen have access to evaluation and eligibility results.
  - o Ensure sufficient funding is available to provide equitable access to intervention resources for children who need them.
- Support efforts underway in Colorado to integrate behavioral health services in primary care settings.
- Support and expand outreach for home visiting programs that educate parents about healthy childhood development.

## Physical Safety

The first brief in this series, “Ready: Prenatal Health and Care” addresses the dangers of intimate partner violence (IPV) for pregnant women and the effect it can have on unborn children. This danger continues after children are born as they can be direct victims of domestic violence and can also experience indirect abuse through witnessing episodes of domestic violence and the implications it has on those who care for them. IPV can be unique as it relates to children because children may often be caught in the middle of the conflict between their primary caregivers and thus can take on a large part of the burden of the conflict both emotionally and physically.

Secure connections between children and the adults who care for them have a profound effect on the fragile brain development of young children, in addition to their ability to form secure relationships throughout their lives. Exposure to domestic violence can compromise brain development in young children and have long-term effects like anxiety, fear, depression and aggressive behavior.<sup>24</sup> It can also be a trigger for toxic stress in young children. When children are removed from a home when domestic violence occurs, the experience can be just as much, if not more traumatic than the violence itself. It is important that victims of domestic abuse have the resources necessary to protect themselves and their children from domestic abusers and to preserve the important bonds between children and their primary caregivers.

### Policy Recommendations:

- Support programs and advocacy that help victims of domestic abuse receive care, empowerment and mental health services, therapy, transitional housing and other resources to ensure they remain safe from domestic abuse.
  - Ensure children are able to sustain strong bonds with positive adult figures, and when feasible, prioritizing relationships between a child and a non-abusive parent.
  - Strengthen the systems that track and identify children exposed to domestic violence and the supports and options for children to be in a safe and stable environment.



## Immunization

Immunizing children is the most effective public health tool we have to protect kids from preventable diseases like measles, mumps, rubella, hepatitis, polio and pertussis. Immunization is important for protecting vulnerable populations including children too young to be vaccinated and individuals with compromised immune systems.<sup>25</sup> Children who are vaccinated have fewer doctor's visits, hospitalizations and premature deaths than those who are not vaccinated.

The rate of complete immunization among 2-year old children in Colorado was 71 percent in 2011. This number decreased slightly from 2010. Colorado ranks 25th in the nation for the percent of 2-year olds fully immunized, leaving significant opportunity for improvement. Families may be unable to provide their children regular immunizations for a number of reasons, including barriers in access to primary care and misconceptions and misunderstandings about the safety and value of vaccinations. Families who do not have access to health care—due to lack of insurance or other barriers—miss important preventive health services including immunization. Some providers in medically underserved areas cannot keep up with the rising costs of purchasing, tracking and administering immunizations to children. These costs rose from an average of \$350 per child in 2000 to about \$1,500 per child in 2010.<sup>26</sup> In 2013, the state legislature passed legislation to help increase access to vaccinations by eliminating the statutory prohibition on the state purchase and delivery of vaccines. The law has the potential to address the diminishing access to vaccinations in medically underserved areas. Another reason children may not be vaccinated is because of the religious and philosophical beliefs of their parents or primary caregivers. The choice not to vaccinate children based on moral and religious grounds must be respected. At the same time, vaccination exemption processes must be thorough and clear as to not provide misinformation to Colorado families.



Obtaining a vaccine exemption should not be easier than vaccination, and should require clear counseling and education from a health care professional regarding the risks and benefits of vaccination.<sup>27</sup> One example of the type of education that provides valuable information to parents is the Immunize for Good Campaign.<sup>28</sup> The project is a joint effort of the Colorado Children's Immunization Coalition, Colorado Department of Public Health and Environment and Vaccine Advisory Committee of Colorado. Further public health efforts to educate parents can help to increase awareness about the importance of childhood immunization.

Childhood immunization is critical to the prevention of diseases, but immunization among adults is also important for children's health. Because adults can spread disease to children, individuals who work, live and play with children should maintain up-to-date vaccinations as recommended by their health care provider. Pertussis, more commonly known as whooping cough, is a pertinent example. Rates of pertussis in Colorado in 2012 were more than twice that of the national average. In 2013, the Colorado Department of Public Health and Environment declared a pertussis epidemic. Pertussis is very dangerous for babies and can cause pneumonia, impaired breathing and death.<sup>29</sup> Infants receiving their vaccinations according to the U.S. Centers for Disease Control and Prevention immunization schedule begin a series of pertussis vaccinations at 2 months, but are particularly susceptible to the disease until 6 months. Unvaccinated infants are at high risk of catching pertussis at any age.

