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## The Connection between Health Disparities and the Social Determinants of Health in Early Childhood

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### Introduction

Health disparities are a measure of differences in health outcomes between populations. Health disparities exist in relation to income, with populations living in poverty having poorer health status, and also in relation to race and ethnicity, with Hispanic,

African-American, and Native American populations experiencing less than optimal health outcomes (1). Household education level also influences health disparities. The data presented in this report illustrate that health disparities between populations can be documented as early as the age of five. Although health disparities describe the differences in health outcomes among groups, they do not provide an explanation for the origin of these differences as the concept of “social determinants of health” often can.

Social determinants of health are life-enhancing resources such as food supply, housing, economic and social relationships, transportation, education, and health care, whose distribution across populations effectively determines length and quality of life (2). While the lack of these life-enhancing resources are considered to be the root causes of health disparities, social determinants have not historically been used to explain the gaps in early childhood outcomes. This report discusses the need to understand social determinants as root causes in eliminating health disparities and emphasizes early childhood as a critical period during which to have an impact upon social determinants.

### *Health Disparities, Social Determinants and Early Childhood*

As a social determinant of health, income is inextricably linked to health disparities. Nationally, and in Colorado, young children comprise the age cohort most greatly affected by inadequate household income (3). In addition, Colorado has the fastest growing child poverty

*“Obstacles children encounter early in life can set off a negative chain of events so hard to break that they can transcend generations. Poor education leads to limited job options, which lead to lower income, living in poor neighborhoods with poor housing, higher crime, more violence, limited access to nutritious foods, safe places to exercise or medical care—all of which leads to poorer physical and mental health.”*

*Risa Lavizzo-Mourey, MD, MBA  
President and CEO, Robert Wood Johnson Foundation*

<sup>a</sup> Because household education level is closely linked with poverty and ethnicity, these data are not included in this report.

rate in the nation, increasing 72 percent since 2000 (4), with 18 percent of children from birth to age five currently living in poverty (5). This is significant, as the literature has extensively documented the impact of poverty-related stressors on brain

development (6) and that the detrimental effects of poverty last well beyond early childhood (7). There is also evidence of a “dose-response relationship”—as risk factors accumulate or grow worse, the impact on brain development increases (8).

***The following early childhood scenario highlights the relationship between social determinants of health and resulting health disparities.***

**Social Determinants:**

Isabelle is a two-year-old child whose family of four lives **below the poverty level**. Her family includes aunt, cousin, mother and four-year-old brother; all are of **Hispanic ethnicity** and speak Spanish at home. For the past five months, they have lived in a two-bedroom **older home near an industrial district**, where the emissions from facilities, along with impacts from traffic on the near-by highway, **can affect air quality**. **Affordable housing can be difficult to find**, and the family frequently moves from place to place. **Isabelle’s mother did not graduate from high school** and has a **low literacy level**. Isabelle’s mother and aunt clean houses for a living and therefore **do not receive health care benefits**. The children were enrolled in Medicaid until they recently went to a doctor’s appointment for Isabelle’s brother’s asthma and learned that the children’s Medicaid had lapsed. Isabelle’s mother later discovered that the redetermination letter to renew their Medicaid was sent to a prior address and, as a result, she did not provide Human Services with the information necessary to keep the children’s Medicaid current. Isabelle’s mother **does not have a car** and **does not have paid time off from work**, to take the children by bus to Human Services to reapply for Medicaid. Likewise, it is time consuming to travel by bus to the **grocery store that is three miles away**. Both Isabelle and her brother are on waiting lists for Early Head Start and Head Start programs; other **child care is unavailable** except when other family members are home.

**Health Disparities Resulting from Social Determinants:**

Isabelle’s brother has **asthma** and **receives inconsistent treatment** due to transportation issues and inconsistent access to health care. Isabelle **has not had a well child visit or any other preventive care** since she was 12 months old and **has not received all of her immunizations**. Isabelle and her brother have **never seen a dentist** because they have been unable to find one who takes Medicaid in their area. Isabelle is at a **high risk for lead poisoning** because of the age of her home. A lack of books in the home, low parent education level and low parent literacy influence school readiness for both children. Instability in the family’s lifestyle also places both **at risk for social-emotional concerns**.

## Methods

The data included in this report are derived from the Colorado Child Health Survey. To reach parents of young children, a random digit dialing telephone survey method is used. The Behavioral Risk Factor Surveillance System Survey currently employs this method for Colorado adults. Once a respondent has completed the survey, the interviewer inquires if the respondent has a child in the target age range and about his or her willingness to complete the child health survey. Approximately two to five days later, the parent is called to complete

the survey on a variety of topics including his or her child’s physical activity, nutrition, access to health and dental care, behavioral health, sun safety, injury and many others. Data are collected over the calendar year. At the end of the year, data are analyzed and weighted to reflect the general population of children ages 1-14 in Colorado. Approximately 1,000 surveys are completed each year.

