

Effects of Welfare and Maternal Work on Recommended Preventive Care Utilization Among Low-Income Children

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The Personal Responsibility and Work Opportunity Reconciliation Act was enacted in 1996, replacing Aid to Families With Dependent Children with a new program, Temporary Assistance for Needy Families (TANF). Sometimes called “welfare reform,” TANF is now in its 15th year, and another reauthorization is anticipated in 2013. Whereas Aid to Families With Dependent Children provided welfare cash assistance (“welfare”) for low-income mothers with young children and did not permit receipt of additional income through work, TANF requires most mothers receiving welfare to work or to participate in job-training programs.

The impact of welfare reform on children’s health care access, utilization, and outcomes has been much debated. Several studies examined the consequences of welfare reform on children’s health and reported that TANF’s maternal employment requirements may negatively affect children’s health.^{1–5} In a previous study, we found that mothers working during periods when mothers were receiving welfare resulted in negative effects on the timely administration of childhood immunizations.^{6a}

We sought to understand the association of welfare receipt and maternal work with recommended preventive pediatric health care visits. The American Academy of Pediatrics (AAP) provides recommendations for the ages at which a child should receive preventive care visits and, for each recommended visit, a “window,” or period of time, when the visit should be received.^{6b} Preventive pediatric health care visits are critical during the vulnerable first years of a child’s life for monitoring growth and development and for providing timely immunizations.^{7–9} Also, previous research has shown that receipt of preventive pediatric health care is associated with reduced avoidable hospitalizations, reduced emergency department visits, and better health outcomes.^{10–12} Nevertheless, there is good evidence that many preventive care visits are delayed or missed entirely and, among

Objectives. We examined how maternal work and welfare receipt are associated with children receiving recommended pediatric preventive care services.

Methods. We identified American Academy of Pediatrics–recommended preventive care visits from medical records of children in the 1999–2004 Illinois Families Study: Child Well-Being. We used Illinois administrative data to identify whether mothers received welfare or worked during the period the visit was recommended, and we analyzed the child visit data using random-intercept logistic regressions that adjusted for child, maternal, and visit-specific characteristics.

Results. The 485 children (95%) meeting inclusion criteria made 41% of their recommended visits. Children were 60% more likely (adjusted odds ratios [AOR] = 1.60; 95% confidence interval [CI] = 1.27, 2.01) to make recommended visits when mothers received welfare but did not work compared with when mothers did not receive welfare and did not work. Children were 25% less likely (AOR = 0.75; 95% CI = 0.60, 0.94) to make preventive care visits during periods when mothers received welfare and worked compared with welfare only periods.

Conclusion. The Temporary Assistance for Needy Families maternal work requirement may be a barrier to receiving recommended preventive pediatric health care. (*Am J Public Health.* 2012;102:2274–2279. doi:10.2105/AJPH.2012.300803)

low-income children, this is of particular concern because of their increased risks for poor growth and development.^{13–15} We hypothesized that maternal work required for welfare receipt was associated with reduced preventive health care visits.

METHODS

The Illinois Families Study (IFS) is a longitudinal cohort study designed to assess the effects of welfare reform on families in Illinois who were receiving welfare as they transitioned from Aid to Families With Dependent Children to TANF.^{16,17} The IFS cohort was a stratified sample of 1899 Illinois TANF recipients from the Illinois TANF enrollment database during the last quarter of 1998, following the implementation of welfare reform in Illinois in 1997.

We included all respondents from the baseline IFS survey who had at least 1 child aged 3 years or younger (target child) at the time of the initial interview (n = 583) in a supplemental study called the Illinois Families Study: Child Well-Being (IFS-CWB).^{18–20} We administered

annual surveys to the primary caregivers of these target children in the IFS-CWB cohort from 2001 through 2004. We designed these surveys to gather more in-depth information on the health and well-being of the target child. The response rates for the 4 surveys consistently exceeded 90%.

We derived this study’s cohort from the IFS-CWB children whose primary caregivers consented to a review of their children’s health care records (n = 513; 88% of the IFS-CWB sample). We excluded study children for whom complete health care records were not available (n = 18) and children whose primary caregivers were not mothers (n = 10). The final study cohort consisted of 485 children.

Health Care Records

During each annual IFS-CWB survey, primary caregivers were asked a series of detailed questions about where the target child received routine, specialized, or emergency health care. After obtaining consent to acquire the health care records for the target child, we contacted each identified provider to obtain the complete

health care record. For each child, we derived an estimation of the completeness of the child's health care records from the ratio of health care records to the number of health care providers reported by the respondent in each annual survey. We then used the estimated completeness score to identify children whose health care records we deemed incomplete and to exclude them from the study. During the study period, all health care records were on paper.