Babies can contract pertussis and other preventable diseases from adults in their family, which is why it is important for adults who are in regular contact with children—including parents, other family members, and child care workers—to stay up-to-date on vaccines that can protect children's health.<sup>30</sup> Nationally, the rate of pertussis vaccination among adults living with infants younger than one year is 22 percent.<sup>31</sup> No state-level policies require that child care workers be vaccinated, which places infants and young children at risk for contracting disease. It is important that policies be put into place to protect the health of children in child care centers where the risk of illness spreading is elevated.

### Policy Recommendations:

- Strengthen public efforts, including education and outreach, to ensure all Colorado parents understand the importance, safety and efficacy of childhood vaccination.
  - o Expand public health education and awareness efforts on highly contagious and dangerous diseases like pertussis and how unvaccinated adults and children alike are a danger to infants not yet vaccinated.
  - o Establish policies that encourage child care workers to follow a schedule of vaccinations and boosters that will protect children from vaccine-preventable diseases.
  - o Ensure strong stakeholder involvement in ongoing efforts to expand access to vaccines for Colorado children.

## Nutrition and Physical Activity

Nutrition and physical activity in a child's earliest years can dramatically influence his or her ability to thrive. Good nutrition serves as the first line of defense for disease and promotes healthy growth and development, beginning with a mother's nourishment during pregnancy and continuing through infancy and toddlerhood. Physical activity can also set the stage for lifelong health for a child by reducing the risk for heart disease, diabetes and some types of cancer, along with contributing to emotional health.<sup>32</sup>

As rates of childhood obesity continue to rise in Colorado, a compelling opportunity exists to focus on nutrition and physical activity in the early years of a child's development. Researchers have found signs of inflammation in very young obese children that correlate with the markers for obesity and heart disease in adults.<sup>33</sup> Regular well-child visits allow health care providers to assess a child's risk factors for obesity and educate parents on obesity prevention. Information should address when to introduce solid foods into a child's diet, components of a healthy diet, appropriate portion size and the importance of adequate sleep, physical activity and minimal screen time.



On average, 28 percent of Colorado kids ages 2 to 14 are overweight or obese, with rates in many counties climbing to more than 30 percent. Denver County faces the highest rate of childhood obesity at 41 percent. In comparison, 21 percent of Colorado adults are obese. This shifting demography will impact the ability of Colorado's future generations to lead healthy and productive lives. Children are measured for being overweight or obese after 2 years of age. Children are considered overweight when their body mass index (BMI) is between 85 and 94 percent of normal weight for height. They are considered obese when their BMI reaches 95 percent or higher of normal weight for height.<sup>34</sup> Research demonstrates that obesity in childhood is closely associated with greater health problems throughout life.

Adequate nutrition is essential to support the rapid growth and development of the brain in the first three years of life. Even mild nutritional deficits can be detrimental to a child's cognitive and physical development.<sup>35</sup> Good nutrition lays the foundation for a child's ability to learn, communicate, think critically and adapt to new environments and social settings. Inadequate nutrition can lead to learning problems that can be difficult to reverse. In addition, it is important for families to understand the strong influence of nutrition on oral health. Over-consumption of certain foods, especially sugar-sweetened beverages like soda and some juices, can easily lead to tooth decay in young children.

Human milk has many benefits that support healthy growth and development among infants. It is easy for babies to digest, provides all the vitamins, nutrients and fluids a baby needs to thrive, supports healthy growth and development of organs and includes important protective factors that help shield babies from illness and infection.<sup>36</sup> Research also suggests that breastfed babies have a lower risk of conditions including Sudden Unexpected Infant Death (SUID), diabetes and obesity. Breastfeeding can also deliver important health benefits to the mother and support early infant/mother bonding. While breastfeeding is not possible for all women, its benefits are such that all efforts should be taken to encourage and support women in breastfeeding, starting with baby-friendly hospitals that provide women the information, confidence and skills necessary to initiate and continue nursing their babies.<sup>37</sup> When breastfeeding is not possible, health care providers should educate women on how to appropriately use breast milk substitutes to ensure healthy development of infants.

