

Welfare Reform and the Health of Young Children

A Sentinel Survey in 6 US Cities

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Context: Welfare reform under the 1996 Personal Responsibility and Work Opportunity Reconciliation Act replaced entitlement to cash assistance for low-income families with Temporary Assistance to Needy Families, thereby terminating or decreasing cash support for many participants. Proponents anticipated that continued receipt of food stamps would offset the effects of cash benefit losses, although access to food stamps was also restricted.

Objective: To examine associations of loss or reduction of welfare with food security and health outcomes among children aged 36 months or younger at 6 urban hospitals and clinics.

Design and Setting: A multisite retrospective cohort study with cross-sectional surveys at urban medical centers in 5 states and Washington, DC, from August 1998 through December 2000.

Participants: The caregivers of 2718 children aged 36 months or younger whose households received welfare or had lost welfare through sanctions were interviewed at hospital clinics and emergency departments.

Main Outcome Measures: Household food security status, history of hospitalization, and, for a subsample

interviewed in emergency departments, whether the child was admitted to the hospital the day of the visit.

Results: After controlling for potential confounding factors, children in families whose welfare was terminated or reduced by sanctions had greater odds of being food insecure (adjusted odds ratio [AOR], 1.5; 95% confidence interval [CI], 1.1-1.9), of having been hospitalized since birth (AOR, 1.3; 95% CI, 1.0-1.7) and, for the emergency department subsample, of being admitted the day of an emergency department visit (AOR, 1.9; 95% CI, 1.2-3.0) compared with those without decreased benefits. Children in families whose welfare benefits were decreased administratively because of changes in income or expenses had greater odds of being food insecure (AOR, 1.5; 95% CI, 1.1-2.2) and of being admitted the day of an emergency department visit (AOR, 2.8; 95% CI, 1.4-5.6). Receiving food stamps does not mitigate the effects of the loss or reduction of welfare benefits on food security or hospitalizations.

Conclusion: Terminating or reducing welfare benefits by sanctions, or decreasing benefits because of changes in income or expenses, is associated with greater odds that young children will experience food insecurity and hospitalizations.

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WELFARE REFORMS in the Personal Responsibility and Work Opportunity Reconciliation Act replaced entitlement to Aid to Families with Dependent Children with Temporary Assistance to Needy Families. The new law added restrictions on eligibility, imposed new behavioral requirements for receiving aid with sanctions for failing to comply, placed strict time limits on receipt of benefits, and transferred design, implementation, and oversight of welfare programs to state and local governments.¹⁻³ The new law also restricted eli-

gibility and benefits in the Food Stamp Program.³

Little is known about the well-being of the nearly 7 million recipients who have left the welfare rolls since 1996, about 70% of whom are children.⁴⁻⁶ Although some left welfare after obtaining employment or other changes in circumstances, others were cut off by full-family sanctions for failure to comply with behavioral requirements related to work, living arrangements, keeping appointments, paternity identification, or children's immunization and school attendance.^{6,7} Benefits are also decreased through partial sanctions for failure to comply with behavioral re-

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PARTICIPANTS AND METHODS

SETTING AND INSTRUMENTS

The Children's Sentinel Nutrition Assessment Project conducted household-level surveys and medical record audits between August 1998 and December 2000 at central-city medical centers in Baltimore, Md, Boston, Mass, Little Rock, Ark, Los Angeles, Calif, Minneapolis, Minn, and Washington, DC. A convenience sample comprising adult caregivers accompanying 9469 children aged 36 months or younger at acute- and primary-care clinics and hospital emergency departments was interviewed in private settings by trained interviewers scheduled during peak patient-flow times. Caregivers of critically ill or injured children were not approached. Potential respondents were excluded if they did not speak English, Spanish, or Somali (Minneapolis only) or were not knowledgeable about the child's household, the child's caregiver had been interviewed within the previous 6 months, or they refused consent for any reason. Institutional review board approval was obtained at each site.

The survey instrument included questions on household characteristics, food security, federal assistance program participation, changes in benefits, and the child's hospitalization history. Household food security status was derived from the US Department of Agriculture's Food Security Scale in accordance with established procedures.²⁴⁻²⁶ Households were classified as food insecure if they could not afford enough nutritious food for active, healthy lives.²⁵⁻²⁷

SAMPLE CHARACTERISTICS

The analytic cohort, described in **Table 1** and **Table 2**, comprises 2718 children whose families reported either currently receiving welfare or having lost welfare because of sanctions. These children were identified from a larger sample obtained at the 6 study sites. In the larger sample, 7% of those approached refused the interview and an additional 15% were ineligible because of language, not having knowledge of the child's household, or being interviewed previously. Of the 2718 current or former welfare recipients interviewed, 2445 (90%) currently or formerly received food stamps.