Preventive Health Care Visits

The main outcome was receipt of recommended preventive health care visits. The AAP recommends preventive visits at 2 weeks, 4 weeks, 8 weeks, 4 months, 6 months, 9 months, 12 months, 18 months, 24 months, 3 years, 4 years, 5 years, 6 years, and 8 years.^{6b} Additional visits are recommended but are outside the age range of the cohort. We followed each target child during the 5-year period between 1999 and 2004 and used their health care records to identify all health care visits. We identified a health care visit as "preventive" if it included an immunization or documentation of a comprehensive physical examination as the main focus of the visit, if the visit notes were documented on a preventive visit template (e.g., "Six Month Visit"), or if a diagnosis of "well-child" or "preventive" care was documented.

The AAP guidelines provide, for each recommended preventive health care visit, a window during which a visit is considered to be on time.²¹ If a visit was made within the recommended window, we coded it as "on time." If the visit was made outside the recommended window, we coded it simply as "received." The window for each recommended visit is shown in Table 1. We attributed preventive visits, documented in the health care records during a gap between 2 recommended windows, to a nearest window if there was no other information to guide the attribution.

We identified recommended visits for the study cohort during the IFS-CWB study period (1999–2004). The number of recommended visits observed differed from child to child depending on when a child entered the study cohort (e.g., at birth or at 3 years). An average of 8.7 preventive visits per child was recommended to occur during the study period.

Maternal Work and Family Welfare

Two primary explanatory variables of interest were receipt of TANF welfare cash assistance and maternal work at each preventive health care visit. We determined maternal work for each recommended visit using unemployment insurance administrative data from the Illinois Department of Employment Security in Chapin Hall Center for Children's Integrated Database on Child and Family Programs in Illinois. We linked administrative data to survey data through a probabilistic matching process.²² For each recommended visit, we considered a mother to be working if she was employed at least 50% of the days during the window of the recommended visit.

We determined welfare receipt from administrative data from the Illinois Department of Human Services. For each recommended visit, we classified a child whose family received welfare for 50% or more days during the window for the recommended visit as receiving welfare.

Finally, we characterized each recommended visit according to the child's mother's work and according to family welfare receipt as "work only," "welfare and work," "welfare only," and "no welfare and no work."

Covariates

Many other factors can affect receipt of preventive health care visits, including a child's race and gender, maternal age and education at child's birth, mother's marital status, number of siblings born before the target child, availability of an adult family member at home for child care, and whether the child has a usual place of medical care. We obtained these variables from the annual IFS-CWB surveys. We obtained the value for each variable from the survey closest to each recommended visit. We used the response to "usual place to go for routine care such as a physical exam, well-baby check, or shot or when he or she is sick" to determine the usual source of care (hospital-based clinic, physician's office, public health clinic, or unknown, emergency department, no usual place). We considered a child to have another adult available for care when responses to "who provided the most child care for [the target child] when you were unable to be with him or her" included any of the following: other biological parent, stepparent

or respondent's spouse or partner, grandparent or great-grandparent, or other relative.

Additionally, a child's health insurance can affect access to preventive health care. Because all children in the cohort were of low income, Medicaid was the main source of health care coverage. We used Medicaid enrollment data from the Illinois Department of Human Services to classify a child's visit as "Medicaid" if the child was Medicaid eligible for at least 50% of the days during a recommended visit window.

Statistical Analysis

The unit of analysis is a recommended preventive pediatric health care visit. We constructed a child visit data set with multiple visits for each child and covariates observed at baseline or during the window for each recommended visit. The dependent variables were receipt of a guideline-recommended preventive pediatric health care visit during the recommended window (on time) and receipt of the visit at all, regardless of whether it was on time (overall).

We analyzed the data using random-effects logistic regression that adjusted for autocorrelation between visits because of the repeated nature of the data. We developed and adjusted sampling and nonresponse weights to account for differences between the composition of the sample and the population of 1998 Illinois TANF grantees from whom the original IFS sample was drawn.¹⁸ The weight is the reciprocal of the selection probability specific to the sampling stratum, and we further adjusted it to compensate for the effects of nonresponse in the first IFS-CWB survey.

About 75% of all recommended preventive health care visits were received within the recommended windows, and 96% were received within 30 days of the window. A comparison of 2 models for receipt of on time and overall visits also shows that the results are similar in both magnitude and direction of the associations. Therefore, we have presented results of overall recommended visits only. We have also shown results for a subsample of recommended visits during the first 12 months of life.

