

intensity of jaundice, and if needed a follow-up bilirubin determination as indicated by the history and exam.

Since the 1980s phototherapy has superseded exchange transfusion as the treatment of choice for non-hemolytic hyperbilirubinemia.<sup>6,7</sup> (Phototherapy is helpful in cases of hemolytic hyperbilirubinemia, but may not be sufficient to correct the anemia or control the jaundice). Guidelines for both phototherapy and exchange transfusion, now a rare procedure, may be found in standard pediatric and neonatal texts, manuals for newborn care from various academic centers, and practice guidelines from the American Academy of Pediatrics.

### CONCLUSION

Hyperbilirubinemia is a universal problem in newborn nurseries, increasing in North America as rates of breast feeding and

borderline prematurity have increased in recent years. Neonatal jaundice is the most common reason to order laboratory tests in an otherwise well newborn. Although self-limited and benign in most cases, neglected or untreated severe hyperbilirubinemia can have dire neurodevelopmental consequences for the newborn.

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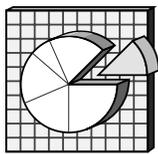
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The author and spouse/significant other have no financial interests to disclose.

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## Health By Numbers

RHODE ISLAND DEPARTMENT OF HEALTH • DAVID GIFFORD, MD, MPH, DIRECTOR OF HEALTH

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# Health Status and Health Care Utilization Among Children In Rhode Island, 2007: Comparing Children With Public Insurance and Children With Private Insurance

*Hyun (Hanna) Kim, PhD, and Samara Viner-Brown, MS*

**Health status and health care utilization among children are** profoundly influenced by health insurance coverage. Uninsured and underinsured children are less likely than adequately insured children to receive preventive health care, have a usual source of care, and receive health care within a medical home that addresses their comprehensive needs. Gaps in health insurance coverage may lead to delayed or unmet health care needs among children.<sup>1</sup>

This report describes 1) the distribution of health insurance type among Rhode Island children, and 2) the health status and health care utilization disparities between children with public health insurance and children with private health insurance.

### METHODS

Data from the 2007 National Survey of Children's Health (NSCH-2007) were analyzed. The NSCH-2007, a random digit

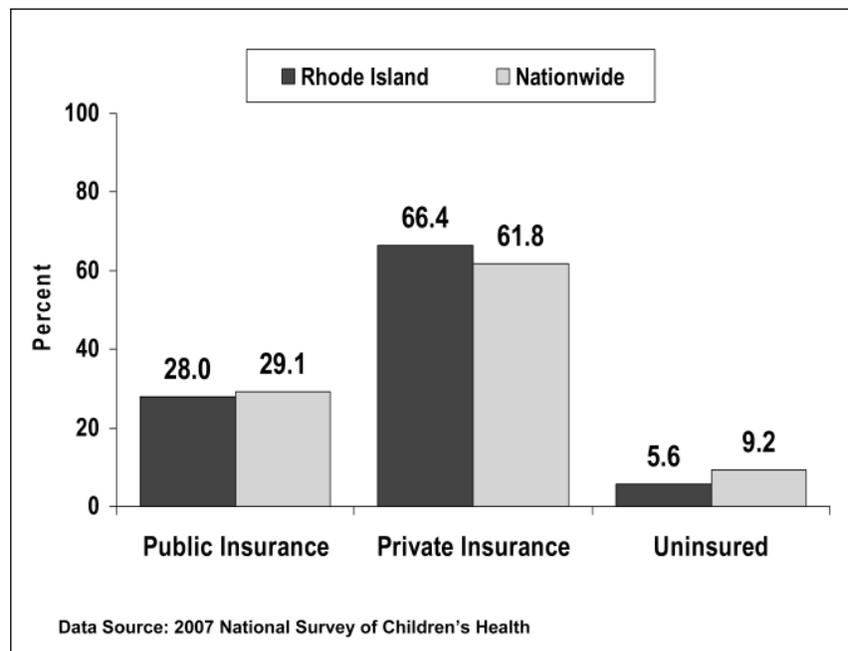


Figure 1. Distribution of Health Insurance Type Children 0-17 Years of Age, Rhode Island vs. United States, 2007

dial telephone survey conducted by the **National Center for Health Statistics (NCHS)**, was designed to produce national and state-specific prevalence estimates for a variety of physical, emotional, and behavioral health of children, and their health care access and utilization. The respondent was a parent or guardian of children younger than 18 years of age. In Rhode Island, the interviews were completed for 1,756 children with an overall response rate of 48.2%.<sup>2</sup>

