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Communication About Child Development During Well-Child Visits: Impact of Parents' Evaluation of Developmental Status Screener With or Without an Informational Video

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Abstract

BACKGROUND—The American Academy of Pediatrics recommends periodic administration of standardized developmental screening instruments during well-child visits to facilitate timely identification of developmental delay. However, little is known about how parents and physicians communicate about child development or how screening impacts communication.

OBJECTIVE—Our goal was to examine whether parent-physician communication about child development is affected by (1) administration of a developmental screen or (2) video presentation on child development before well-child visits.

METHODS—Six primary care pediatricians in a practice serving predominantly Medicaid-insured children participated. Fifteen parents of children 9 to 31 months of age per pediatrician were assigned to 1 of 3 previsit conditions ($n = 89$): (1) usual care; (2) parent completed the Parents' Evaluation of Developmental Status screen; or (3) parent viewed 5-minute "activation" video before completing the Parents' Evaluation of Developmental Status. Visits were audiorecorded and coded by blinded raters using a classification system that assesses communication content. Outcomes included visit length, physicians' questions, information giving, reassurance or counseling about development, and parents' concerns and requests for developmentally related services.

RESULTS—Mean visit duration was similar for the 3 groups (22.5 minutes). Physicians made more information-giving and counseling statements about development and raised more developmental concerns in group 3 (video plus the Parents' Evaluation of Developmental Status) than in group 1 (usual care) visits. A trend toward increased use of such communication was also seen in group 2 (Parents' Evaluation of Developmental Status only). Parents were more likely to raise a

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developmental concern in group 3 than in group 1. No parent requested early intervention, therapy, or other related services.

CONCLUSIONS—Use of a validated screening test did not increase average visit duration, an important consideration in primary care. Although use of the Parents' Evaluation of Developmental Status alone led to some increase in parent-physician communication about development and developmental concerns, additional increase in communication was seen with the addition of a brief parent activation video shown before the Parents' Evaluation of Developmental Status was completed.

Keywords

developmental screening; parent activation; primary care; well-child visit

The American Academy of Pediatrics recently issued revised guidelines for developmental surveillance and screening, recommending that all children undergo screening using a validated tool at 9-, 18-, and 30- (or 24-) month well-child visits.¹ Surveillance is also recommended at each visit between birth and 5 years. Parent-completed questionnaires such as the Parents' Evaluation of Developmental Status (PEDS)² and Ages and Stages Questionnaires (ASQ)³ are increasingly being considered in primary care.^{4,5} These screens have favorable psychometric properties and take less time than provider-administered tools.¹

A few studies have described clinical experiences using parent-completed developmental screening questionnaires in primary care.^{6–8} Little is known, however, about how adoption of such questionnaires affects the content of communication between caregivers and medical providers. A potential benefit may be to help parents participate more actively during visits,^{9,10} resulting in greater communication about children's development and more family-centered care.^{11,12} Patients' participation in medical visits, health, and functioning can be increased by activation interventions involving brief coaching and information sharing.^{13–15} In adults with chronic conditions, self-ratings of patient activation are positively associated with ratings of quality of life, patient satisfaction, and well-being.¹⁰

Important functions of communication about child development during well-child visits are to increase parental awareness of developmental delays in affected children, and to improve follow-up with referrals to evaluation and treatment services. Identification of developmental concerns relies on parents' knowledge of typical development. Moreover, parents may not be aware that discussing their child's development with the pediatrician is a key part of well-child care. Therefore, it seems reasonable that prompting parents about typical development and the importance of parent input, in preparation for a visit, could enhance developmental discussions and screening, although this has not been tested empirically.

The aim of this pilot study was to examine the impact of using a validated screening tool that elicits parents' developmental concerns, the PEDS, on general and development-specific parent-physician communication. We also studied the effect of a video presentation intended to increase parental knowledge and activation. We hypothesized that communication about child development would be increased at visits with the PEDS compared with those without the PEDS. We anticipated that parents viewing the video before completing the PEDS would communicate more developmental questions or concerns than parents who did not complete the PEDS, or who completed the PEDS alone. We also sought to determine the effect of using the PEDS, with or without video, on visit duration, an important consideration for primary care.

