Missed Well-Child Care Visits, Low Continuity of Care, and Risk of Ambulatory Care–Sensitive Hospitalizations in Young Children

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Objectives: To determine if adherence to the recommended well-child care (WCC) visit schedule, independent of continuity of care (COC), is associated with lower risk of ambulatory care–sensitive hospitalizations (ACSH) and whether this association varies by chronic disease status.

Design: Population-based, retrospective cohort study.

Setting: Hawaii's largest health plan from 1999 to 2006.

Participants: A total of 36 944 children aged 3.5 years or younger were eligible if they were enrolled prior to 2 months of age, had 4 or more outpatient visits during the study period, and had an enrollment period that overlapped with 1 or more WCC visit interval.

Main Exposure: Patients' WCC visit adherence and COC index.

Main Outcome Measure: Risk of ACSH (hazard ratio [HR]).

Results: Overall, 8921 (24%) children had 1 or more chronic disease. The proportion of ACSH among healthy children vs those with 1 or more chronic disease were 3% (n=751) and 7% (n=645), respectively. For children with chronic disease, those with the lowest WCC visit adherence (0%-25%) had 1.9 times (HR, 1.9; 95% confidence interval [CI], 1.5-2.5) the risk of ACSH compared with those in the highest category (75%-100%). The risk of ACSH for children with chronic disease who fell into the lowest COC category (0-0.25) was 2.4 times (HR, 2.4; 95% CI, 1.7-3.5) higher than for those who fell into the highest category (0.75-1.0).

Conclusions: For children with chronic disease, both low WCC visit adherence and COC are independently associated with an increased risk of ACSH. Providing access to a consistent source of primary care appears to be important to this vulnerable population.

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EGULARLY SCHEDULED WELLchild care (WCC) visits are a key component of health care for young children. The American Academy of

Pediatrics guideline recommends attending 14 WCC visits in the first 5 years of life and then annual visits thereafter until age 21.¹ Between 2000 and 2002, children younger than 5 years missed between 20% to 30% of their recommended WCC visits.²

Educating parents during WCC visits about what to do for their otherwise healthy children during acute illnesses (eg, calling the physician's office for advice) as well as providing guidance on optimal management for children with chronic diseases (eg, review of steps to follow in an asthma action plan) may decrease the risk of poor outcomes such as ambulatory care– sensitive hospitalizations (ACSH). Receipt of recommended WCC content (eg, immunizations) may also prevent such hospitalizations. However, the evidence supporting WCC visit adherence is limited and inconsistent for a wide range of outcomes,³⁻⁸ including hospitalization.^{4,6,7} Only 1 prior study found a protective association between high WCC visit adherence and preventable hospitalizations.4 These studies were limited in that they did not account for continuity of care (COC), a measure of how often a child saw the same provider for these WCC visits. In contrast to WCC visit adherence, high COC levels for both adults and children have consistently been associated with improved outcomes,9-25 including hospitalization.13,17,19,26,27

In this population-based study, we examined whether high WCC visit adherence is associated with decreased risk of ACSH above and beyond the known de-

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crease in risk associated with high COC. We also examined whether these relationships differ for children with chronic diseases. Understanding these relationships may assist providers, insurers, and policymakers in evaluating the degree to which additional economic and health care resources should be devoted to greater access to WCC services in addition to improving COC.

METHODS

DESIGN AND SETTING

This was a population-based, retrospective cohort study of Hawaii's largest single health insurer, which includes nearly 70% of Hawaii's civilian adult and child population ($n=700\,000$) and contracts with approximately 95% of Hawaii's physicians. This study was approved by the University of Hawaii Institutional Review Board.

PATIENTS

We focused on younger children and those with chronic disease, as these children are at the highest risk of hospitalization.^{28,29} We used administrative data to identify all children enrolled prior to 2 months of age in one of the insurer's 2 commercial plans between January 1, 1999, and December 31, 2006. Children entered the study on either January 1, 1999, if they were already a plan member or on their first day of enrollment during the study period. Children exited the study when they had an ACSH, reached the end of the study (December 31, 2006), disenrolled from the insurer's commercial plans, or turned 3 1/2 years of age, whichever came first. We chose 3 1/2-year-olds because the number and frequency of required WCC visits is highest for children younger than this age. Continuous enrollment was also required, which meant that a child could have no gaps in coverage of more than 45 days.³⁰ Only the first continuous enrollment period after January 1, 1999, was included for children with multiple eligible enrollment periods between 1999 and 2006.