Type of health insurance was determined using two survey questions: 1) Does the child have any kind of health care coverage, including HMOs or government plans such as Medicaid? and 2) Is that coverage Medicaid or the **State Children's Health Insurance Program (S-CHIP)** (known as **Rite Care**)? If a respondent said no to the first question, the child was classified as uninsured. If a respondent answered yes to both questions, the child was classified as having public insurance. If a respondent said yes to the first question and no to the second question, the child was classified as having private insurance.

Health status and health care utilization were assessed using various indicators from the survey, including health and functional status, health care access and utilization, and medical home.<sup>3</sup> Each indicator was examined by health insurance type to determine whether there were disparities between children with public insurance and children with private insurance. Uninsured children were excluded from the comparison due to the small sample size. Percentages presented here are weighted to represent all children 0-17 years of age in Rhode Island.

## RESULTS

### Distribution of Health Insurance Type

In 2007, 28% of Rhode Island children 0-17 years of age had public insurance, 66.4% had private insurance, and 5.6% had no insurance at the time of the survey. (Figure 1) The proportion of uninsured children in Rhode Island was lower than the national rate (9.2%), and the rate of private insurance was higher than the national rate (61.8%).

The percentage of children having public insurance was significantly higher among non-Hispanic black children (55.6%), Hispanic children (58.0%), children whose mother had less than high school education (73.8%), children living in households with incomes less than 100% of **Federal Poverty Level (FPL)** (78.0%), children living in a single mother household (63.9%), Hispanic children living in households where their primary language is Spanish (67.4%), and children with special health care needs (38.2%), compared to their counterparts. (Table 1)

### HEALTH STATUS AND HEALTH CARE UTILIZATION Health Status

Children with public health insurance were less likely than children with private health insurance to have very good/excellent general health (73.7% vs. 92.8%) and very good/excellent oral health (67.6% vs. 84.8%). Compared to children with private health in-

	% Public Insurance (n = 364)	% Private Insurance (n = 1,277)	% Currently Uninsured (n = 91)	P-value
<b>Overall</b>	<b>28.0</b>	<b>66.4</b>	<b>5.6</b>	
<b>Child Age</b>				
0-5	29.1	63.8	7.0*	0.4132
6-11	28.6	67.7	3.7	
12-17	26.4	67.4	6.2	
<b>Gender</b>				
Male	29.7	64.8	5.5	0.5898
Female	26.3	67.9	5.8	
<b>Race/Ethnicity</b>				
White, non-Hispanic	16.5	80.1	3.4	<0.001
Black, non-Hispanic	55.6	33.6	10.8*	
Hispanic	58.0	31.6	10.5	
<b>Mother's Education</b>				
< High School	73.8	17.9	8.2*	<0.001
High School	42.8	49.5	7.7*	
> High School	13.3	82.6	4.2	
<b>Household Income</b>				
0-99% FPL	78.0	10.7*	11.3*	<0.001
100-199% FPL	53.6	39.9	6.5	
200-399% FPL	13.8	82.6	3.6	
400% FPL or higher	3.2	92.6	4.2	
<b>Family Structure</b>				
Two-parent (biological/adoptive)	16.7	77.9	5.4	<0.001
Two-parent (at least one step-parent)	29.5	68.2	2.3*	
Mother only (no father present)	63.9	29.4	6.7*	
<b>Primary Household Language</b>				
Hispanic, Spanish Language	67.4	19.7	13.0*	<0.001
Hispanic, English Language	46.7	45.7	7.5*	
Non-Hispanic Children	21.3	74.4	4.2	
<b>Special Health Care Needs (SHCN)</b>				
Children without SHCN	25.4	68.4	6.2	0.0096
Children with SHCN	38.2	58.4	3.4*	

Data Source: 2007 National Survey of Children's Health  
 + FPL: Federal Poverty Level  
 \* Estimates based on sample sizes too small to meet standards for reliability or precision. The relative standard error is greater than 30%.