METHODS

Participants

Physicians—Participants were 6 primary care pediatricians practicing at an academically affiliated county hospital-based practice in Northeast Ohio that serves mainly urban, low-income families. Four pediatricians were women and 2 were men; their mean age was 42.2 years (SD: 6.5), and they were each in practice an average of 12 years (SD: 7.9). Five were white and 1 was black.

Parents and Children—Fifteen parents of children 9 to 31 months of age per provider were recruited at well-child visits ($n = 89$). Children with previous diagnosis of developmental delay or known developmental condition, enrolled in early intervention (EI) services, or born >8 weeks prematurely were excluded. Only English-speaking parents were included.

Measures

Demographic Questionnaire—Parents and physicians completed a 1-page demographic check-box format questionnaire.

Structured Developmental Screen—The PEDS, a validated 10-item questionnaire, elicits parental concerns in multiple developmental areas and takes 2 to 5 minutes to complete.² The PEDS distinguishes between parental concerns that are "predictive" of an actual developmental problem, and those that are not. The predictiveness of concerns varies by age (eg, at 18 months, receptive language concerns are predictive, but behavioral concerns are not). The PEDS was scored as positive (failed) if parents expressed ≥ 1 predictive concern. The PEDS has moderate sensitivity (0.79) and specificity (0.80).^{1,2} Parents completed the PEDS in the waiting room, and pediatricians reviewed and scored it before the visit.

Comparison Screen of Developmental Status—The ASQ³ was administered to all parents to have a uniform measure of developmental status between groups. ASQ, a series of age-based parent-completed questionnaires, consists of 30 questions about developmental skills in 5 areas, yields a pass/fail score (>2 SDs below the mean), and takes parents 10 to 15 minutes to complete; standard scoring. ASQ has moderate to good sensitivity (0.70–0.90) and specificity (0.76–0.91).^{3,16} It is designed to identify children whose performance is 1.5 SD below the mean compared with a professionally administered standardized test of development, such as the Bayley Scales of Infant Development.³ Parents completed the ASQ immediately after the visit. Study staff scored it, and results were shared with physicians and parents by letter.

Development and Content of Parent Video—A 5-minute video was developed that included: (1) information about developmental skills expected for most children the child's age (90th percentile data from Capute Scales¹⁷ and Denver-II¹⁸ manuals); (2) parent activation messages, emphasizing the importance of parents' questions and concerns and parents' expertise about their child; and (3) the purpose and contact information of the County's EI agency. The 6 age-based versions of the video were based on information appropriate for parents of children of between 9 and 30 months of age. Each version contained the same activation messages, but different information about expected skills in multiple developmental areas (eg, speech and language, problem-solving, adaptive and fine motor, gross motor, and social skills), with versions for children 9, 12, 15, 18, 24, or 30 months of age. The video was piloted with several parents.

Study Procedures

Parent recruitment took place between November 2006 and June 2007. Research staff approached parents in the waiting room to describe the study, and review inclusion criteria and informed consent. A total of 124 parents were approached: 20 declined (10 were not interested; 9 did not have time; and 1 did not want the visit audiorecorded); 15 were not eligible (9 children had been diagnosed with a delay, and/or were receiving EI; 3 were not the child's legal guardian; 1 was a minor who could not consent for research in Ohio; and 2 children were born very prematurely). Overall, 89 parents (82% of those potentially eligible) agreed to participate.

We used a posttest quasi-experimental design with mixed-models analyses. In the first part of the study, pediatricians' usual care was sampled by enrolling 5 parent-child pairs per provider (group 1; $n = 29$ [1 completed 4 visits]). As in many practices, providers did not routinely use a validated developmental screening tool.^{4,5}

After collection of group 1 data, providers participated in a 1-hour workshop on use, scoring, and interpretation of the PEDS, and review of EI resources. Physicians used the PEDS clinically for 2 half-day sessions with research staff support before using the PEDS in study visits.