Of the 620 caregivers whose welfare was sanctioned, 129 (21%) also had their food stamps reduced or terminated by sanctions. Of the 264 caregivers whose welfare was administratively decreased because of changes in income or expenses, 72 (27%) also had their food stamp benefits decreased administratively.

PREDICTOR VARIABLE

The predictor variable indicates whether a child's family has experienced a change in welfare benefits because of welfare reform policy changes (Table 2). This variable appears in the analyses with the following 3 categories, based on the 12 months preceding the interview. The third

category (not decreased) is the reference category in all multivariate models.

1. Sanctioned: benefits terminated or reduced by full-family or partial sanctions for failure to comply with behavioral requirements.
2. Decreased: benefits decreased administratively because of changes in income or expenses (eg, from work or because of changes in marital status or living arrangements).
3. Not decreased: benefits either increased or did not change.

OUTCOME MEASURES

Outcome measures are shown in **Table 3**. Each child's household was categorized as food secure or food insecure using the Food Security Scale.²⁶⁻²⁹ Two hospitalization variables were available. For all children in the analytic cohort, caregiver interview data were obtained on the number of times the child had been hospitalized since discharge after birth. This information was used to create a categorical (yes or no) variable indicating whether the child had been hospitalized at all since birth (excluding the day of the interview).

At 3 study sites, caregivers were interviewed in conjunction with emergency department visits. Overall, 1132 (42%) of the 2718 interviews in the analytic cohort were obtained from 3 emergency department sites: Boston (n=683; 60%), Little Rock (n=119; 11%), and Los Angeles (n=330; 29%). Separate analyses were conducted using data from this subsample, with admission the day of the visit as the outcome.

POTENTIAL CONFOUNDING VARIABLES

Potential confounding variables, shown by others to influence child health, were included in the regression models (Table 1 and Table 2).^{14,15,18-23} These include study site; child's race/ethnicity, low-birth-weight (<2500 g) status, age, health insurance coverage, and day care attendance; whether the mother was born in the United States (99% of children were born in the United States); caregiver's age; receipt of housing subsidy; whether the child or the caregiver receives Supplemental Security Income; caregiver's employment, marital, and educational status; and whether the household receives food stamps or support from the Special Supplemental Nutrition Program for Women, Infants, and Children.

ANALYTIC APPROACH

Separate logistic regression models were specified to model differences in the odds of food insecurity and lifetime and same-day hospitalizations between children in households exposed to welfare sanctions or administrative decreases in welfare benefits and those not exposed to either, controlling for likely confounding factors.^{28,29} Additional regressions were performed using interaction terms to examine whether currently receiving food stamps modified the effects of loss or reduction in welfare benefits.

requirements and administratively if changes in income or expenses reduce the level of benefits a family is eligible to receive.^{1-3,6,7}

Some evidence suggests that welfare policies that increase both parental employment and income may benefit school-aged children's school readiness and aca-

Table 1. Characteristics of Caregivers in the Analytic Cohort by Exposure to Changes in TANF Benefit Status, 1998-2000*

Caregiver Characteristics	Status of TANF Benefits			P Value
	Sanctioned (n = 620)	Decreased (n = 264)	No Change (n = 1834)	
Study site				
Baltimore, Md	57 (9)	20 (8)	245 (13)	≤.001
Boston, Mass	280 (45)	67 (25)	345 (19)	
Washington, DC	7 (1)	1 (<1)	25 (1)	
Little Rock, Ark	22 (4)	5 (2)	92 (5)	
Los Angeles, Calif	118 (19)	34 (13)	188 (10)	
Minneapolis, Minn	136 (22)	137 (52)	939 (51)	
Race/ethnicity				
African American	409 (66)	190 (72)	1273 (69)	.02
Hispanic	171 (28)	51 (19)	385 (21)	
White	23 (4)	11 (4)	107 (6)	
Other	17 (3)	12 (5)	68 (4)	
US born	484 (78)	204 (77)	1383 (75)	.03
Single	431 (70)	163 (62)	1283 (70)	≤.001
Age <21 y	109 (18)	48 (18)	541 (30)	≤.001
Grade <12	291 (47)	101 (38)	858 (47)	.02
Caregiver employed	130 (21)	121 (46)	290 (16)	≤.001
Household receives SSI	66 (11)	32 (12)	172 (9)	.29
Subsidized housing	255 (41)	96 (36)	578 (32)	≤.001
Lives in homeless shelter	42 (7)	16 (6)	78 (4)	.03
Receives WIC	521 (84)	215 (81)	1592 (87)	.02
Food stamp (FSP) status				
FSP sanction	129 (21)	1 (<1)	18 (1)	≤.001
FSP decrease	49 (8)	72 (27)	172 (9)	
FSP no change	357 (58)	164 (62)	1421 (78)	
Voluntary leavers	23 (4)	8 (3)	31 (2)	
Never on FSP	60 (10)	19 (7)	185 (10)	
Mean (SD) months on TANF	39.9 (40.1)	27.1 (30.6)	24.1 (30.8)	≤.001