For this report, data from calendar years 2005-2008 were

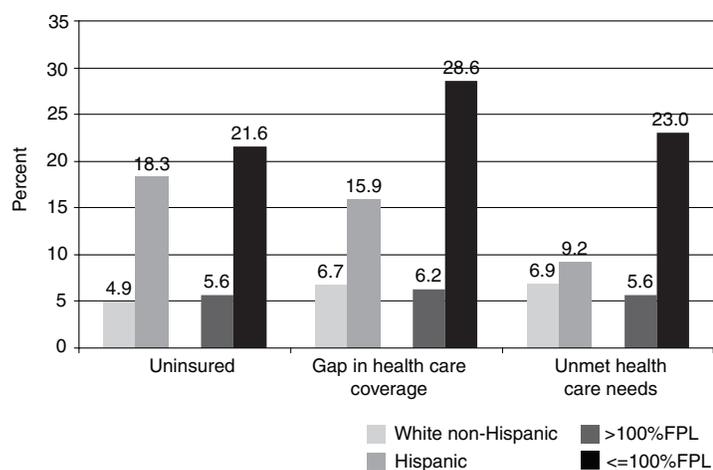
combined and only results for children ages 1-5 were included, for a total of 1,941 observations. Key health indicators were examined based on two socio-demographic indicators: income and race/ethnicity. For income, data were stratified by total household income above or below 100 percent of the federal poverty level. One hundred percent of the federal poverty level is commonly referred to as “poverty level.” For race/ethnicity, responses were grouped according to those who self-identified their child as Hispanic or as White, non-Hispanic. Therefore, throughout this report, Hispanic refers to children of all races whose ethnicity is Hispanic, and White, non-Hispanic refers to children whose race is White and ethnicity is not Hispanic. Due to sample size limitations, these were the only two racial and ethnic groups for which reliable estimates could be calculated. All results presented below are statistically significant unless otherwise indicated.

## Results

### Health Care Access

Figure 1 shows disparities in access to health care by both ethnicity and income. Hispanic children ages 1-5 were more likely to lack health insurance and to have experienced a gap in health care coverage than White, non-Hispanic children. Likewise, children living at or below 100 percent of the federal poverty level were more likely to be uninsured, have experienced a gap in health care coverage and to have had an unmet health care need, than children living above 100 percent of the federal poverty level.

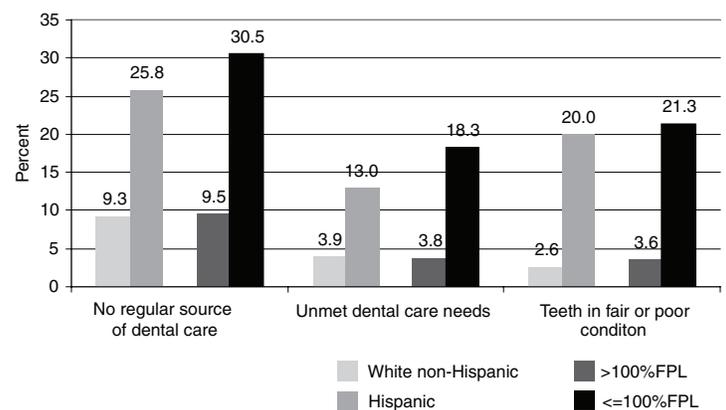
**Figure 1. Health care access, children 1 to 5 years, Colorado Child Health Survey, 2005-2008**



### Oral Health

As with access to health care, Hispanic children and those below 100 percent of the federal poverty level also have limited access to oral health care. As shown in Figure 2, more than one in four Hispanic children had no regular source of dental care and were three times more likely to have unmet dental needs than White, non-Hispanic children. Not surprisingly, 20 percent of Hispanic children had teeth in fair or poor condition, compared to 2.6 percent of White, non-Hispanic children. The parents of nearly one-third of children ages 1-5 below 100 percent of the federal poverty level indicated no regular source of dental care, and nearly one-fifth reported unmet dental needs. Over 20 percent of low-income children had teeth in fair or poor condition compared to less than 4 percent of higher-income children.

