



Comparing four methods to inform parents about child behavior management: how to inform for consent

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Abstract

One hundred twenty parents were shown descriptions of eight traditional behavior management techniques via one of four different presentation methods: one of two types of video presentation, an oral presentation, or a written presentation. They were asked whether they felt well informed about each technique and asked for consent to perform any one of the techniques that might be needed with their child. Fisher's exact test found that a written explanation resulted in parents who felt well informed significantly less often than those in the other conditions, while an oral presentation resulted in parents who felt well informed more often than those in the other groups, although this difference was not statistically significant. An analysis of variance (ANOVA) found no significant differences between the four conditions with respect to parents providing consent, however, exact tests found the oral method produced significantly better consent for some individual procedures. More than 60% of the parents considered information about each technique to be material or consequential to their decision to consent. Acceptability was correlated with consent, however, more than 10% of the respondents reported incongruencies between consent and acceptability (high approval ratings without subsequent consent or low approval ratings followed by consent). Overall, the oral method of delivering information to parents about child behavior management techniques was the best method of ensuring that the average parent felt informed and was likely to consent. (Pediatr Dent 17:180-86, 1995)

The acceptability of pediatric dental behavior management technology recently has become a serious concern for many dentists. Although traditional management techniques such as physical restraint, conscious sedation, voice control, and the hand-over-mouth procedure are widely used and endorsed, many pediatric dentists are now concerned with legal and ethical concerns regarding these techniques.¹ These concerns seem justified, given that adherence to the professional community standard for

determining acceptable behavior management practices is no longer sufficient in many states.² Increasingly, the acceptability of behavior management practices is being held to the reasonable patient or materiality standard. This standard requires that the dentist discuss with the patient all the information material or important to a decision to consent or not.^{3,4} State standards for disclosure have provided increasing support for the patient's right to choose to refuse altogether any objectionable aspect of treatment, even if it seems unreasonable to the health care professional.⁵ Indeed, lawsuits often focus on whether informed consent was obtained, not whether actual treatment was competent or required.⁶ Dentists must learn to practice dentistry with attention to changing legal and societal concerns and demands.

One result of the changing standards has been a dramatic increase in research concerning parental attitudes about traditional dental management techniques.⁷⁻¹³ These studies however, have focused exclusively on parents' perceptions of traditional management techniques. Perceptions help determine the acceptability of behavior management techniques and perceptions of acceptability have been one of the most important factors influencing dental school curriculum changes.¹⁴ However, perceptions offer insufficient information for dentists concerned with the legal aspects of informed consent. Under the reasonable patient standard, informed consent requires two components: 1) all the information that an average (reasonable) patient would deem material or important to consent, and 2) the expressed consent, usually written. Courts may require dentists to prove that a patient provided consent, which is easier to do if written documentation exists.^{6,15}

Acceptability, which carries with it at best only implied consent and is difficult to prove, does not address parental willingness to provide informed written consent for use of techniques with their own children. No empirical studies have documented how readily par-

ents would consent to traditional behavior management techniques once they have been informed. In addition, little information is available about how best to inform parents about these behavior management techniques so that they feel well informed and consent is obtained. While the prudent practitioner has been advised to pursue a course of practice that will satisfy the most rigorous informed consent scenario,² this has not been empirically derived. For example, videotapes are used increasingly to provide patients with information about dental/medical procedures, but their effectiveness in providing information or eliciting consent for behavior management techniques in the dental clinic is unknown.^{6,7} In addition, variables such as socioeconomic status¹³ and parental anxiety¹⁶ have been found to influence parental attitudes about dental procedures, but their influence on parental consent is uncertain. Although the courts have established legal standards, the American Academy of Pediatric Dentistry could adopt a "practice standard" (i.e., the strongest criteria for practice).¹⁷ The Academy, however, has adopted "guidelines" of obtaining informed consent prior to use of behavior management techniques, rather than a standard. Establishing a practice standard would require a base of scientific evidence about obtaining informed consent that does not exist at this writing.

This investigation compares four methods for informing parents to gain their consent for eight pediatric dentistry behavior management techniques. This research was designed to determine:

1. How best to inform the reasonable patient (in this case, parents) about each of eight traditional management procedures
2. Which procedures parents feel should require informed consent prior to implementation
3. Which of the traditional child behavior management procedures parents are willing to consent for their child
4. Variables that may influence parental willingness to consent.