*Group comparisons use χ^2 test for categorical variables and analysis of variance for continuous variables. Some subgroup values do not sum to the total subsample value because of missing data. TANF indicates Temporary Assistance to Needy Families; SSI, Supplemental Security Income; and WIC, Special Supplemental Nutrition Program for Women, Infants and Children. Data are given as the number (percentage) of caregivers, unless otherwise indicated.

Table 2. Characteristics of Children in the Analytic Cohort by Exposure to Changes in TANF Benefit Status, 1998-2000

Child Characteristics	Status of TANF Benefits			P Value
	Sanctioned (n = 620)	Decreased (n = 264)	No Change (n = 1834)	
Age, y				
≤1	357 (58)	134 (51)	1197 (65)	≤.001
>1, ≤2	174 (28)	80 (30)	403 (22)	
>2, ≤3	89 (14)	50 (19)	234 (13)	
Birth weight <2500 g	93 (15)	34 (13)	245 (13)	.62
Insurance status				
Public	530 (86)	249 (94)	1714 (94)	≤.001
Private	18 (3)	7 (3)	35 (2)	
None	66 (11)	7 (3)	75 (4)	
In day care	175 (28)	118 (45)	453 (25)	≤.001

*Group comparisons use the χ^2 test for categorical variables. Some subgroup values do not sum to the total subsample value because of missing data. TANF indicates Temporary Assistance to Needy Families. Data are given as number (percentage) of children, unless otherwise indicated.

demographic achievement.⁸ However, other studies show that former recipients and those experiencing sanctions for non-compliance are more likely to report problems associated with food insufficiency (eg, not eating because they could not afford enough food or losing weight because there was not enough food) than those whose benefits have not been

reduced.^{7,9-11} Moreover, lack of paid or unpaid work leave, irregular and inflexible work schedules, and absence of health insurance have been shown to impede the care of sick children in low-income families.¹²⁻¹⁵ However, the effects of welfare reform on food security and the health of infants and toddlers are unknown.^{8,16,17}

Young low-income children in households that use urban medical centers represent a sentinel population at high risk of adverse health outcomes and may exhibit the health effects of welfare reform before they are noted among children in the general population of current and former recipients.¹⁸⁻²³ This study evaluates whether, in these settings, young children in households whose welfare benefits have been terminated or reduced by sanctions or decreased administratively because of changed income or expenses have significantly different odds of experiencing negative health outcomes than similar children in families whose benefits have not decreased.

RESULTS

TEMPORARY ASSISTANCE TO NEEDY FAMILIES

Households with children aged 36 months or younger whose welfare benefits had been terminated or reduced by sanctions had odds of being food insecure 1.5 times as great (95% CI, 1.1-1.9) as comparable households whose ben-

Table 3. Child Health Outcomes by Exposure to Changes in TANF Benefit Status, 1998-2000*

Outcome Variables	Status of TANF Benefits				
	Sanctioned (n = 620)	P Value	Decreased (n = 264)	P Value	No Change† (n = 1834)
Household food insecurity					
Unadjusted, %	23	.005	23		18
Multivariate OR (95% CI)‡	1.5 (1.1-1.9)		1.5 (1.1-2.2)	.02	1.0
Lifetime hospitalizations					
Unadjusted, %	26	.04	21	.32	22
Multivariate OR (95% CI)‡	1.3 (1.0-1.7)		0.8 (0.6-1.2)		1.0
Admit on ED visit (n = 1132)§					
Unadjusted, %	11	.01	12	.005	7
Multivariate OR (95% CI)‡	1.9 (1.2-3.1)		2.8 (1.4-5.6)		1.0

*We used a somewhat more stringent method of scoring the Food Security Scale for this analysis than the standard US Department of Agriculture method, which led to conservative estimates of the effects of exposure on this outcome. TANF indicates Temporary Assistance for Needy Families; OR, odds ratio; and CI, confidence interval.