The first brief in this series, "Ready: Prenatal Health and Care" introduced the concept of food insecurity—or limited access on the part of families to the nutritious foods they need. Counter-intuitively, food insecurity is closely linked to high rates of obesity. Low-income neighborhoods frequently lack access to a grocery store that offers fresh, healthy food choices. Families in poverty must make difficult choices about what kinds of food to buy, and nutrient-poor, calorie-dense foods are often cheaper than high-quality food. Families with young children under the age of 6 are more likely than other families to experience food insecurity. Children from homes without enough food begin school with lower school skills and have greater difficulty progressing academically than their peers.<sup>38</sup>

The Supplemental Nutrition Assistance Program (SNAP) and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) are two public programs that help reduce food insecurity among Colorado children. Although enrollment in SNAP and WIC has increased throughout the economic recession, many Coloradans eligible for the programs are not enrolled. Only 69 percent of Coloradans eligible for SNAP were enrolled in the program in 2010. Increasing outreach and enrollment could help decrease food insecurity for Colorado children.

Beyond healthy nutrition, prevention of childhood obesity must include physical activity. Children of all ages need daily physical activity. Even before they can walk, infants need supervised time every day to lay on their belly and play. This “tummy time” helps develop their strength, coordination and motor skills and engages their minds in new experiences. Toddlers are typically active by nature and they need access to safe, sun-protected outdoor areas where they can play.

Child care providers have the opportunity to establish and support healthy habits related to nutrition and physical activity for young kids. Current child care licensing rules require centers to provide nutritious meals for young children in child care, but do not include strong physical activity requirements. When those who provide care for children partner with families to support age-appropriate physical activity, children benefit. For more information on this topic, refer to brief three of this series, “Go: Early Care and Learning”.

**Policy Recommendations:**

- Increase outreach efforts for SNAP and WIC to ensure families can afford high-quality, nutritious food for their young children.
  - Strengthen state and local public health outreach to families that may be eligible for but are not accessing SNAP and WIC.
- Educate families about the importance of healthy foods and daily physical activity for children.
- Work across disciplines to create and enact policies that address the disparity in access to nutritious food and safe places for physical activity.
- Support hospital, workplace and child care policies to ensure support for breastfeeding mothers.

**Health Care Coverage**

Insurance coverage for children ages birth to 3 helps families access high-quality health care services crucial to children’s healthy development. During this window of enormous physical, social and emotional growth, health care providers can screen for healthy development, conduct preventive health services such as administering vaccinations, and educate parents on important wellness topics such as nutrition, physical activity and dental care.<sup>39</sup> Children with health coverage—either private or public—are more likely to get the preventive care they need to stay healthy and seek services when they are injured or sick than their uninsured peers.<sup>40</sup> Children without health insurance are six times more likely than their insured peers to go without needed medical or dental care. Furthermore, kids without a primary care provider are nine times more likely to be hospitalized for a preventable problem.<sup>41</sup> The economic and social costs of these disparities extend beyond individual families to the state. Illness and disease that could be avoided with preventive care create higher health care costs and lost productivity in the long-term.

**Table 2. Colorado Children Ages Birth to 3 Years (birth to 35 months) By Health Insurance Status, 2011**

Insurance type:	Percent:
Employer-sponsored (i.e. through a parent’s employer)	52.5
Medicaid/CHP+	38.9
Medicare/other insurance	1.5
Private insurance	5.3
Uninsured	1.7

*Source: Colorado Health Institute analysis of the 2011 Colorado Health Access Survey*

Children ages birth to 3 are covered by a variety of different insurance programs (refer to Table 2). The majority of children have private insurance—either employer-sponsored insurance from their parents, or in some cases insurance purchased in the individual market. The remainder of insured young children are covered through public programs. Medicaid and the Child Health Plan Plus (CHP+) account for most public insurance coverage, though Medicare also insures a small percentage of this population. Recent expansions of Medicaid and CHP+ have insured more of Colorado’s children living in poverty. Medicaid offers health coverage to children in families with incomes up to 133 percent of the federal poverty level. In 2012, this amounted to about \$30,600 for a family of four. CHP+ covers children in families with incomes too high to qualify for Medicaid but who may still have difficulty affording coverage. The program is available for children in families earning up to 250 percent of the federal poverty level or about \$57,600 for a family of four in 2012.