We used SAS version 9.2 (SAS Institute, Cary, NC) and Stata SE 12 (StataCorp, College Station, TX) for data management and statistical analysis.

TABLE 1—American Academy of Pediatrics Guidelines for Childhood Preventive Care Visits and Age Range for On-Time Utilization

Recommended Visit	Recommended Period, Age in Months ^a		Recommended Period, Days From Birth ^b	
	From	To	From	To
2 wk	7 d	< 1 mo	7	29
2 mo	1	2	30	61
4 mo	3	4	91	122
6 mo	5	7	152	213
9 mo	8	10	243	304
1 y	11	13	334	396
15 mo	14	16	425	487
18 mo	17	19	516	578
2 y	20	29	608	882
3 y	30	41	912	1247
4 y	42	53	1276	1612
5 y	54	65	1641	1976
6 y	66	83	2006	2524
8 y	84	107	2553	3253

^aFrom Table 2 in Byrd et al.²¹

^bWe computed days from birth from the recommended age in months in such a way that the interval is the widest and most lenient possible.

RESULTS

Of 513 families participating in the IFS-CWB study, 485 children (95%) met inclusion criteria. According to the AAP preventive health care visit guidelines, these children were expected to receive 5022 visits between 1999 and 2004.

Baseline child and maternal characteristics are shown in Table 2. The study cohort included more girls than boys (54% vs 46%), was predominantly non-Hispanic Black (79%), and resided in Cook County (93%). Fifteen percent of the children had a low birth weight. Ten percent of children were born to adolescent mothers and 10% to mothers older than 35 years at the time of the target child's birth. Eleven percent of children were firstborn, and 58% were born to families with at least 2 older siblings.

Children in the study cohort received 41% of all recommended visits. Thirty-one percent of all recommended visits (75% of all visits made) were made within the AAP guidelines recommended window. Ninety-six percent of the visits were either on time or within 30 days from the recommended window, either earlier or later.

Table 3 shows the weighted distribution of recommended health care visits by visit-specific characteristics. Unadjusted rates show that the

proportion of recommended preventive health care visits received was higher during periods when mothers were on welfare than periods when they were not (43% vs 38%; $P=.06$). Overall receipt of recommended health care visits was the highest during welfare only periods (45%) and the lowest during no welfare and no work periods (37%).

Table 4 shows adjusted odds ratios (AORs) for receiving recommended preventive health care visits from random-intercept logistic regressions that adjusted for child, maternal, and visit-specific characteristics. We estimated the first model using a sample with all recommended visits. Compared with children in no welfare and no work periods, children in welfare only periods were 60% (AOR = 1.60; 95% CI = 1.27, 2.01; $P<.001$) more likely to receive recommended visits; there was no statistical difference between children in work only or in welfare and work periods and children in no welfare and no work periods. The same model estimated with the welfare only periods as the reference shows that children during welfare and work periods were 25% less likely (AOR = 0.75; 95% CI = 0.60, 0.94; $P=.01$) to receive a recommended visit than were children in welfare only periods.

The second model estimated with visits recommended in the first 12 months shows even stronger effects of maternal work. Compared with children during welfare only periods, children during welfare and work periods were 42% less likely (AOR = 0.58; 95% CI = 0.39, 0.87) to receive recommended visits in the first 12 months of life.

Of note, children with physician's office as the usual place of care were 2.6 times more likely (AOR = 2.63; 95% CI = 1.87, 3.71) to receive recommended visits than were children with hospital-based clinics as the usual place of care. Children with 2 or more older siblings were only about half as likely (AOR = 0.51; 95% CI = 0.31, 0.84) to receive recommended visits as were firstborn children.

DISCUSSION

We examined the association of TANF policies related to welfare cash assistance and maternal work with recommended preventive health care visits by children in low-income families in Illinois. We found that recommended visits were least likely to be received during no welfare and no work periods and that maternal work was significantly associated with a lower likelihood of children receiving recommended visits during periods when the families were also receiving welfare.