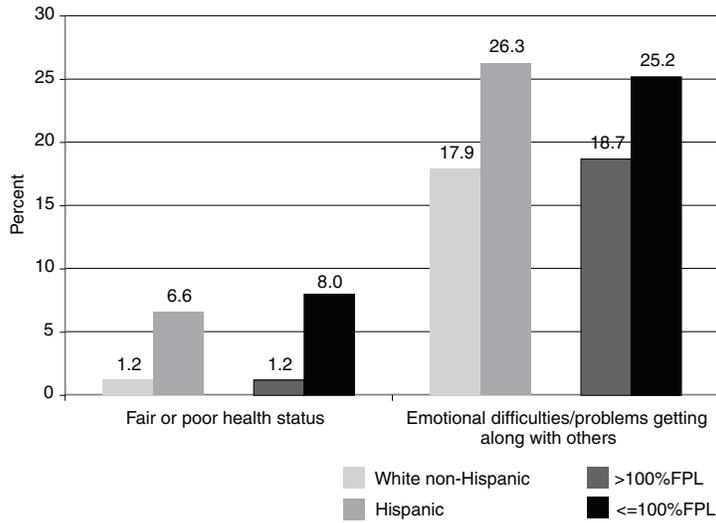
**Figure 2. Oral health, children 1 to 5 years, Colorado Child Health Survey, 2005-2008**



### Health Status

Parents of Hispanic children ages 1-5 were more likely to report that their children have fair or poor health status than parents of White, non-Hispanic children (6.6 percent vs. 1.2 percent, respectively, Figure 3.) More than one in four (26.3 percent) Hispanic children exhibited emotional difficulties or problems getting along with others, compared to 17.9 percent of White, non-Hispanic children. Low-income children were more likely to have fair or poor health status compared to higher-income children.

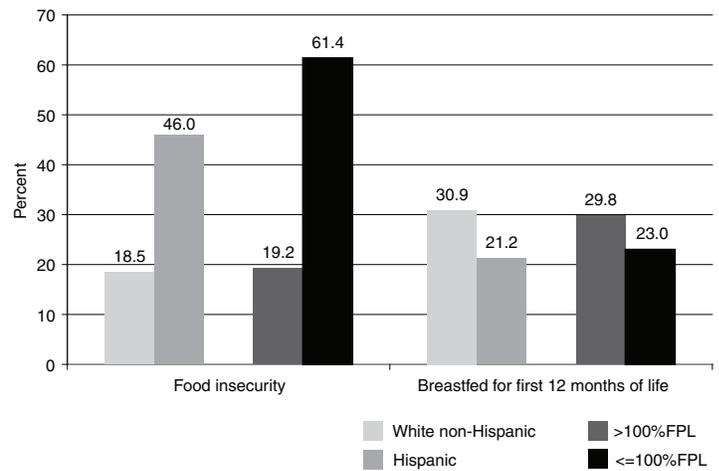
**Figure 3. Health status, children 1 to 5 years, Colorado Child Health Survey, 2005-2008**



#### Access to Healthy Foods/Nutrition

As seen in Figure 4, 46 percent of Hispanic children ages 1-5 sometimes or often relied on low-cost food (food insecurity) compared to 18.5 percent of White, non-Hispanic children. Hispanic children were also less likely to have been breast-fed for the first 12 months of life. Food insecurity was also more likely for children in families with incomes below 100 percent of the federal poverty level. More than 60 percent of low-income children sometimes or often relied on a few kinds of low-cost food compared to less than 20 percent of higher-income children. Food insecurity can be considered a social determinant measure. There were no statistical differences in the consumption of two or more servings of fruit and three or more servings of vegetables per day by ethnicity or income, with all children consuming far below the recommended amount (data not shown).

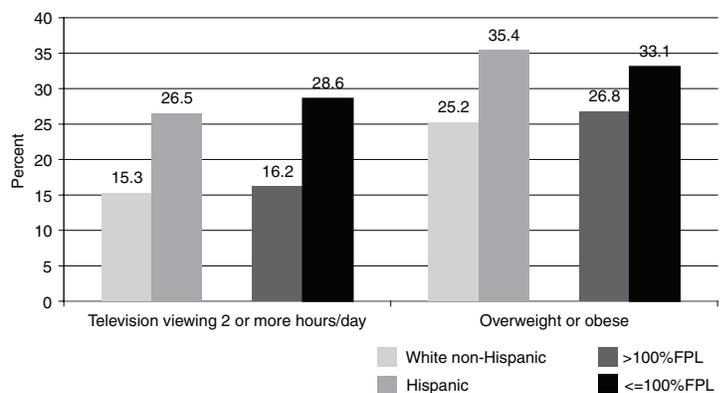
**Figure 4. Food insecurity and breastfeeding, children 1 to 5 years, Colorado Child Health Survey, 2005-2008**



#### Television Viewing and Overweight/Obesity

More than one in four (26.5 percent) Hispanic children ages 1-5 watched television two or more hours per day compared to 15.3 percent of White, non-Hispanic children (Figure 5.) Hispanic children also were more likely to be overweight or obese, with more than one-third in this category, compared to one-fourth of White, non-Hispanic children. Children below 100 percent of the federal poverty level were more likely than children above 100 percent of the federal poverty level to watch two or more hours per day of television (28.6 percent vs. 16.2 percent, respectively.) There was not a statistically significant difference in the proportion of low-income children who were overweight or obese compared to higher-income children.