To calculate WCC visit adherence rate and COC, further eligibility criteria were required. First, a child needed to be enrolled prior to a recommended WCC visit and through at least 1 of the subsequent recommended WCC visits. Second, children were required to have at least 4 outpatient visits prior to exiting the study to allow an adequate number of visits to calculate COC.

VARIABLES AND MEASURES

WCC Visit Adherence

A WCC visit was identified from outpatient claims with the standard WCC visit International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes (eg, V20.2) in any of the diagnosis fields. Only WCC visits billed by primary care providers were included. These providers included pediatricians, family physicians, general practitioners, osteopaths, nurse practitioners, and physician assistants.

Well-child care visits were included in the adherence calculation if they were timely, based on the age intervals (ie, WCC intervals) recommended in the American Academy of Pediatrics' 2000 guidelines. For example, a 4-month WCC visit needed to occur between 4 and 6 months of age.³¹ The American Academy of Pediatrics' schedule was modified for visits after 2 years of age so that a 2-year-old WCC visit could occur between 2 and 2 $\frac{1}{2}$ years of age while a 3 year-old WCC visit could occur between 2 $\frac{1}{2}$ and 3 $\frac{1}{2}$ years of age. Only the first WCC visit in each age interval was counted if there was more than 1 WCC visit. Duplicate visits occurred in 10% of eligible WCC intervals, with 47% of duplicate visits occurring during the birth to 2-month WCC interval. For WCC visits in an interval to be counted, children had to be continuously enrolled during the entire interval.

Well-child care visit adherence (range, 0%-100%) was a timevarying variable, the value of which was only updated at the end of each age-specific WCC interval. For all WCC intervals that a child's enrollment overlapped completely, WCC visit adherence was calculated by dividing a child's total number of eligible WCC visits by the total number of recommended WCC visits from start of enrollment through the end of each age-specific WCC interval. Well-child care visit adherence was examined as both a continuous and categorical variable. However, it was modeled categorically to facilitate interpretation as follows: 0% to 25%, 26% to 50%, 51% to 74%, and 75% to 100% (reference).

COC Index

We used Bice and Boxerman's COC index³² (range, 0-1) to quantify the number of times a child saw the same provider. We modeled COC index as a time-varying variable using the same methodology described previously for WCC visit adherence. The COC index was based on all outpatient claims to clinical health care providers that contained at least 1 Evaluation and Management Service code for a sick (eg, 99213) or preventative care (eg, 99391) visit and/or had a WCC visit *ICD-9-CM* code in any of the diagnosis fields. For the COC index calculation, if 2 WCC visits occurred within 7 days of each other, the second visit was excluded to improve capturing only true WCC visits. This eliminated 2640 WCC visits from the eligible sample of 285 223.

The COC index is nonlinear¹³ and varies depending on the number of providers seen, the number of visits to each provider, and the total number of visits. An index of 0 represents seeing a different provider for all visits while an index of 1 represents seeing the same provider for all visits. An index of 0.30 corresponds to seeing 3 providers for 6 visits each while an index of 0.80 corresponds to seeing the same provider for all visits. The COC index was examined as both a continuous and categorical variable. However, it was modeled categorically to facilitate interpretation as follows: 0 to 0.25, 0.26 to 0.50, 0.51 to 0.74, and 0.75 to 1.0 (referent).

AMBULATORY CARE–SENSITIVE HOSPITALIZATIONS

Ambulatory care–sensitive hospitalizations was the main outcome measure for all analyses. Birth hospitalizations and hospitalizations prior to 7 days of age were excluded. A hospitalization was classified as an ACSH if the primary or secondary discharge diagnosis matched one of the ACSH conditions, as defined by the Agency for Healthcare Research and Quality.³³ The standard list of ACSH conditions for adults was modified by excluding any adult conditions (eg, angina), similar to other studies,³⁴ as well as congenital syphilis. The following additional ACSH diagnoses were included because they are highly applicable to children younger than 3 ¹/₂ years and/or vaccine preventable: acute respiratory tract infections (*ICD-9-CM* codes 464, 466),⁴ pneumococcal meningitis (*ICD-9-CM* code 320.1), streptococcal meningitis (*ICD-9-CM* code 038.41).