In the second part of the study, 5 visits were sampled per provider using the PEDS alone (group 2; $n = 30$), and 5 using the video followed by the PEDS (group 3; $n = 30$). Parent-child dyads were alternately assigned to groups 2 and 3, although children were only assigned to group 3 if they were within 1 month of the age of a video version. Each parent-child dyad participated in only 1 group.

Parents completed 2 forms before the visit: (1) a demographic questionnaire, and (2) the PEDS² screener (groups 2 and 3 only). Parents in group 3 viewed the video on a portable DVD player before completing the PEDS. The PEDS was attached to the chart with a blank interpretation form. Visits were audiorecorded by using a digital recorder (model VN-960PC, Olympus, USA, Center Valley, PA); research staff was not present in the examination room. After the visit, parents completed ASQ.³ Research staff offered all parents to read questionnaires together, to address literacy barriers.

After each visit, physicians completed a 1-page checkbox form indicating their assessment of the child's development (no concern about delay versus concerning/ suspicious for delay) in multiple areas (gross motor, fine motor, expressive language, receptive language, social, and cognitive skills) and behavior; whether the next visit would be according to schedule, or sooner; and the need for any referrals.

The conduct of this study was approved by institutional review boards at University Hospitals of Cleveland and MetroHealth Medical Center, Cleveland, Ohio.

Data Analysis

Coding of Audiorecordings—A modified version of the Roter Interaction Analysis System (RIAS),¹⁹ a widely used, validated communication coding system for medical visits, was used to code audiorecordings.^{20–22} With input from a pediatric psychologist and primary care pediatrician, we selected categories relevant to parents' participation and parent/physician communication about child development (Table 1). A code book was developed. Coding order was assigned randomly, and coders were blinded to group assignment.

The outcomes measured were (1) visit length, (2) number of open-ended questions about development and health and close-ended questions, information giving, reassurance or counseling about development (for physicians), and (3) number of developmental and health-

related questions or concerns and information giving, reassurance seeking, and requests for developmentally related services (for parents).

Interrater Reliability—Two coders (Ms Keilman and Dr Sices) co-coded 4 recordings to establish rating agreement, and coded 2 additional recordings semi-independently, resolving differences by discussion. Next, 19 audiorecordings were independently coded by the raters: the next 6 audiorecordings, to confirm coding reliability, and 13 recordings selected intermittently over the coding period, to prevent coding drift. One coder (Ms Keilman) coded 89 audiorecordings, and another (Dr Sices) coded 25. Intraclass correlation coefficients (ICCs) were calculated for 6 continuous measures for 19 independently coded recordings. ICCs ranged from 0.66 to 0.95 (physician: total number of open-ended questions [ICC: 0.93]; close-ended questions about child development/behavior [ICC: 0.95]; reassurance statements [ICC: 0.87]; parent: total number of questions [ICC 0.86]; questions about health concerns [ICC 0.66]; statements seeking reassurance [ICC 0.95]).

Outcomes—Dependent measures included parent-physician communication about development using RIAS categorization. The main predictor was intervention status (group). Because this was a pilot, we had insufficient power to test predictors such as demographic characteristics. Outcome measures for individual patients were considered correlated observations attributable to clustering within the physician.

The 2-sample *t* test was used to compare demographic characteristics between groups for continuous variables, and Pearson χ^2 was used for categorical variables (Table 2). These were not adjusted for physician effect.

The effect of group on communication outcomes was measured by comparing group means; linear regression was used for continuous, and Pearson χ^2 for categorical outcomes (Table 3 and Table 4). To address clustering of data by physician, we used a mixed-models analysis for continuous outcomes, with compound symmetry covariance structure.²³ Adjustment for multiple group comparisons was made using the method of Sidak.²⁴ Generalized estimating equations were used to adjust for clustering for binomial/categorical outcomes. Analyses were conducted using SPSS 15.0 software.²⁵

RESULTS

Demographic Characteristics

Parents were mainly mothers of diverse racial and ethnic backgrounds; almost half had a high school education or less; most were unmarried (Table 2). Mean child age was 17 months, and most were Medicaid-insured. Distribution of demographic characteristics was similar among groups.