†The reference category for ORs is "no change" throughout.

‡Multivariate ORs are adjusted for study site, race/ethnicity of child, low birth weight, child's age group, child's health insurance status, mother born in the United States, caregiver's age, caregiver's employment status, caregiver's marital status, caregiver's educational status, household's receipt of housing subsidy, child in day care, household on Supplemental Security Income, whether child's family receives support from the Special Supplemental Nutrition Program for Women, Infants, and Children, and whether child's household received food stamps.

§Three emergency department (ED) sites only: Boston, Mass; Little Rock, Ark; and Los Angeles, Calif.

efits were not decreased (Table 3). Households with welfare benefits decreased administratively because of changes in income or expenses also had greater odds of being food insecure (AOR, 1.5; 95% CI, 1.1-2.2) compared with those whose benefits were not decreased. Young children in families whose welfare benefits had been terminated or reduced by sanctions had 1.3 times the odds of having been hospitalized since birth (95% CI, 1.0-1.7) as those in families whose benefits were not decreased. Children in families whose benefits were decreased administratively did not have significantly different odds of having been hospitalized since birth. Examination of potential effect modification showed that currently receiving food stamps did not mitigate the effects of loss or reduction of welfare benefits, whether by sanctions or administratively.

EMERGENCY DEPARTMENT COHORT

Children aged 36 months or younger exposed to termination or reduction of welfare benefits by sanctions whose caregivers were interviewed during emergency department visits (Table 3) had odds of being admitted to the hospital the day of the visit 1.8 times as great as those in families whose benefits were not decreased (95% CI, 1.1-3.0). Young children in families whose welfare had been decreased administratively because of changes in household income or expenses had odds of being admitted at the time of an emergency department visit more than 2½ times as great as those in families whose benefits had not been decreased (AOR, 2.7; 95% CI, 1.3-5.4). There was no significant interaction between currently receiving food stamps and the effects of loss or reduction of welfare benefits on odds of hospitalization the day of emergency department visits.

COMMENT

For children aged 36 months or younger, termination of or reductions in welfare benefits because of sanctions is as-

sociated with significantly greater odds of being in food insecure families, of being hospitalized since birth, and of requiring urgent hospitalization. To the extent that lifetime hospitalizations involve chronic illnesses, they may indicate child health conditions that impede a caregiver's ability to comply with work requirements and thus result in sanctions.^{12-14,30-33} Although one cannot infer causality from these results, in data from the emergency department cohort, hospitalizations on the day of emergency department visits by definition involve acute sickness, injury, or exacerbation of chronic illness temporally preceded by losses of welfare.

The finding that young children in families whose welfare benefits had been decreased administratively have odds of being admitted to the hospital the day of an emergency department visit 2.7 times as great as similar children in families whose benefits have not decreased was not expected. Although 45% of these children attended day care, compared with 28% of those in the sanctioned group and 25% of those with no decrease in benefits (Table 2), this result persisted even after including day care participation as a covariate in the regression models. Thus, potentially greater exposure to communicable illnesses³⁴ in out-of-home child care does not explain this finding. However, other studies suggest that some welfare recipients moving into low-wage work have difficulties caring for sick children because of inflexible work schedules, lack of sick leave, and other stresses,^{12-15,35-39} which may contribute to the greater odds of hospitalization when the child comes to medical attention.

Children exposed to termination or reductions in welfare benefits by sanctions or to administrative decreases had greater odds of hospitalization, even though 94% of children had health insurance (mostly public funded) and 80% received the Special Supplemental Nutrition Program for Women, Infants, and Children. Receiving food stamps did not attenuate the hospitalization outcomes. Additional analyses also found no differences when employ-

ment of adults in the household other than the caregiver was controlled statistically.

High levels of family dysfunction accompanying environmental and economic stresses may influence physicians' decisions to hospitalize young children.⁴⁰ Termination or reduction in welfare benefits by sanctions may be markers of families' dysfunction or may exacerbate it. However, these data suggest that greater odds of hospitalization associated with decreased welfare benefits cannot be solely attributed to dysfunctional caregiving. Families that comply with program regulations, earn increased income, and thus have their benefits administratively decreased, are not likely to be more dysfunctional than the reference category whose temporary assistance was not decreased. However, as in sanctioned families, their children's odds of requiring urgent hospitalization are significantly greater than those for children not exposed to decreased benefits.