CHRONIC DISEASE STATUS

Based on previous literature,^{7,28,35} we classified children as having no chronic disease (ie, healthy) or as having 1 or more chronic disease. Children were classified as having 1 or more



Figure. Patient eligibility. Children were eligible for analysis if they had at least 4 outpatient visits prior to censoring, their enrollment period completely overlapped with at least 1 of the recommended well-child care visit age intervals, and they did not have incomplete claims information. WCC indicates well-child care.

chronic disease if they had 1 or more claims prior to exiting the study with a diagnosis included in a validated list of *ICD*-9-*CM* chronic disease codes for children.³⁶ Because diagnosing asthma in children younger than 4 years can be challenging,³⁷ 2 or more claims for asthma (*ICD*-9-*CM* code 493)¹³ were required for a child to be classified as having asthma.

STATISTICAL ANALYSIS

Univariate and bivariate analyses were performed to understand the non–time-dependent relationships between all independent variables and ACSH (a dichotomous variable). The *t* test was used for comparisons of continuous variables and the Pearson χ^2 test was used for comparisons of categorical variables. Our choice of covariates to adjust for in multivariate analyses were selected a priori based on the existing literature.^{6,28,34,35,38-46} Similar to other studies, patient age at start of enrollment^{28,34,35,38-46} and sex^{6,34,35,39-43,45,46} were adjusted for in all multivariate models. Geographical location, based on the child's billing address at the time of study entrance (Oahu vs other islands) was also included because of better access to care on Oahu resulting from a higher physician number per capita.⁴⁷

A Cox proportional hazards regression model was used to determine the association between WCC visit adherence, COC index, and time to first ACSH from birth. Well-child care visit adherence and COC index were modeled as time-varying categorical variables, as mentioned previously. Chronic disease was initially included as any chronic disease vs none. The proportional hazard assumption was tested for all models.

To assess for the presence of interactions, we compared models with the following interaction terms to models without them using the likelihood ratio test: WCC visit adherence (categorical) and chronic disease status (dichotomous), COC index (categorical) and chronic disease status (dichotomous), and WCC visit adherence (categorical) and COC index (categorical). We stratified for any relationship that was statistically significant at P < .05.

We also performed a sensitivity analysis using propensity scores to attempt to control for self-selection bias (eg, children at greatest risk for ACSH may also be less likely to be compliant with WCC visits).^{48,49} We predicted WCC visit adherence (categorical) propensity score probabilities with multinomial logistic regression using age at start of enrollment (continuous), chronic disease status (dichotomous), and island of residence based on billing address (dichotomous).

SAS 9.1 (SAS Inc, Cary, North Carolina) was used to create the data sets and STATA version 10 (StataCorp LP, College Station, Texas) was used to analyze the data. Statistical significance was determined at P < .05.

RESULTS

Of the 43 510 children who enrolled prior to 2 months of age, 37 811 (87%) had both an enrollment period that overlapped completely with at least 1 WCC visit interval and had at least 4 outpatient claims. Of these children, 867 (2%) were excluded owing to missing geographical location or a location outside of Hawaii. Thus, 36 944 (85%) children, with 35 078 (95%) followed up from birth, met the final eligibility requirements (**Figure**).

DEMOGRAPHICS

Healthy children and children with 1 or more chronic disease comprised 76% (n=28023) and 24% (n=8921) of the study population, respectively (**Table 1**). Among children with chronic disease, 47% were classified as having asthma (**Table 2**). The top 10 chronic disease diagnoses were present in 84% of children with 1 or more chronic disease.

The 2 groups of children were similar (Table 1). However, children with 1 or more chronic disease were in the study longer than healthy children (median, 41 vs 28 months; P < .001).

WCC VISIT ADHERENCE AND COC INDEX

Overall, children were recommended to have a median of 9 WCC visits (interquartile range, 5-10). For 85% of the children, WCC visit adherence was calculated based on at least 4 recommended WCC visits. Most children fell into the highest WCC visit adherence category (Table 1). This was similar for healthy children (74%) and children with 1 or more chronic disease (70%).