**Figure 5. Television viewing and BMI, children 2 to 5 years, Colorado Child Health Survey, 2005-2008**



### Safe Environment

The Child Health Survey asked parents how often they thought their child was safe in the community and at school. Nearly 15 percent of parents of Hispanic children ages 1-5 reported they felt their child was sometimes or never safe in the community, compared to 5.2 percent of parents of White, non-Hispanic children (Figure 6). More than one in five parents of Hispanic children reported their child was sometimes or never safe at school, compared to one in ten parents of White, non-Hispanic children. Parents of children with incomes under 100 percent of the federal poverty level were more likely to report that their child was sometimes or never safe in the community compared to parents with higher incomes (19.8 percent vs. 6 percent, respectively). There was not a statistically significant difference in the proportion of parents of children under 100 percent of the federal poverty level who reported that their child was sometimes or never safe at school compared to parents with higher incomes. Safe environment can be considered a social determinant measure.

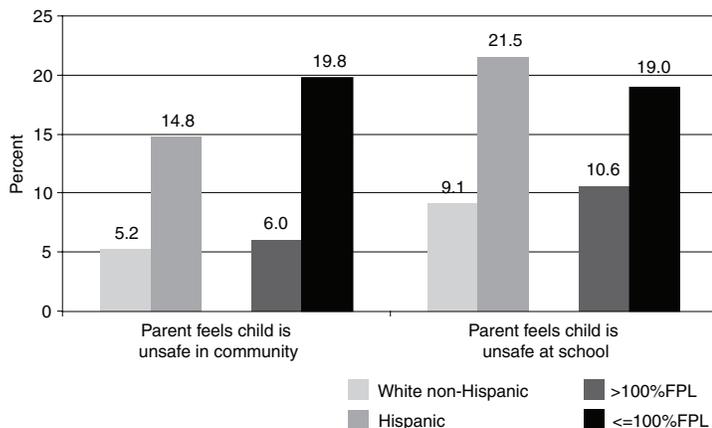
### Reading to Children

Parents were asked how many days per week they read to their child. Parents of Hispanic children ages 1-5 reported reading to their child an average of 2.7 days per week, compared to 4 days per week for White, non-Hispanic children. Parents of children under 100 percent of the federal poverty level also reported reading to their child an average of 2.7 days per week, compared to 4.1 days per week for children above 100 percent of the federal poverty level.

### Limitations

As previously stated, sample size limited the ability to calculate reliable estimates for racial and ethnic groups beyond children who were self-identified by their parent as Hispanic or as White, non-Hispanic. Nevertheless, other races and ethnicities should not be discounted when considering social determinants and health disparities, since 23.7 percent of Native American families and 31.6 percent of African-American families in Colorado live in poverty (5). The Office of Health Disparities' report, *Racial and Ethnic Health Disparities in Colorado 2009*, identified disparities in the general population of African-American and American Indian ethnicities, as well as in children ages 1-14 (1). It also should be noted that the data points highlighted in this document are not necessarily the most important measures related to health outcomes, but are the data points that are currently available as a statewide aggregate that relate to the social determinants of health/health disparities.

**Figure 6. Safety, children 1 to 5 years, Colorado Child Health Survey, 2005-2008**



## Discussion

*“Despite increased attention to health disparities at the national, state, and community levels, relatively little progress has been made in achieving the vision of the Healthy People 2010 initiative of eliminating racial and ethnic health disparities by 2010.”*

*Racial and Ethnic Health Disparities in Colorado 2009,  
Office of Health Disparities  
Colorado Department of Public Health and Environment*

The following considerations are intended to inform program, policy and systems development and to promote the identification of effective strategies that will minimize and, ultimately, eliminate gaps across populations.