Although children overall received fewer than half their recommended preventive health care visits, most visits received were in accordance with the AAP guidelines. A previous study that examined visit-level data in 2000–2002 in a nationally representative sample of children showed that 61.4% of all recommended visits and 71.3% of visits recommended during the first 5 years of life were made in compliance with the AAP guidelines.²³ However, these results were derived from self-report and for all children and, therefore, visit rates may be somewhat overreported and representative of a broader population of children. Nevertheless, the proportion of preventive health care visits that low-income children in this study received seriously lags behind the national average (41% vs 61%).²³

Another study that examined preventive health care for children in a single New York county during the early 1990s reported that 46% of privately insured and 35% of publicly

TABLE 2—Child and Maternal Characteristics of the Sample (n = 485): Illinois Families Study: Child Well-Being, 1999–2004

Characteristic	Population, %	Visits Made, %
All children	100.0	41.0
Child's gender		
Boy	46.1	42.1
Girl	53.9	40.1
Race/ethnicity		
Non-Hispanic Black	78.9	40.3
Hispanic	11.7	48.0
Non-Hispanic White	6.8	43.9
Other	2.7	30.4
Child's birth weight, g		
< 2500	14.5	37.1
≥ 2500	85.5	41.7
Mother's age at child's birth, y		
< 20	9.5	45.4
20–35	81.0	40.8
> 35	9.5	38.3
Mother's education*		
< high school	41.6	37.8
High school or GED completed	39.8	46.2
Some college or higher	18.7	36.4
County of residence*		
Cook	92.6	40.7
Downstate	9.3	51.1
Children born before target child,* no.		
0	11.3	49.4
1	30.5	44.0
≥ 2	58.2	37.9

Note. GED = general equivalency diploma.

*A weighted Pearson χ^2 test of independence between the characteristic and preventive care visits significant at $P < .05$ for visits made.

funded children received all the AAP guideline-recommended visits for children aged 0 to 18 years.²¹ However, all the children were enrolled in managed care plans, and there were no out-of-pocket costs incurred for these visits. By contrast, Medicaid covered only 55% of the AAP-recommended visits of IFS-CWB children. We examined, in a previous study, the health insurance coverage for these children and found it to be highly unstable from year to year.¹⁸ Although these 2 other studies are not directly comparable because of differences in study cohorts, observation periods, and data sources, both confirm that low-income children experience a considerable deficiency in receipt of recommended preventive pediatric health care.

We also found that overall receipt of recommended visits was lowest during no welfare and no work periods and highest during welfare only periods. The low rates of receipt of recommended visits during no welfare and no work periods may be explained by diminished income because of loss of welfare and work in addition to factors such as mothers' physical, psychological, or functional health,^{17,24–26} which may have prevented mothers from working or receiving TANF or impeded them from taking their children for the recommended visits. Furthermore, in our previous study¹⁸ we found that loss of work and of welfare (e.g., transition to no welfare and no work) was associated with significantly higher instability

in health insurance coverage, which, in turn, might have negatively affected rates of recommended visits.

The fact that receipt of recommended visits was highest during welfare only periods rather than during welfare and work periods, when family income might have been higher, suggests that whereas income may play a role, mothers' lack of availability for recommended visits because of their work may also be an important negative factor. Most jobs held by welfare recipients are characterized by long nonstandardized working hours, restricted flexibility in work schedule, and lack of opportunities for training.^{19,27,28} These jobs also often fail to provide basic benefits such as paid sick days and vacation leave.⁴ Without paid sick or vacation leave, these working mothers are likely to lose income for time away from work for their children's health care needs. Specifically, the lack of basic benefits and of flexibility in work schedules may limit mothers from taking time off from work to take their child for recommended preventive health care visits.

The significant deficiency in receipt of recommended preventive pediatric health care visits for this cohort of young, low-income, and predominantly minority children is a concern. We have previously shown that the childhood immunization rate for these children was substantially lower than the national average and that maternal work was a significant barrier to on-time immunizations during periods when mothers were receiving welfare. Results from this study suggest that maternal work is also a significant barrier to receipt of guideline-recommended preventive health care visits, which, in turn, contributes to poor on-time immunizations rates for these children.

Improving timely receipt of recommended preventive health care for low-income children appears to require more than providing health insurance coverage or access to health care providers. For example, the results of this study suggest that targeting low-income mothers during no welfare and no work periods may be necessary to reduce barriers to receipt of preventive health care of their children. In addition, among mothers with children aged 12 months and younger and receiving welfare, a 25% increase overall and 42% increase in receipt of preventive health care visits may be

TABLE 3—Child Visit-Level Characteristics and Percentage of Recommended Preventive Pediatric Visits (n = 5022): Illinois Families Study: Child Well-Being, 1999–2004