For COC index calculation, a median of 18 claims was used (interquartile range, 11-26). Compared with healthy children, children with 1 or more chronic disease had 10 more total outpatient claims, visited 1 more different provider, and had 9 more claims by a primary care physician. Most children (58%) fell into the highest COC index category (0.75 to 1). However, compared with healthy children, a lower percentage of children with 1 or more chronic disease fell into the highest COC index category (48% vs 61%; P < .001; Table 1).

AMBULATORY CARE–SENSITIVE HOSPITALIZATIONS

Of the 36 944 children eligible for study inclusion (Figure), 1396 (4%) had an ACSH. The median age of children with an ACSH was 14 months (interquartile range, 8-23). The proportion of children with an ACSH was 2.7 times greater for children with 1 or more chronic disease compared with healthy children (3% vs 7%; P < .001; Table 1).

Characteristic	No. (%)		
		Diagnosed With ≥1 Chronic Disease ^a	
	Total (N=36 944)	No (n=28 023)	Yes (n=8921)
WCC visit adherence,% ¹	b		
0-25	2854 (8)	2271 (8)	583 (7)
26-50	2200 (6)	1578 (6)	622 (7)
51-74	4849 (13)	3413 (12)	1436 (16)
75-100	27 041 (73)	20761 (74)	6280 (70)
COC index ^b		. ,	
0-0.25	925 (3)	627 (2)	298 (3)
0.26-0.50	6291 (17)	4271 (15)	2020 (23)
0.51-0.74	8284 (22)	5960 (22)	2324 (26)
0.75-1.0	21 444 (58)	17 165 (61)	4279 (48)
Geographic location			
Oahu	25 856 (70)	19740 (70)	6116 (69)
Non-Oahu	11 088 (30)	8283 (30)	2805 (31)
Sex			
Female	17726 (48)	13 823 (49)	3903 (44)
Male	19218 (52)	14 200 (51)	5018 (56)
Enrollment, mo			
Time in study (IQR)	31 (14-42)	28 (12-42)	41 (23-42
Age at start (IQR)	0 (0-0)	0 (0-0)	0 (0-0)
ACSH	1396 (4)	751 (3)	645 (7)

Abbreviations: ACSH, ambulatory care–sensitive hospitalizations; COC, continuity of care; IQR, interquartile range; WCC, well-child care. ${}^{a}P$ <.001 for all comparisons between children with 1 or more chronic disease and healthy children except for "age at start of enrollment" (P>.05).

^bWCC visit adherence and COC index for this table are based on values at exit from analysis.

More than three-quarters of all ACSH were accounted for by the following 5 conditions: dehydration (24%), acute respiratory tract infection (18%), bacterial pneumonia (17%), seizure (13%), and asthma (12%). While the top 5 conditions were similar for all children, the most common ACSH condition differed by chronic disease status, with asthma being the most common for children with 1 or more chronic disease (20%) and dehydration being the most common for healthy children (28%).

MULTIVARIATE, TIME-VARYING ANALYSES

The adjusted HR for all children together revealed that both high WCC visit adherence and COC index were associated with decreased risk of an ACSH (**Table 3**). The relationship between WCC visit adherence and risk of ACSH as well as COC index and risk of ACSH differed significantly by chronic disease status (Table 3). Our exploratory analysis revealed no statistically significant results when testing for interactions between WCC visit adherence and COC index. The results from the sensitivity analysis using propensity scores to determine whether self-selection bias was occurring were similar to the original model and did not change our conclusions (data not shown).

For children with 1 or more chronic disease, those in the lowest WCC visit adherence category had nearly 2 times the risk of an ACSH (HR, 1.9; 95% CI, 1.5-2.5) com-

Table 2. Top 10 Chronic Disease Classifications

Chronic Disease Classification	<i>ICD-9</i> Code	No. (%) ^a
Asthma	493	5142 (47)
Failure to thrive	783.4	1232 (11)
Congenital heart disease	745-747.9, 424.1-424.3	1172 (11)
Hereditary and acquired hemolytic anemia	282-283.9	514 (5)
Diseases of white blood cells	288-288.9	265 (2)
Epilepsy	345-345.9	239 (2)
Other congenital anomalies of nervous system	742-742.9	205 (2)
Tuberculosis	010-018	202 (2)
Inborn errors of metabolism	270-273.9	187 (2)
Remaining classifications	NA	1772 (16)

Abbreviations: *ICD-9, International Classification of Diseases, Ninth Revision*; NA, not applicable.