For many years now, the price of private health insurance has risen sharply. This has made private health insurance too expensive for many families, even those whose employer contributes to the cost of insurance as part of the employee benefit package. Historically, families who elected to drop employer-sponsored insurance were forced to wait three months before enrolling their children in CHP+. A new state law passed in 2013 will eliminate this three-month waiting period to ensure a smoother transition for families who qualify for coverage.

All Colorado children should be able to get the care they need when they need it. Insurance coverage alone does not guarantee timely, convenient or affordable access to care. First, not all coverage is equal. Benefit design and cost-sharing varies dramatically among insurance plans. Some do not cover routine or preventive care services or only kick in once the insured person has spent a specified amount on health care in a given time frame. These plans provide financial protection against bankruptcy, but don’t ensure access to routine and preventive services important to healthy child development. Second, in some Colorado communities, the pool of health care providers is not adequate to serve residents or meet their needs in a timely way. This is particularly true when children have special health care needs. Often families living in rural communities must travel significant distances to access specialists, such as pediatric psychiatrists, even if they have private insurance coverage to pay for the service.

Another factor affecting access to care for children is doctors’ willingness to accept Medicaid clients. Medicaid reimbursement rates paid to health care providers are lower than rates paid through private insurance and through the Medicare program. In Colorado, primary care physicians accepting Medicaid are paid on average 74 percent of what they would be paid through Medicare.<sup>42</sup> Accordingly, many health care providers limit the number of Medicaid clients they see, or they choose not to participate in the program at all. This is a significant issue as Medicaid and CHP+ together covered 39 percent of Colorado children ages birth to 3 in 2011. The federal Patient Protection and Affordable Care Act (PPACA) seeks to improve access to care for kids and others covered by Medicaid by requiring states to raise their Medicaid fees to at least match Medicare fees by 2014. This requirement includes pediatric services and will help to improve children’s access to care.

The Colorado Health Benefits Exchange was created with bi-partisan support through Senate Bill 11-200 in response to PPACA. The exchange is a marketplace for Coloradans to purchase private health insurance with transparent and accessible information on quality and price. The exchange, called Connect for Health Colorado, will facilitate the use of federal tax credits for families with incomes up to 400 percent of the federal poverty level, reducing the cost of coverage to the consumer. The exchange will be available to consumers in late 2013, and will expand the opportunity for uninsured and underinsured families to purchase adequate coverage for their children.

## **Policy Recommendations:**

- Establish policies that improve minimum allowable quality standards of health coverage for children and include access to preventive services.
  - Monitor the implementation of the Colorado Health Benefits Exchange to determine the impact on access to high-quality affordable coverage for Colorado children.
- Advance policies that could improve access to health care providers for children living in rural communities, including investments in transportation, telemedicine and workforce development.
- Increase access to health care through collaboration with health care providers to increase the number of providers that accept Medicaid and CHP+.

## Oral Health

Oral health is an important component of children's overall health. The American Academy of Pediatric Dentistry (AAPD) recognizes oral health in infancy and toddlerhood as a foundation for good oral health in adulthood. According to AAPD, primary care providers should conduct an oral health risk assessment for every infant by 6 months of age, and all children should have an established dental home by the first year.<sup>43</sup> Yet in 2012, only 9.3 percent of children had seen a dentist by the age of 1.<sup>44</sup> During routine oral health visits, parents should be educated on dental and oral development, fluoride status, teething, injury prevention, oral hygiene and the effects of diet on oral health. Another important component of these evaluations is assessment of fluoride exposure.

Dental caries, otherwise known as tooth decay, are the most common childhood disease. Tooth decay among young children can cause pain, infection, nutritional deficits, and can also delay or disrupt speech, growth and social development.<sup>45</sup> Poor oral health is a preventable problem, and has been named by Gov. John Hickenlooper to be one of Colorado's 10 winnable health battles.<sup>46</sup> Poor oral health can be addressed through several efforts including public health measures, family education and improved access to oral health care.