### *Start early*

Early childhood is a critical period of growth and brain development, and early childhood experiences form the foundation for the life course. Because early experiences influence brain development in ways that can last a lifetime, the social determinants of health, and resulting health disparities, must be recognized and addressed as early in the life course as possible. In order to maximize the impact of policies and interventions related to social determinants, it is critical to focus on early childhood. The existing health disparities related to poverty and ethnicity in Colorado evident by age five can result in poor health outcomes throughout the life course. By focusing prevention and intervention efforts and resources on supporting protective factors for young children and their families, chronic diseases and other adverse health outcomes can be reduced (9). Furthermore, the shift in focus from decreasing family risk factors to increasing family protective factors (e.g., family resilience, social connections, financial stability) enables a strengths-based approach in which communities and families are able to build upon existing assets.

### *Develop mechanisms to collect and use social determinants data*

In addition to presenting health disparities data, such as health status (Figure 3), in this report, an effort was made to include measures of the social determinants, such as food insecurity

(Figure 4) and safety (Figure 6). However, because data collection historically have focused more on health disparities, more comprehensive collection and analysis of additional measures of social determinants, such as transportation, housing and education data, is necessary. A “social determinants of health dataset” could promote a more complete understanding of root causes and illuminate potential strategies to address them. This shift in data collection and analysis could help influence policies and programs to more effectively impact social determinants.

*“The Challenge: While there are rich resources—literally decades of research and volumes of scholarly articles—to document health disparities and the importance of social determinants of health, much of this work has been unfamiliar to leaders outside of public health and related fields.”*

Commission to Build a Healthier America  
*Breaking through on the Social Determinants of Health and Health Disparities, 2009*  
Robert Wood Johnson Foundation  
Risa Lavizzo-Mourey, MD, MBA  
President and CEO, Robert Wood Johnson Foundation

### *Advocate for and define public policy to achieve health equity*

As both state and local entities develop plans to improve health outcomes for Colorado’s young children, it is critical to look to root causes and include strategies that address the social determinants of health as a means of decreasing health disparities. An important step in achieving this goal is to promote a philosophical shift from a focus on disparity to a focus on equity. Health equity, as described by the World Health Organization, ensures all individuals have the opportunity to “attain their full health potential” and no one is “disadvantaged from achieving this potential because of their social position or other socially determined circumstance” (10). State and local policy play a critical role in health equity by influencing economic opportunity, community empowerment and positive social factors. Increasing economic opportunity by ensuring adequate educational attainment is crucial in addressing health disparities related to income. Equally critical is supporting policies and programs that improve community environments, including quality housing in safe neighborhoods, access to

healthy foods and public transportation. These factors equalize opportunities across all income levels. Addressing social and protective factors, including building social networks and developing leadership, is important in order to empower and mobilize communities to champion the changes that are most relevant to them.

#### *Ensure coordinated interagency efforts*

Inequities in early childhood outcomes also have been identified in domains other than health, including early learning and social-emotional development (11). As with health disparities, these differences are attributable to social determinants. This suggests that addressing social determinants through coordinated, interagency, public-private collaboration could maximize impact and lead to improved outcomes in multiple domains. In addition, early childhood partnerships must reach beyond typical partners to engage those who can contribute data and resources and influence policy related to social determinants.

#### *Build community capacity to address social determinants*

Addressing the social determinants of health requires a shift in focus from individual factors to population-based social determinants, from disparity to equity, and from risk to protective factors. As a first step, agencies can encourage this shift by supporting training and educational opportunities to promote understanding of the social determinants of health. Additionally, state agencies and grant-making organizations can provide resources to support local capacity to understand the social determinants of health, as well as support multi-disciplinary partnerships to pilot policies and programs that have a positive impact on them.

## **Conclusion**

The relationship between the social determinants of health and health outcomes has been well researched. In developing policies or programs to reduce and, ultimately, prevent health disparities, upstream contributing factors, known as the social determinants of health, must be taken into consideration. Equally important is the recognition of early childhood as a critical period (12), during which interventions can have a significant impact on health outcomes throughout the life course (9).



## Resources

Racial and Ethnic Health Disparities in Colorado. (2009). Colorado Department of Public Health and Environment, Office of Health Disparities. <http://www.cdph.state.co.us/ohd/>

Promoting health equity: a resource to help communities address social determinants of health.

Centers for Disease Control and Prevention. (2008). <http://www.cdc.gov/nccdphp/dach/chaps/pdf/SDOHworkbook.pdf>

Data Set Directory of Social Determinants of Health at the Local Level

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World Health Organization. [http://www.who.int/social\\_determinants/en/](http://www.who.int/social_determinants/en/)

Unnatural Causes: Is Inequality Making Us Sick, Documentary Series

[http://www.unnaturalcauses.org/video\\_clips\\_detail.php?res\\_id=80](http://www.unnaturalcauses.org/video_clips_detail.php?res_id=80)

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