Impact of the PEDS and Video on Visit Duration

After adjusting for physician effect, mean visit duration (with providers) was similar between groups and was not affected by the PEDS, with or without video ($P = .78$) (mean duration: 22.5 minutes [SD: 5.6]) (Table 3). Significantly more time was spent discussing child development or behavior in group 3 (video plus the PEDS) than in group 1 (usual care) visits (mean 6.6 vs 4.6 minutes, respectively; $P < .05$).

Impact of the PEDS and Video on Communication

We found no group differences in physicians' use of open- or close-ended questions, or statements of reassurance (Table 4). Providers used open-ended questions to elicit concerns about children's health or development at 77 (86.5%) of 89 visits. At 12 visits, providers did

not use such open-ended questions: 5 of 6 providers were included. Physicians made more information-giving and counseling statements about development and raised more developmental concerns in group 3 (the PEDS plus video) than in group 1 (usual care) ($P < .05$). There were also trends toward increases in group 2 compared with group 1, although this did not reach statistical significance.

There were no group differences in the number of parental developmental (mean: 0.16; SD: 0.47) or health-related questions (mean: 4.0; SD: 2.9). There was a trend toward increased statements of developmental concern by parents in group 2 compared with group 1 (mean: 1.4 [95% confidence interval (CI): 0.8–2.0] vs 0.6 [95% CI: 0.001–1.2]), and this trend reached statistical significance in group 3 (mean: 1.7 [95% CI: 1.1–2.3]; $P < .05$). The most frequent communication category about development was closed-ended physician questions about milestones (mean: 10.8 questions; SD: 4.5), and informational responses by parents (mean: 11.1; SD: 4.8; no group differences).

Impact of the PEDS and Video on EI Referral

No parent requested referral to developmental-behavioral services (eg, EI, therapist, medical specialist). Thirtyseven percent (22 of 60) of the children in groups 2 and 3 failed the PEDS, and 20.2% (18 of 89) of the children in all 3 groups failed the ASQ. Ten percent of children were referred for additional evaluation. Overall, 4 (4.5%) children were referred to EI.

DISCUSSION

To our knowledge, this is the first study to examine the impact of a developmental screening tool on parent/physician communication, by analyzing audiorecording of well-child visits in primary care. Compared with usual practice, use of the PEDS² produced trends in increased use of statements and questions by providers and parents related to development and developmental concerns. Because of sample size limitations, however, these trends did not reach statistical significance. Addition of an activation video before completing the PEDS was associated with a significant increase in communication about development and developmental concerns in this urban, mainly lower income sample.

The duration of visits with providers was similar between groups and was not affected by the PEDS, with or without video. Mean visit duration (22.5 minutes) was consistent with provider visit duration in public practices reported by LeBaron (median: 18.9 minutes; 75th percentile: 23.5 minutes).²⁶ By chance, more children in the PEDS groups failed the ASQ comparison screen than in the usual care group. Despite the higher prevalence of children with suspected developmental delays (based on the ASQ) in the PEDS groups, use of the PEDS did not significantly increase visit duration. Although time spent discussing child development and behavior topics increased an average of 1 and 2 minutes, respectively, in the PEDS and video plus PEDS groups compared with usual care, providers seemed to compensate for this, maintaining similar average visit duration overall. This should be reassuring to providers who might hesitate to use this type of tool because of time concerns.⁴ Although it can be argued that use of the PEDS increased discussion of child development at the expense of other important topics, parents have identified development and behavior as topics they want to spend more time discussing with providers.^{27,28}