Public health interventions such as fluoridated water and fluoride application have been shown to improve oral health. Topical application of fluoride varnish is appropriate for children as young as 6 months with appropriate risk assessment by a trained provider, paired with parental education and engagement. According to the CDC, Colorado ranks 30th in the nation for the percentage of residents served with fluoridated water.<sup>47</sup> Seventy percent of Coloradans are served with fluoridated water; the Healthy People 2020 goal is 75 percent. Colorado's General Assembly passed a law in 2013 directing the Colorado Department of Public Health and Environment to establish a community grant program to support local efforts to improve oral health, including water fluoridation and school-based sealant programs.



Poor oral health disproportionately affects low-income families and children. Just 55 percent of Colorado children in families living at or below the federal poverty level had one or more preventive dental visit in 2007, compared to nearly 90 percent of children living in higher-income homes.<sup>48</sup> Access to dental health care is one barrier to improving oral health for young children in Colorado. Medicaid provides dental benefits to enrolled children, and CHP+ offers capped benefits at a maximum of \$600 per year for families at or below 250 percent of the federal poverty level. Despite this coverage, utilization rates are low. In 2011, about 45 percent of children enrolled in Medicaid had preventive dental care, and just 3.4 percent of children enrolled in Medicaid had an established dental home by age 1.<sup>49,50</sup>

A number of factors contribute to access to pediatric dental care, including parental access to and use of dental services, knowledge of oral health, and availability of affordable services. Only about one in four Colorado dentists accepts Medicaid.<sup>51</sup> For these reasons it is important to educate parents and primary care providers about the important role they have in maintaining good oral health for their children.

Cavity Free at Three is a unique partnership between state agencies, private foundations, higher education institutions and health care providers in the state to prevent dental caries among young children by increasing access to oral health services and training health care professionals to perform oral health screenings. The group also works to improve the number of children from birth to age 3 who have a dental home. Public health efforts such as Cavity Free at Three are essential to decreasing oral disease among Colorado's young children.

### Policy Recommendations:

- Pursue efforts to increase dental health care provider participation in Medicaid.
- Increase funding to expand water fluoridation and education about safety and efficacy of fluoride in improving oral health.
- Educate primary care providers about the importance of oral health for children age birth to 3 and provide continued training in oral health screenings.
- Educate parents about the importance of good oral health and how they can promote their child's oral health including the importance of seeing a dentist before the age of 1.
  - Provide information to parents on the connection between a child's nutrition and oral health, particularly around the dangers of overconsumption of sugar-sweetened beverages like juice.

The first three years in a child's life are formative years of development. Brains develop more than at any other time in life, and the experiences children have during this period have a strong influence on their future social, emotional and physical health. Safe environments, protective and loving relationships and access to care all foster healthy development. Early investment in the health of Colorado children will lead to healthy thriving adults who will contribute to Colorado's economic well-being.

## Recent Policy Successes:

- House Bill 09-1020 (Acree/Spence)—**Increased Access and Quality of Health Care for Children:** Streamlined Medicaid and CHP+ by allowing phone- and web-based re-enrollment for families, making it easier for families to easily re-enroll and preventing children from falling through the cracks.
- House Bill 09-1293 (Riesberg/Keller)—**Medicaid and CHP+ Expansions Through Hospital Provider Fee:** Ensured uninterrupted access to services for kids by providing 12 months of continuous eligibility for children enrolled in Medicaid. It also provided more families with access to public health coverage by increasing eligibility for children in CHP+ from 205 percent to 250 percent of the Federal Poverty Level and increasing eligibility for parents in Medicaid from 60 percent to 100 percent of the Federal Poverty Level.
- House Bill 10-1022 (Gagliardi/Summers/Boyd)—**Combating Childhood Hunger:** Required the Department of Human Services to develop a state outreach plan, with help from counties and nonprofit organizations, to promote and raise awareness of federal food benefit programs to families who need it most. In addition, the bill removed the asset test for the program, encouraging recipients to build their assets and break out of the poverty cycle.
- Senate Bill 11-008 (Boyd/Gerou)—**Making Medicaid More Efficient and Easier for Families to Use:** Made Medicaid easier to navigate by aligning eligibility levels for all children birth to age 18, ensuring that Colorado children in families with incomes at or below 133 percent of the federal poverty level are eligible for Medicaid.
- Senate Bill 11-200 (Boyd/Stephens)—**Colorado Health Benefits Exchange:** Created a nonprofit organization to establish a Colorado health benefits exchange in accordance with the federal health reform law, the Patient Protection and Affordable Care Act. The purpose of the exchange is to serve as a marketplace for Coloradans to purchase private health insurance with transparent and accessible information on quality and price.
- Senate Bill 13-008 (Newell/McCann)—**CHP+ Waiting Period Elimination:** Streamlined enrollment in the Child Health Plan Plus (CHP+) by eliminating the three-month waiting period for children moving from an employer-supported health plan to CHP+. This legislation improved accessibility of coverage for kids and efficiency in program administration.
- Senate Bill 13-222 (Aguilar/Pabon)—**Childhood Vaccinations:** Improved access to childhood immunizations in Colorado by eliminating the statutory prohibition on state engagement in vaccine purchase and delivery, and establishing a thoughtful and inclusive stakeholder process designed to deliver innovative strategies to make childhood vaccines more accessible and affordable.
- Senate Bill 13-261 (Nicholson/McCann)—**Community Oral Health Programs:** Established a community grants program to support local preventive health measures to improve oral health, including water fluoridation and school-based sealant programs.