Table 1. Distribution of Health Insurance Type by Selected Characteristics

surance, children with public health insurance were more likely to be obese (21.4% vs. 11.3%), to miss 11 or more days of school in past year due to illness (9.4% vs. 3.9%), and to consistently exhibit problematic social behaviors (19.7% vs. 5.7%). (Table 2)

### Health Care Access and Utilization

Most children in Rhode Island had one or more preventive medical visits in the past year (96.2% for publicly-insured children and 98.8% for privately-insured children) and had a usual source for well and sick care (93.7% for publicly-insured children and 98.3% for privately-insured children). However, fewer children received care within a medical home (49.5% for publicly-insured children and 70.8% for privately-insured children). Children with public insurance were more likely to have unmet needs for care in the past year (10.8% vs. 2.7%). (Table 2)

### Adequacy of Insurance

Children with public insurance were more likely than children with private insurance to have health care coverage that usually or always meets insurance adequacy criteria (86.9% vs. 76.2%). The adequacy criteria include whether benefits meet child's needs, whether coverage allows the child to see needed providers, and whether out-of-pocket expenses are reasonable. However, children with public insurance were more likely to have gaps in insurance coverage during the previous 12 months than children with private insurance (9.7% vs. 3.6%). (Table 2)

**Table 2. Selected Indicators of Health Status and Health Care Utilization By Insurance Type: Children 0-17 Years of Age, Rhode Island, 2007**

<b>Selected Indicators</b>	<b>Public Insurance % (95% CI*)</b>	<b>Private Insurance % (95% CI*)</b>
<b>Health Status</b>		
Children whose general health is very good or excellent	73.7 (67.4-80.1)	92.8 (90.7-95.0)
Children age 1-17 whose oral health is very good or excellent	67.6 (60.8-74.3)	84.8 (81.7-87.8)
Children age 10-17 who are obese (BMI-for-age $\geq$ 95th percentile)	21.4 (13.3-29.5)	11.3 (7.9-14.8)
Children age 6-17 who missed 11 or more school days due to illness or injury during the previous 12 months	9.4 (4.0-14.7)	3.9 (2.6-5.3)
Children age 6-17 who consistently exhibit problematic social behaviors	19.7 (12.6-26.8)	5.7 (3.5-7.9)
<b>Health Care Access and Utilization</b>		
Children who had one or more preventive medical visit(s) during the previous 12 months	96.2 (93.6-98.9)	98.8 (97.7-99.8)
Children who have a usual source for well and sick care	93.7 (89.9-97.4)	98.3 (97.3-99.4)
Children with a medical home: health care that is continuous, coordinated, accessible, comprehensive, family-centered, compassionate, and culturally sensitive	49.5 (42.1-56.8)	70.8 (67.4-74.3)
Children with unmet need(s) for medical, dental, mental health or other health care during the previous 12 months	10.8 (6.5-15.2)	2.7 (1.6-3.8)
<b>Adequacy of Insurance</b>		
Children whose coverage usually or always meet insurance adequacy criteria: child's needs are met, child is allowed to see needed providers, out-of-pocket costs are reasonable	86.9 (82.4-91.3)	76.2 (73.0-79.5)
Children who had gaps in insurance coverage during the previous 12 months	9.7 (6.2-14.9)	3.6 (2.3-5.6)
* CI: Confidence Interval Source: Child and Adolescent Health Measurement Initiative. 2007 National Survey of Children's Health, Data Resource Center for Child and Adolescent Health website. Retrieved from www.nschdata.org		

## DISCUSSION

The results point to substantial disparities between children with public insurance and children with private insurance in health status and health care utilization. In general, children with private insurance exhibited better health status and better health care access and utilization. However, those disparities might be due, in part, to the socio-economic and environmental differences because minority children, children with special health care needs, and children from low-income and single mother families were more likely to be covered by public insurance. Although public insurance was more affordable and adequate than private insurance, children covered by public insurance were more likely to have gaps in health insurance coverage, which might lead to lack of a medical home and unmet needs for care. These disparities should be interpreted as disparities in parents' perceptions, behaviors, and experiences and not as the disparities in the quality or effectiveness of the insurance.

*Note:* Parts of this article were originally presented to the Medicaid Evaluation Studies Workgroup in the Rhode Island Department of Human Services, October 29, 2009.

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## Disclosure of Financial Interests

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