A study of parent-provider communication in primary care settings found that providers' use of simple techniques, such as asking questions about psychosocial issues and making supportive statements, increased parents' disclosure of psychosocial concerns.²⁹ Conversely, providers' use of leading questions or avoidant responses to parental disclosures of psychosocial issues at previous visits were associated with decreased likelihood of parental disclosure.³⁰ Brief patient activation strategies involving coaching or providing information

to increase patient's involvement in medical encounters have been found to improve patient participation, as well as health and functioning.^{13–15} In a randomized trial in community primary care practices, a brief informational activation intervention (individualized written information to patients and providers based on patients' concerns) improved geriatric patients' report of receiving assistance with health and functional problems.¹³ Our results also suggest that use of brief parent activation strategies can affect parent-provider communication. Despite evidence of the effectiveness of such activation strategies, they do not seem to be widely used in practice.

Communication about development focused on physicians' inquiry about developmental milestones, and parents' informational responses. This pattern did not change in those in the PEDS groups. Although reviewing milestones may give providers a sense of children's functioning, this approach seems time-consuming, and it is unclear how providers use this information to make decisions about the need for additional screening or evaluation.³¹

Of note, no parent made a specific request for referral to developmental-behavioral services (eg, EI, therapist, medical specialist). This finding shows that even when parents have the opportunity to formally express concerns (on the PEDS) and receive brief coaching on the importance of their concerns and the availability of EI, they seem unlikely to explicitly request referrals. This places the onus on providers to discuss and/or offer such services.

Although parents of 22 children indicated developmental concerns suggesting possible developmental delay on the PEDS, only 4 children were referred to EI, an agency that is equipped to provide secondary screening and evaluations. Providers likely used clinical judgment in deciding whether to refer a child, in some cases electing to have a child come back sooner than the next scheduled visit. This may be an appropriate management strategy for increased developmental surveillance.³² However, previous studies suggest that many children are not referred to evaluation and treatment services in a timely way, and that decisions to watch and wait lead to delays in diagnosis.^{33–35} In addition, the limited number of children referred to EI in our sample is of concern, given the high expected prevalence of developmental delays in low-income populations.^{36–38} (In the general population, ~10% of children are estimated to have a developmental delay.³⁹ Among children under the age of 3 living in poverty, the prevalence of language delays is reported to be as high as 50%.⁴⁰)

One possible explanation in cases where children failed the PEDS but there was no referral may be ignoring or undervaluing parental concerns. In a study of provider responses to parent psychosocial concerns in well-child visits in primary care, Sharp⁴¹ found that 37% of physician responses included psychosocial information and/or action, medical information and/or action, or both; but that in 17% of cases the concern was ignored by physicians, in 43% of cases providers asked additional questions but provided no information or guidance; and in 3%, physicians provided reassurance. Clayman and Wissow⁴² found that physicians' responses to ambiguous terms used by parents to raise sensitive topics related to child behavior and discipline varied significantly, from seeking clarification (11%) to ignoring (38%), and that these differences were associated with the length of the relationship with the physician, as well as the physician's style of interaction.

This study has several limitations. It was planned as a pilot, and therefore does not have the power to examine smaller differences in effects between groups. By chance, there were fewer children with developmental delays identified using the comparison screener, ASQ, in the usual care group, which may have affected our results. However, a sample size of 89 is moderately large for an analysis of audiorecordings. Physicians' awareness of the focus of the study may have led to increased surveillance and discussion of child development and behavior topics.

We are not aware of previous studies measuring the duration of child development and behavior discussions during well-child visits for comparison.

Because the study was conducted in a single practice, results may not be generalizable to other settings, but may be to practices serving urban, lower-income, English-speaking families. Children living in poverty are at increased risk for developmental delays, a reason this practice was selected.^{36,37,43}

CONCLUSIONS

These preliminary results point to the potential benefit of structured developmental screening, as well as providing parents with brief, focused activation messages in increasing parent-provider communication about child development. A developmental screening tool such as the PEDS has the potential to positively alter the quality of the physician-parent interaction, without increasing visit duration. Adding an activation video before parents completed the PEDS led to more information-giving and counseling about developmental issues. Additional research with a larger sample will help examine the relevant questions raised by this pilot study.