## **Acknowledgments:**

The **Colorado Children's Campaign** would like to acknowledge **Sylvia DeLay** for her participation in the development of the series. Multiple staff members at the Children's Campaign contributed to the publication of this report. Project management was facilitated by Hanna Nichols. For more information or to request a presentation on this topic, please visit [www.coloradokids.org](http://www.coloradokids.org).

Additionally we wish to thank the following individuals for dedicating their time and expertise as reviewers of this series:

- **Kathryn Hammerbeck**, Executive Director, Colorado Early Childhood Education Association
- **Diana Romero-Campbell**, Director of School Readiness, Mile High United Way
- **Ayelet Talmi**, PhD, Associate Professor, University of Colorado School of Medicine
- **Dr. Margaret M. Tomcho**, M.D., M.P.H.
- **Heather Tritten**, Vice President of Quality Programs, Qualistar Colorado
- **Jane Whitmer**, Nurturing Parenting Program Manager, Chaffee County Department of Health and Human Services

Select photos in this brief are of children at work and play at Clayton Early Learning in Denver, taken by the Colorado Children's Campaign.

# End Notes

- <sup>1</sup> Center on the Developing Child at Harvard University. (2010). The foundations of lifelong health are built in early childhood. Retrieved from: <http://www.developingchild.harvard.edu>
- <sup>2</sup> March of Dimes. (2012). Premature birth report cards. Retrieved from: <http://www.marchofdimes.com/mapflashfilespad/report-cards/2012/english/CO.pdf>
- <sup>3</sup> Ibid.
- <sup>4</sup> Colorado Children's Campaign. (2013). 2013 KIDS COUNT in Colorado!. Retrieved from: <http://www.coloradokids.org/kidscount2013/kidscount2013.html>
- <sup>5</sup> Matthews, T.J., & MacDorman, M.F. (2007). Infant mortality statistics from the 2004 period linked birth/infant death data set. *National Vital Statistics Report*. Retrieved from: <http://www.ncbi.nlm.nih.gov/pubmed/17569269>
- <sup>6</sup> Center on the Developing Child at Harvard University. (2010). The foundations of lifelong health are built in early childhood.
- <sup>7</sup> American College of Obstetricians and Gynecologists. (2000). Intrauterine growth restriction. ACOG Practice Bulletin, 12.
- <sup>8</sup> Colorado Department of Public Health and Environment. (2000). Tipping the scales: Weighing in on the low birth weight problem in Colorado. Retrieved from: <http://www.colorado.gov/cs/Satellite?blobcol=urldata&blobheadername1=Content-Disposition&blobheadername2=Content-Type&blobheadervalue1=inline%3B+filename%3D%22Tipping+the+Scales%3A+Low+Birth+Weight+Problem+in+Colorado.pdf%22&blobheadervalue2=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1251834508140&ssbinary=true>
- <sup>9</sup> Ibid.
- <sup>10</sup> Colorado Department of Public Health and Environment. (2011). Reproductive and birth outcomes. Retrieved from: <http://www.coepht.dphe.state.co.us/Health/birthOutcomes.aspx>
- <sup>11</sup> Morin, J. (2008). Addressing racial and ethnic disparities in low birthweight for Connecticut. Retrieved from: [http://www.ct.gov/dph/lib/dph/family\\_health/health\\_disparities\\_in\\_lbwt\\_final\\_report\\_10\\_1\\_08.pdf](http://www.ct.gov/dph/lib/dph/family_health/health_disparities_in_lbwt_final_report_10_1_08.pdf)
- <sup>12</sup> Sices, L. (2007). Developmental screening in primary care: The effectiveness of current practice and recommendations. Retrieved from: [www.commonwealthfund.org](http://www.commonwealthfund.org)