Method

Subjects

One hundred twenty parents of children attending the University of Nebraska Pediatric Dental Clinic were recruited for participation following approval from the Institutional Review Board's Human Subjects Review Committee. All participants were literate, English-speaking parents accompanying children from 2 to 8 years of age scheduled for a new patient or recall examination.

Setting

Participants completed preliminary forms while seated in a large reception area. Information about dental behavior management techniques was provided in a small consultation room adjacent to the reception

area. It was furnished with comfortable chairs, a small table, and a portable 9-inch color TV/VCR unit.

Independent variable

Descriptions of eight traditional child behavior management techniques in pediatric dentistry were provided for parental consent:

1. Tell-show-do (TSD)
2. Nitrous oxide (NO)
3. Passive restraint (Papoose Board® Olympic Medical Group, Seattle, WA) (PR)
4. Voice control (VC)
5. Hand-over-mouth (HOM)
6. Oral premedication (OP)
7. Active/physical restraint (AR)
8. General anesthesia (GA).

The descriptions of these techniques were provided by one of four methods of information delivery.

1. Video 1 was a videotaped depiction of each technique being used on a young patient during a live office visit, with each technique labeled. A dentist provided an accompanying explanation and description of each technique before it was demonstrated on the tape.
2. Video 2 was a videotaped depiction of each technique being used on a young patient during a live office visit, with each technique labeled, but no accompanying explanation or description.
3. Written presentation included the label, explanation, and description of each technique from Video 1 on office stationery to create a written form for parental consent (Fig 1).
4. Oral presentation involved a research assistant, posing as an office staff person, presenting orally the exact information contained in the written form. The written form had been memorized to avoid reading directly but the written form was present to prompt the presenter if necessary.

The two videotapes had been used in previous research.¹¹ These were modified slightly to include an introduction from a dentist in our office to strengthen the authenticity of the videos as a means of soliciting consent.

Materials

Parents completed a brief demographic intake form, requesting information about the age of the child, the parent's years of education and present occupation, and their own anxiety about the child's dental visit, rated on a four-point Likert-type scale, ranging from 1 (high anxiety) to 4 (low anxiety).

Each of the eight behavior management techniques was listed on a separate Pediatric Behavior Management Consent Form. Under each technique on the form was the question, "How much do you like this method?"

FIG 1. BEHAVIOR MANAGEMENT CONSENT FORM

As pediatric dentists, we enjoy treating children, but there are a variety of concerns when dealing with their behavior. Some children may need assistance to cooperate. That is why we have received special training to help guide children through the dental experience and make it a pleasurable one. The purpose of this form is to explain the various methods we may use to manage young children, and to get your opinions of them, as well as your consent for use with your child.

Tell-show-do

Tell-show-do is a method used with children in which we explain what is to be expected at today's visit. First, we tell them what is to be done. Then we show them how it is done, and finally we do the procedure.

Nitrous oxide sedation

Some anxious children are given nitrous oxide, or what you may know as laughing gas, to relax them for their dental treatment. The nitrous oxide is given through a small breathing mask which is placed over the child's nose, allowing them to relax, but without putting them to sleep. As soon as the mask is removed, the effects of the gas wear off within five minutes.

Passive restraint (Papoose Board)

Passive restraint with a papoose board is used to keep an uncooperative child from making movements and allows the dentist to provide treatment. The child is wrapped in the papoose board like a blanket. We explain to the child that we are doing this so that they don't hurt themselves.

Voice control

Voice control is a method that we use with a child who is capable of understanding, but is not listening to what we are saying. After several unsuccessful attempts of trying to communicate with the child, we change the tone or volume of our voice to convey a firm attitude, but we do not get angry with the child. Once we have their cooperation and attention, we praise the child for helping.

Hand-over-mouth method

The hand-over-mouth method is used with children who have not responded to other methods, and who continue to be loud and uncooperative. We place a hand over the child's mouth, being careful not to block their ability to breathe. This is used to gain the child's attention so they can hear what we say. We then explain that we will remove the hand once they become quiet and cooperative. Once they cooperate, we immediately remove the hand and praise the child for helping.