What's Known on This Subject

Brief patient activation interventions increase patient participation during medical visits, improve health and functioning in adults with chronic conditions. Parent activation combined with use of parent-completed developmental screens may increase communication about child development, the first step in identifying development delays.

What This Study Adds

This study demonstrates the positive impact of a parent-completed developmental screen on parent-physician communication, and the additional effect of a parent activation intervention on that communication in primary care.

Abbreviations

PEDS, Parents' Evaluation of Developmental Status; ASQ, Ages and Stages Questionnaires; EI, early intervention; RIAS, Roter Interaction Analysis System; ICC, intraclass correlation coefficient; CI, confidence interval.

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TABLE 1
Types of Communication Coded in the Study

Content Category	Description ^a	Example
Physician		
Questions		
Open-ended: general health concern	Broad health questions not specific to CD/B	"What concerns do you have about him today?"
Open-ended: CD/B general concerns	Probes general concerns about CD/B	"So what new things is he up to these days?"
Open-ended: CD/B area specific	Questions/probes specific to an area of CD/B (eg, Speech)	"How's her speech?"
Closed-ended: CD/B	Questions answered with a yes/no or 1 word answer	"Is he running yet?"
Statements related to CD/B		
Reassuring, encouraging	Shows optimism, encourages, reassures specific to child	"She seems to be able to do all the motor things." "Her development seems fine."
Legitimizing/empathizing	Normalizes or acknowledges parental concerns	"And it's hard "cause they give you that little pouty face." "Probably that's a reasonable concern."
Information giving	Neutral content about typical skills/behavior or resources	"At this age they should have a couple of words besides mama and dada."
Raising a concern	States something is abnormal, treatment/intervention needed	"Her speech may be fine but she may be a little behind." "He should have more words than mama, dada at this point."
Counseling	States treatment plan, instructs parent on what to do at home	"One of the things I would encourage you to do is to read to her."
Parent		
Questions		
Open-ended: CD/B	Broad questions asking for an explanation	"How does that affect brain development?" (not gaining weight)
Closed-ended: CD/B	Questions answered with a yes/no or 1 word answer	"For how long [should I do time out], a minute since he's going to be 1?"
Other health topics	Questions about other health topics	"She looks too big for her age, doesn't she?"
Statements related to CD/B		
Information giving	Facts/opinions describing CD/B	"It seems like he says mama and dada."
Asking for reassurance	Shows need or desire to be reassured or encouraged	"I just want to make sure I'm doing the right thing."
Raising a concern	Expresses worry about child	"He doesn't really talk too much yet."

CD/B indicates related to child development/behavior.