- <sup>13</sup> Autism Speaks. (2013). High-quality early intervention for autism more than pays for itself. Retrieved from: <http://www.autismspeaks.org/science/science-news/high-quality-early-intervention-autism-more-pays-itself>
- <sup>14</sup> For more information visit <http://www.coloradoabcd.org/>
- <sup>15</sup> American Academy of Pediatrics. (2006). Identifying infants and young children with developmental disorders in the medical home: An algorithm for developmental surveillance and screening. Retrieved from: <http://pediatrics.aappublications.org/content/118/1/405.abstract>
- <sup>16</sup> C.R.S. 27-10.5-101 and 701.
- <sup>17</sup> For more information visit <http://www.eicolorado.org/>
- <sup>18</sup> Colorado ABCD. Statistics. Retrieved from: <http://www.coloradoabcd.org/healthcare/screen.html#statistics>
- <sup>19</sup> Ibid.
- <sup>20</sup> Ibid.
- <sup>21</sup> Colorado Department of Public Health and Environment. (2011). Maternal and child health data. Retrieved from: [http://www.chd.dphe.state.co.us/topics.aspx?q=Maternal\\_Child\\_Health\\_Data](http://www.chd.dphe.state.co.us/topics.aspx?q=Maternal_Child_Health_Data)
- <sup>22</sup> Sticht, T.G., & McDonald, B.A. (1990). Teach the mother and reach the child: Literacy across generations. International Bureau of Education. Retrieved from: <http://www.eric.ed.gov/PDFS/ED321063.pdf>
- <sup>23</sup> Early Childhood Home Visiting presentation to the Colorado Early Childhood School Readiness Commission, November, 2011. Retrieved from: <http://www.coloradokids.org/issues/earlychildhood/ecsrc.html>
- <sup>24</sup> Fantuzzo, J.W. & Mohr, W.K. (1999). Prevalence and effects of child exposure to domestic violence. *The Future of Children*, 9(3), pp. 21-32.
- <sup>25</sup> Centers for Disease Control and Prevention. (n.d.). How vaccines prevent disease. Retrieved from: <http://www.cdc.gov/vaccines/vac-gen/howvppd>
- <sup>26</sup> Colorado Children's Immunization Coalition. (2013). Senate Bill 222. Retrieved from: <http://www.childreimmunization.org/SB222>
- <sup>27</sup> Centers for Disease Control and Prevention. (n.d.). Vaccines and immunizations: Some common misconceptions. Retrieved from: <http://www.cdc.gov/vaccines/vac-gen/6mishome.htm>
- <sup>28</sup> For more information visit <http://www.immunizeforgood.com/>
- <sup>29</sup> Centers for Disease Control and Prevention. (n.d.). Pertussis (Whooping Cough): What you need to know. Retrieved from: <http://www.cdc.gov/features/pertussis/>
- <sup>30</sup> Centers for Disease Control and Prevention. (2013). Pertussis outbreak trends. <http://www.cdc.gov/pertussis/outbreaks/trends.html>
- <sup>31</sup> Centers for Disease Control and Prevention. (2013). Morbidity and mortality weekly report: Noninfluenza vaccination coverage among adults – United States, 2011. Retrieved from: [http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6204a2.htm?s\\_cid=mm6204a2\\_w](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6204a2.htm?s_cid=mm6204a2_w)
- <sup>32</sup> American Heart Association. (2012). Physical activity and children. Retrieved from: [http://www.heart.org/HEARTORG/GettingHealthy/Physical-Activity-and-Children\\_UCM\\_304053\\_Article.jsp](http://www.heart.org/HEARTORG/GettingHealthy/Physical-Activity-and-Children_UCM_304053_Article.jsp)
- <sup>33</sup> Skinner, A.C., Steiner, M.J., Henderson, F.W., & Perrin, E.M. (2010). Multiple markers of inflammation and weight status: Cross-sectional analyses throughout childhood. *Pediatrics*, 125 (4), e801-e809. doi: 10.1542/peds.2009-2181