^a Total is larger than number of children with at least 1 chronic disease because 16% of children had more than 1 chronic disease.

pared with those in the highest category. The HR increased as WCC visit adherence decreased (Table 3). Similarly, those in the lowest COC index category had 2.4 times the risk of an ACSH (HR, 2.4; 95% CI, 1.7-3.5) compared with those in the highest COC index category. The HR also increased as COC index decreased (Table 3).

For healthy children, there was no significant association between WCC visit adherence and ACSH. In contrast, similar to children with 1 or more chronic disease, healthy children in the lowest COC index category had nearly 2 times (HR, 1.9; 95% CI, 1.2-2.9) the risk of an ACSH compared with those in the highest category. The HR increased as COC index decreased (Table 3).

COMMENT

For children with chronic disease, we found that high WCC visit adherence and COC were independently associated with decreased risk of ACSH. High COC was also associated with decreased risk of ACSH for healthy children. Our study is unique because, unlike prior studies evaluating the benefits of WCC visit adherence,³⁻⁷ we adjusted for COC (a well-established factor in reducing hospitalizations^{10,13,16,19,25,27,50}) and we present our results separately by chronic disease status, making policy implications more clear. This study suggests there is a need for efforts aimed at improving COC for all children as well as improving WCC visit adherence for children with chronic disease.

Regular WCC visits provide opportunities to help parents of children with chronic disease understand how to proactively manage their child's medical conditions, a key aspect of the Chronic Care Model⁵¹ and a top priority for these parents.⁵² A child whose disease is poorly controlled often requires higher levels of medical care, such as a hospitalization. Similar to a prior study of COC,¹³ our study lends support to the idea that, when children are sick, seeing their primary care provider increases the likelihood that medical decisions are made by somebody who is knowledgeable about and comfortable with the child's medical needs, which may prevent poor outcomes such as hospitalization. Thus, ensuring that children with chronic dis-

Variable	HR (95% CI)			
	All Children (N=36 944)	Diagnosed With ≥1 Chronic Disease		
		No (n=28 023)	Yes (n=8921)	
WCC visit adherence, %				
0-25	1.5 (1.2-1.7)	1.2 (0.9-1.5)	1.9 (1.5-2.5)	
26-50	1.3 (1.0-1.6)	1.1 (0.8-1.5)	1.5 (1.1-2.0)	
51-74	1.1 (0.9-1.3)	0.9 (0.7-1.2)	1.2 (1.0-1.6)	
75-100	1 [Reference]	1 [Reference]	1 [Reference	
COC index			-	
0-0.25	2.1 (1.6-2.8)	1.9 (1.2-2.9)	2.4 (1.7-3.5)	
0.26-0.50	1.5 (1.3-1.8)	1.3 (1.0-1.6)	1.8 (1.5-2.2	
0.51-0.74	1.4 (1.3-1.6)	1.5 (1.3-1.8)	1.4 (1.2-1.7	
0.75-1.0	1 [Reference]	1 [Reference]	1 [Reference	
Chronic disease	2.1 (1.9-2.4)	NA	NA	
Oahu	1.1 (0.9-1.2)	1.1 (0.9-1.3)	1.1 (0.9-1.2)	
Female	0.8 (0.7-0.9)	0.8 (0.7-1.0)	0.8 (0.7-1.0	
Age at start	0.9 (0.7-1.1)	1.0 (0.7-1.3)	0.8 (0.5-1.1	

Abbreviations: ACSH, ambulatory care–sensitive hospitalizations; CI, confidence interval; COC, continuity of care; HR, hazard ratio; NA, not applicable; WCC, well-child care.

^aReference category (if applicable) indicates no chronic disease, not from Oahu, and male. Age at start of enrollment (in months) was modeled as a continuous variable.

ease have access to continuous, comprehensive, and coordinated care with a personal primary care physician, all aspects of the American Academy of Pediatrics' medical home,⁵³ appears to be of key importance. Finding unique solutions that facilitate establishment of a medical home for these children may improve their COC, adherence to WCC visits, and health outcomes.