^aCategories are from the RIAS.²⁰

TABLE 2
Demographic Characteristics of Parent and Child Participants

Characteristics	Group 1: Usual Practice (<i>n</i> = 29)	Group 2: PEDS (<i>n</i> = 30)	Group 3: Video and PEDS (<i>n</i> = 30)	Total (<i>N</i> = 89)	<i>P</i> value
Parent characteristics					
Relationship to child, <i>n</i> (%)					
Mother	27 (93.1)	29 (96.7)	28 (93.3)	84 (94.4)	NS
Father	2 (6.9)	1 (3.3)	2 (6.7)	5 (5.6)	
Mean age, <i>y</i> (SD)	26.3 (5.8)	26.4 (5.5)	26.6 (5.8)	26.4 (5.6)	NS
Ethnicity, <i>n</i> (%)					
Hispanic or Latino	7 (24.1)	1 (3.3)	4 (13.3)	12 (13.5)	NS
Not Hispanic or Latino	22 (75.9)	29 (96.7)	26 (86.7)	77 (86.5)	
Race, <i>n</i> (%)					
Black/African American	8 (27.6)	15 (50)	11 (36.7)	34 (38.2)	NS
White/Caucasian	10 (34.5)	14 (46.7)	13 (43.3)	37 (41.6)	
Other	11 (37.9)	1 (3.3)	6 (20.0)	18 (20.2)	
Education, <i>n</i> (%)					
Elementary, junior high, or some high school	4 (13.8)	5 (16.7)	3 (10.0)	12 (13.5)	NS
High school diploma/GED certificate	8 (27.6)	10 (33.3)	12 (40.0)	30 (33.7)	
Associates degree or some college	12 (41.1)	11 (36.7)	9 (30.0)	32 (36.0)	
College or graduate degree	5 (17.2)	4 (13.3)	6 (20.0)	15 (16.8)	
Marital status, <i>n</i> (%)					
Married	11 (37.9)	8 (26.7)	12 (40.0)	31 (34.8)	NS
Not married	18 (62.1)	22 (73.3)	18 (60.0)	58 (65.2)	
Child characteristics					
Gender, <i>n</i> (%)					
Male	16 (55.2)	19 (63.3)	16 (53.3)	51 (57.3)	NS
Female	13 (44.8)	11 (36.7)	14 (46.7)	38 (42.7)	
Mean age, mo (SD)	16.0 (5.9)	17.8 (6.6)	17.3 (5.6)	17.1 (6.1)	NS
Type of medical insurance, <i>n</i> (%)					
Medicaid or other public insurance	23 (79.3)	23 (76.7)	23 (77.5)	69 (77.5)	NS
Private	6 (20.7)	7 (23.3)	6 (20.0)	19 (21.3)	
Unknown	0	0	1 (3.3)	1 (1.1)	

Characteristics	Group 1: Usual Practice (n = 29)	Group 2: PEDS (n = 30)	Group 3: Video and PEDS (n = 30)	Total (N = 89)	P value
NS indicates not significant; GED, general equivalency diploma.					

TABLE 3
Characteristics of Well-Child Visits and Child's Developmental Status (Adjusted for Clustering by Physician)

	Total (SD) (N = 89)	Group 1: Usual Practice (SD) (n = 29)	Group 2: PEDS (SD) (n = 30)	Group 3: Video and PEDS (SD) (n = 30)	F Test/ χ^2	Overall P
Visit characteristics						
Duration, min (95% CI)	22.5 (5.6)	22.4 (20.1–24.7)	23.0 (20.7–25.2)	22.0 (19.8–24.3)	0.25 (F)	.78
Length of CD/B discussion, min (95% CI)	5.7 (3.3)	4.6 (3.3–5.8)	5.9 (4.7–7.1)	6.6 (5.4–7.8) ^a	3.060 (F)	.052
Child's developmental status						
Physician's rating of CD/B, n(%)						
No concern	71 (79.8)	26 (89.7)	23 (76.7)	22 (73.3)	3.81 (χ^2)	.15
Concern	18 (20.2)	3 (10.3)	7 (23.3)	8 (26.7)		
PEDS screener result						
Pass (no pediatric concerns)	38 (63.3)	NA	20 (66.7)	18 (60)	0.24 (χ^2)	.62
Fail (1 or more predictive concerns)	22 (36.7)	NA	10 (33.3)	12 (40)		
ASQ screener result						
Pass, n (%)	71 (79.8)	27 (93.1)	23 (76.7) ^a	21 (70.0) ^a	5.29 (χ^2)	.071
Fail, n (%)	18 (20.2)	2 (6.9)	7 (23.3)	9 (30.0)		
Timing of next visit						
Normal schedule	72 (80.9)	25 (86.2)	26 (86.7)	21 (70.0)	6.00 (χ^2)	.051
See child back sooner than normal	15 (16.8)	3 (10.3)	3 (10.0)	9 (30.0)		
Physician referrals at end of visit						
No referral needed	80 (89.9)	28 (96.6)	26 (86.7)	26 (86.7)	1.50 (χ^2)	.47
Referral made (total)	9 (10.1)	1 (3.4)	4 (13.3)	4 (13.3)		
Referral to (n)						
EI	4	0	1	3	—	—
Hearing test/audiology	3	0	1	2	—	—
Physical therapy	1	0	1	0	—	—
Speech therapy, occupational therapy, or mental health	0	0	0	0	—	—
Medical or developmental specialist	2	0	2	0	—	—
Other	3	1	0	2	—	—

CD/B indicates child development or behavior; NA, not applicable.