- <sup>34</sup> Centers for Disease Control. (2012). Basics about childhood obesity. Retrieved from: <http://www.cdc.gov/obesity/childhood/basics.html>
- <sup>35</sup> Rose-Jacobs, R., Black, M.M., Casey, P.H., Cook, J.T., Cutts, D.B. Chilton, M., Heeren, T., Levenson, S.M., Meyers, A.F., & Frank, D.A. (2008). Household food insecurity: Associations with at-risk infant and toddler development. *Pediatrics*, 121(1), 65-72.
- <sup>36</sup> American Academy of Pediatrics. (n.d.) Why breastfeed. Retrieved from: <http://www.healthychildren.org/English/ages-stages/baby/breast-feeding/pages/Why-Breastfeed.aspx?nfstatus=401&nftoken=00000000-0000-0000-0000-000000000000&nfstatusdescription=ERROR%3a+No+local+token&nftoken=401&nftoken=00000000-0000-0000-0000-000000000000&nfstatusdescription=ERROR%3a+No+local+token>
- <sup>37</sup> For more information on baby friendly hospitals in the United States, visit <http://www.babyfriendlyusa.org/>
- <sup>38</sup> Colorado Children's Campaign. (2013). 2013 KIDS COUNT in Colorado!. Retrieved from <http://www.coloradokids.org/kidscount2013/kidscount2013.html>
- <sup>39</sup> Ibid.
- <sup>40</sup> Ibid.
- <sup>41</sup> Shi, L. et al. (1999). Patient characteristics associated with hospitalizations for ambulatory care sensitive conditions in South Carolina. *Southern Medical Journal*, 92(10): 989-98.
- <sup>42</sup> Kaiser Family Foundation. Medicaid-to-Medicare fee index. Retrieved from: <http://kff.org/medicaid/state-indicator/medicaid-to-medicare-fee-index/>
- <sup>43</sup> American Academy of Pediatric Dentistry. (Updated 2012). Guideline on infant oral health. Retrieved from: [http://www.aapd.org/media/Policies\\_Guidelines/G\\_infantOralHealthCare.pdf](http://www.aapd.org/media/Policies_Guidelines/G_infantOralHealthCare.pdf)
- <sup>44</sup> Cavity Free at Three. (2013). Providing care to kids. Retrieved from: <http://www.cavityfreeatthree.org/care-kids>
- <sup>45</sup> The Colorado Health Foundation. (2012). The Colorado health report card: Preventive dental care. Retrieved from: <http://www.coloradohealthreportcard.org/ReportCard/2012/subdefault.aspx?id=6009>
- <sup>46</sup> Colorado Department of Public Health and Environment. Colorado's 10 winnable battles. Retrieved from <http://www.colorado.gov/cs/Satellite/CDPHE-Main/CBON/1251628821910>
- <sup>47</sup> Centers for Disease Control and Prevention. (2008). Water fluoridation statistics <http://www.cdc.gov/fluoridation/statistics/2008stats.htm>
- <sup>48</sup> The Colorado Health Foundation. (2012). The Colorado health report card: Preventive dental care.
- <sup>49</sup> Colorado Department of Health Care Policy and Financing. (Updated 2012). Healthy living initiatives performance measures. Retrieved from: <http://www.colorado.gov/cs/Satellite/HCPFH/CPFH/1251607707486>
- <sup>50</sup> Roberts, J. (2013). Colorado's Medicaid dental woes. Retrieved from: <http://www.inewsnetwork.org/colorados-medicare-dental-woes/>
- <sup>51</sup> The Colorado Trust. (2012). A growing problem: Oral health coverage access and usage in Colorado. Retrieved from: [http://www.co-healthaccesssurvey.org/wp-content/uploads/2012/12/FINALv2-Oral\\_Health\\_Coverage\\_IB\\_12-2012.pdf](http://www.co-healthaccesssurvey.org/wp-content/uploads/2012/12/FINALv2-Oral_Health_Coverage_IB_12-2012.pdf)





**1580 Lincoln Street, Suite 420**

**Denver, Colorado 80203**

**303.839.1580**

**[coloradokids.org](http://coloradokids.org)**

Copyright © 2013 by Colorado Children's Campaign. All rights reserved.