For young, healthy children, preventable hospitalizations may be owing to poor access to outpatient medical care or parents not knowing who to call when their child is sick owing to low COC. Our results examining the relationship between COC and ACSH were similar to previous studies that did not stratify by a child's chronic disease status.^{10,13,19} Although the content of WCC visits, such as immunizations, may prevent hospitalizations, WCC visit adherence in our study was likely a proxy for timely access to health care for young children. Our findings suggest that healthy children in the study population likely have adequate access to their primary care provider. Other WCC visit content (eg, providing age-appropriate injury prevention or monitoring a child's development) are more likely to affect outcomes not measured by ACSH such as decreasing emergency department visits or visits for injuries⁵⁴ or providing referrals for evaluation of potential developmental delays.55

LIMITATIONS

This study has several limitations. The study population included children enrolled in a single health plan in 1 state whose pediatric patients had high COC.^{8,11-15} Thus, the results may not be generalizable to other populations with more variability in COC. Future studies should be more representative and include both Medicaid and uninsured populations. As this study was observational, our findings represent associations rather than causal relationships. We could not adjust for all potential confounders owing to the limits of administrative data. Although previous authors identified "acute respiratory tract infections" as potentially avoidable hospitalizations,⁴ many of these hospitalizations may be due to factors (eg, hypoxia) unaffected by adequate outpatient care. In sensitivity analysis, we found similar results when excluding these hospitalizations (data not shown).

Self-selection bias may have resulted in children who are less adherent to the WCC visit schedule also being less adherent to other aspects of their health care (eg, less likely to take their medications or follow other treatment regiments), resulting in overestimation of the associations we have described. However, children who fell into each WCC visit adherence category had a similar number of total visits (WCC and other visits) per year in the study (median, 8-9; data not shown). Some children may have been misclassified into the chronic disease category, which would bias our results toward the null. However, the percentage of children in our study with asthma (11%) was similar to recent prevalence estimates for Hawaii (more than 9.8%).⁵⁶

We were unable to account for severity of chronic disease. If children with chronic disease with low WCC visit adherence were sicker than those with high WCC visit adherence, this would cause an overestimation of the association between WCC visit adherence and ACSH. However, we found that the top 10 chronic disease classifications and number of non-WCC visits for these children were similar within each WCC visit adherence category (data not shown). We were also unable to fully characterize the children in our sample with poor WCC visit adherence owing to the limits of the available data. Future research should determine who these children are as well as the specific mechanism by which WCC visits may prevent ACSH.

We excluded 6566 children (15%) who had incomplete data for geographic location or who did not meet the eligibility requirements for WCC visit adherence or COC index calculations. These ineligible children may be a higher-risk population because they were enrolled for shorter periods of time and had a higher percentage (6%) of ACSH (n=392) than the eligible population. Therefore, our findings may underestimate the strength of associations between WCC visit adherence, COC, and ACSH.

POLICY IMPLICATIONS

The complexity of caring for children with chronic disease can make prioritizing and attending all recommended WCC and subspecialty visits difficult for parents. Finding ways to facilitate this process may improve timely WCC visits. These children are also at increased risk of breakdowns in communication⁵⁷ between their multiple health care providers and between their providers and parents. This can result in fragmentation of medical care; therefore, improving communication and COC are also important. Health information technology solutions such as personal health records and shared medical records have the potential to improve timely WCC visits through automated appointment reminders and convenient appointment scheduling, improve communication through secured electronic messaging, and improve COC by substituting "provider COC" with "informational COC." Although health information technology is not the only way to potentially improve outcomes for children with chronic disease, it has been identified by the Institute of Medicine as a key component of achieving high quality care.⁵⁸ Future directions aimed at preventing ACSH should focus on finding unique solutions that help children with chronic disease obtain a medical home.

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Announcement

Trial Registration Required. In concert with the International Committee of Medical Journal Editors (ICMJE), *Archives of Pediatrics and Adolescent Medicine* will require, as a condition of consideration for publication, registration of all trials in a public trials registry (such as http://ClinicalTrials.gov). Trials must be registered at or before the onset of patient enrollment. This policy applies to any clinical trial starting enrollment after July 1, 2005. The trial registration number should be supplied at the time of submission.

For details about this new policy, and for information on how the ICMJE defines a clinical trial, see the editorials by DeAngelis et al in the September 8, 2004 (2004;292:1363-1364) and June 15, 2005 (2005;293: 2927-2929) issues of *JAMA*. Also see the Instructions to Authors on our Web site: www.archpediatrics.com.