^aSignificantly different from usual practice (group 1); $P < .05$.

TABLE 4
Communication Content During Well-Child Visits (Adjusted for Clustering by Physician)

Content Category	Total, Mean (SD) (N = 89)	Group 1: Usual Practice (n = 29), Mean (95% CI)	Group 2: PEDS (n = 30), Mean (95% CI)	Group 3: Video and PEDS (n = 30), Mean (95% CI)	F Test	Overall P
Physician communication						
Questions						
Open-ended: general health concern	1.2 (0.8)	1.2 (0.9 to 1.6)	1.3 (1.0 to 1.6)	1.1 (0.8 to 1.4)	0.359	.70
Open-ended: CD/B general concerns	0.36 (0.57)	0.41 (0.09 to 0.72)	0.30 (−0.01 to 0.61)	0.37 (0.06 to 0.68)	0.300	.74
Open-ended: CD/B area specific	2.5 (2.4)	2.2 (0.3 to 4.0)	2.7 (0.9 to 4.6)	2.6 (0.8 to 4.5)	0.771	.47
Open-ended TOTAL	4.1 (2.6)	3.8 (1.7 to 5.9)	4.3 (2.2 to 6.4)	4.1 (2.0 to 6.2)	0.505	.61
Closed-ended: CD/B	10.8 (4.5)	10.6 (7.8 to 13.5)	10.6 (7.7 to 13.5)	11.2 (8.4 to 14.1)	0.254	.78
Statements related to CD/B						
Reassuring, encouraging	3.2 (2.4)	2.6 (1.4 to 3.8)	3.1 (1.9 to 4.3)	4.0 (2.8 to 5.1)	2.846	.064
Legitimizing/empathizing	0.53 (1.10)	0.25 (−0.22 to 0.71)	0.43 (−0.03 to 0.90)	0.90 (0.43 to 1.37)	3.065	.052
Information giving	1.6 (1.6)	0.9 (0.4 to 1.5)	1.6 (1.1 to 2.2)	2.1 (1.6 to 2.7) ^a	4.611	.013
Raising a concern	0.22 (0.60)	0.00 (−0.21 to 0.21)	0.23 (0.02 to 0.44)	0.43 (0.22 to 0.64) ^a	4.149	.019
Counseling	2.1 (2.5)	1.2 (0.2 to 2.2)	2.1 (1.1 to 3.1)	3.0 (2.0 to 4.0) ^a	4.325	.016
Parent communication						
Questions						
Closed-ended: CD/B	0.16 (0.47)	0.14 (−0.10 to 0.40)	0.20 (−0.49 to 0.45)	0.13 (−0.12 to 0.38)	0.185	.83
Other health topics	4.0 (2.9)	4.5 (3.4 to 5.6)	4.1 (3.0 to 5.2)	3.5 (2.4 to 4.6)	0.854	.43
Total questions (need to double-check definition)	5.7 (4.1)	5.4 (3.6 to 7.1)	5.9 (4.2 to 7.6)	5.9 (54.2 to 7.6)	0.187	.83
Statements related to CD/B						
Information giving	12.0 (5.4)	11.1 (8.8 to 13.5)	12.2 (9.9 to 14.6)	12.6 (10.2 to 14.9)	0.557	.56
Asking for reassurance	0.27 (0.56)	0.10 (−0.10 to 0.31)	0.27 (0.07 to 0.47)	0.43 (0.23 to 0.63)	2.662	.076
Raising a concern	1.3 (1.7)	0.6 (0.001 to 1.2)	1.4 (0.8 to 2.0)	1.7 (1.1 to 2.3) ^a	3.236	.044

CD/B indicates related to child development or behavior.

^aSignificantly different from usual practice (group 1), $P < .05$