Child Visit Characteristics	Population, %	Visits Made, %
All recommended preventive visits	100.0	41.0
Welfare receipt		
No welfare	45.5	38.4
Welfare	54.5	43.3
Mother's work status		
No work	58.8	41.8
Work	41.2	39.8
Welfare and mother's work status		
No welfare and no work	22.1	37.1
Work only	23.4	39.5
Welfare only	36.7	44.8
Welfare and work	17.8	40.3
Medicaid coverage		
Not eligible	44.7	42.5
Eligible	55.3	39.8
Usual place of care*		
Hospital-based clinic	34.5	35.4
Physician's office	13.5	51.9
Public health clinic	49.0	42.8
No usual place or unknown	3.1	26.2
Marital status of mother		
Not married	83.2	41.0
Married	16.8	41.2
Family member available for child care		
No	25.0	41.8
Yes	75.0	40.7

*Significant at $P < .05$ for both visits made overall.

achieved by modifying welfare-related work requirements. As welfare policy evolves, future consideration of TANF policies might include provisions for supporting mothers' ability to

take time off for recommended preventive health care visits for their children without adverse employment consequences (e.g., termination, reduced hours), particularly during

the first few years of children's lives. However, any policy change would need to take into consideration potential unintended consequences (e.g., making TANF recipients less attractive hires for employers).

The strength of this study is the ability to locate relatively comprehensive health care records for each child and to construct child visit-level data that we could match with state administrative data. The matching of these data sets allowed exact specification during the window for each recommended preventive health care visit of welfare cash assistance and mothers' work status. Unlike previous studies in which researchers relied on either administrative or self-reported data for identifying preventive health care visits, we used health care records that were rigorously abstracted and rated for their completeness.

Limitations

Nevertheless, this study has limitations that need to be considered before making any inferences from the results. First, the data were from low-income families receiving welfare cash assistance in Illinois and, as such, results may not be generalizable to states with substantially different TANF requirements and noncompliance sanction policies.

Second, whereas arbitrary cutoffs were used to classify a family as receiving welfare or a mother as working (50% for both), we conducted sensitivity analyses using 40% and 60% cutoffs that did not materially change our results (data not shown).

Conclusions

Our results show that the receipt of recommended preventive health care visits among

TABLE 4—AORs (95% CIs) of Making Preventive Care Visits: Illinois Families Study: Child Well-Being, 1999–2004

Models	No Welfare		Welfare	
	No Work, AOR (95% CI)	Work, AOR (95% CI)	No Work, AOR (95% CI)	Work, AOR (95% CI)
All recommended visits (n = 5022)				
No welfare-no work omitted	1.000 (Ref)	1.159 (0.910, 1.477)	1.596 (1.270, 2.006)	1.198 (0.973, 1.571)
Welfare only omitted	0.627 (0.499, 0.787)	0.726 (0.577, 0.915)	1.000 (Ref)	0.751 (0.600, 0.940)
Visits recommended during 12 mo of life (n = 2728)				
No welfare-no work omitted	1.000 (Ref)	0.842 (0.466, 1.524)	2.221 (1.332, 3.704)	1.288 (0.898, 1.019)
Welfare only omitted	0.450 (0.270, 0.751)	0.379 (0.234, 0.615)	1.000 (Ref)	0.580 (0.389, 0.865)

Note. AOR = adjusted odds ratio; CI = confidence interval. We adjusted the models for each child's age, gender, race, and Medicaid enrollment status during the window; birth order; birth weight; maternal age at child's birth; maternal education at the first Illinois Family Study survey; marital status of the mother; availability of a family member (parent, grandparent, sibling, or relative) at home for child care; county of residence (Cook vs Downstate); usual place of care (hospital-based clinic, physician's office, public health clinic, and not available); and days in age range.

children in low-income families was substantially lower than that among US children in general. Welfare cash assistance was associated with increased receipt of recommended visits independent of maternal work and other factors. For periods when families were receiving welfare, maternal work was associated with lower receipt of recommended visits. More attention to the support and incentives for mothers and mandates for employers in future welfare policy will improve receipt of recommended preventive health care for children in low-income families, particularly when mothers are without work and not receiving welfare or during periods when families are receiving welfare and mothers are also working. ■

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Contributors

E. H. Oh, L. B. Amsden, and M.-W. Sohn conducted data analysis. E. H. Oh and M.-W. Sohn drafted the article. J. L. Holl, J. Yoo, and L. B. Amsden approved the final version of the article after critical review. J. H. Holl and L. B. Amsden contributed to data acquisition. All authors contributed to the design of the study and the interpretation of results.

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Human Participant Protection

The study protocol was approved by the institutional review board of Northwestern University and Seoul National University. Participants provided written informed consent.

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