Loss or reduction of welfare benefits, whether because of punitive sanctions or administrative decreases, is associated in these results with significantly greater odds of households being food insecure, which has been correlated by others with adverse outcomes for children.⁴¹⁻⁴⁴ Associations of micronutrient and protein-energy deficits with impaired immunity and wound healing and thus with increased risk of serious illness are well established.⁴⁵⁻⁴⁷

Earlier versions of food security measures similar to the Food Security Scale have been associated with inadequate intakes of several important nutrients^{43,48,49} and poor health in children and adults.⁴¹⁻⁴⁶ Although not measured in this study, decreased developmental test scores⁵⁰⁻⁵⁴ and behavioral and psychosocial dysfunction in children have also been associated with food insecurity.⁵⁵⁻⁵⁷

Although it is a physiologically plausible contributing factor, household food insecurity alone does not fully explain these hospitalization findings. In separate analyses including food security status as a covariate (available from us on request), the effects of loss of welfare benefits on admission following emergency department visits were slightly stronger, whereas the effects on hospitalizations since birth were slightly weaker but still statistically significant.

These data were collected through December 2000 and may underestimate the more recent impacts of welfare reform on young children. The 1996 welfare reform law was implemented and these data collected near the end of an unprecedented 10-year period of growth in the US economy. Yet even during this period of record-low unemployment, millions of children and families remained in extreme poverty,⁵⁸⁻⁶⁰ experienced food insecurity and hunger,^{10,26,27,41-46,61} and suffered from preventable morbidity.^{9,11,12,19,30-33} Following the 10-year economic expansion ending in March 2001,⁶² low-income welfare recipients may be experiencing even greater difficulties as work requirements become harder to fulfill, behavioral compliance becomes more difficult, and time limits affect more participants. By October 2001, families in 49 states had begun to reach lifetime time limits, but the effects of this are not reflected in these data.⁶³

LIMITATIONS

The Children's Sentinel Nutrition Assessment Project sample is a cross-sectional sentinel surveillance sample

What This Study Adds

The 1996 welfare reform law profoundly changed the nation's 2 primary social safety net programs, Aid to Families With Dependent Children (renamed Temporary Assistance to Needy Families) and the Food Stamp Program. Studies assessing how welfare reform affects children have focused on school-aged children and adolescents, primarily examining school readiness and attendance, academic achievement, behavioral risk factors, and fertility. Empirical research on the consequences of welfare reform for recipients' health is very scant, and studies addressing health effects among infants and toddlers are nonexistent.

This research examines whether children aged 36 months or younger in families whose welfare has been terminated or reduced by sanctions for failure to comply with behavioral requirements or administratively because of changes in income or expenses have different odds of experiencing food insecurity and hospitalizations than similar children in recipient families whose benefits have not been decreased. This study provides the first empirical, clinical evidence of associations of welfare reform with increased food insecurity and hospitalizations among infants and toddlers in recipient families.

of young, high-risk, low-income children. Data were obtained over a 2½-year period in 6 geographically, ethnically, and economically diverse sites broadly reflecting several major geographic regions and types of welfare policies. However, the sample is not random or nationally representative, and the extent to which these findings can be generalized is limited.

Possible selection bias and the lack of specified a priori temporal sequencing of events, longitudinal data, and random assignment of children to different benefit categories preclude drawing inferences about causal relationships. Although the potentially confounding effects of many relevant factors were statistically controlled in analyses, other unmeasured confounders may have influenced the outcomes.

CONCLUSIONS

Exposure of children aged 36 months or younger to termination of or reductions in welfare benefits by sanctions or administrative decreases because of changes in income or expenses was associated with greater odds of being food insecure and experiencing health problems requiring hospitalization, even after adjusting for health insurance coverage, participation in the Special Supplemental Nutrition Program for Women, Infants, and Children, and other potentially protective factors. Moreover, food stamps did not protect young children from these effects.

IMPLICATIONS

Cautious interpretation of these results from a large and diverse sample suggests that some of the changes implemented under the new welfare reform law may be associated with unintended harmful consequences for young

children's health. Child health professionals should be concerned that increasingly stringent requirements proposed for the 2002 welfare reform law reauthorization⁶⁴ may further jeopardize the health of some of America's most vulnerable children as the economic cycle, sanctions, and time limits simultaneously decrease families' resources.

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