Oral premedication

Children who are unable to cooperate because of their age or their inability to understand are given a drink of medicine to make them drowsy and help them be more cooperative. We are then able to treat the child, but must monitor their breathing, blood pressure, heart beat, and oxygen in the blood.

Active restraint by dental personnel

Active restraint by dental personnel is when the dental assistant or dentist must hold an uncooperative child to keep them from making movements during a procedure. This is done so they will not hurt themselves. For example, the dental assistant may hold down the child's hands, head, or legs while the dentist numbs the teeth.

General anesthesia

General anesthesia is used for children who are unable to cooperate and have a lot of dental treatment to be done. An anesthesiologist puts the child to sleep in the operating room and places a breathing tube down the child's nose. The dentistry can be done without having to worry about the child moving, and treatment can be completed in one session.

Please mark your responses to these methods on the separate form provided.

followed by a Likert-type rating scale requesting a response ranging from 9 (strongly agree) to 1 (strongly disagree). This was followed by a question asking, "Do you feel well informed about this technique?" and a space to indicate "Yes" or "No." Then a request for consent to use the technique with the child, "Do you consent to this method being used with your child/" and space to indicate "Yes" or "No." The consent form concluded with a standard request to sign and date the form in front of a witness.

A final series of questions was presented by a research assistant as a followup to the consent process. Parents were asked to rate whether they felt fully informed following the consent process, ranging from 5 (strongly agree) to 1 (strongly disagree). They were also asked to rate how important they believe it is that parents are asked to consent to each technique, from 5 (strongly agree) to 1 (strongly disagree).

Procedure

Each participant was approached individually in the reception area by the same research assistant (third author) posing as dental staff and was asked to complete a brief demographic form. Completion of the form was used to assess literacy.

After this form was completed and the child had been taken in the clinic for examination, parents were told that behavior management techniques used in the clinic would be explained as part of a new program. The parents then were assigned randomly to one of the four presentation conditions until 30 parents had been exposed to each of the four conditions. Every effort was taken to conceal the research aspect of the consent process to strengthen the legitimacy of the consent response and to ensure response validity. Participants were taken individually to the consultation room where the information was presented.

TABLE 1. PERCENT REPORTING FEELING WELL INFORMED (SD)

(N = 30)	TSD	VC	AR	NO	OP	GA	PR	HOM	\bar{x}
Oral	100	100	94	100	100	100	90	97	97 (14.5)
Written	83	57*	83	60*	63*	60*	63*	20*	61* (36.1)
Video 1	80	83	80	100	80	83	80	77	80 (15.7)
Video 2	100	100	83	87	100	90	87	70	89 (21.3)

* Significant $P < 0.05$; comparison by method of presentation.

In each condition, the research assistant, posing as a dental staff member, explained that she would be presenting information about behavior management techniques. Participants were to indicate how much they liked each method as well as whether they would consent to the method being used with their child, if needed. Following the presentation of each technique, participants were given time to mark their approval and consent on the consent form. After the presentation, they were required to sign the form and the research assistant initialed it as a witness. At this point, parents were immediately debriefed about the nature of the research and the reason for deception. None of the parents withdrew or changed their consent at that time.

The parent portion—presentation, data collection, and debriefing—ranged from approximately 15 min for viewing the video with explanation to approximately 10 min for a written or oral presentation, and was designed to be completed before the child finished the examination.

TABLE 2. PERCENT CONSENTING TO EACH PROCEDURE (SD)

(N = 30)	VC	AR	NO	OP	GA	PR	HOM	\bar{x}
Oral	94	94	87	70	94*	57	70*	80 (15.1)
Written	87	87	77	73	70	60	50	76 (13.5)
Video 1	90	83	87	60	66	50	30	66 (21.9)
Video 2	97	83	96	90	83	53	37	76 (22.2)

* Significant $P < 0.05$; comparison by method of presentation.

Results

Participants were 120 females of low to middle socioeconomic status based on the Hollingshead four-factor index of social status.¹⁸ Their previous experience with each of the dental techniques was unknown.

Table 1 shows the percent of parents reporting they felt well informed prior to consenting to each procedure. These data show marked differences depending upon the method of information delivery. An analysis of variance (ANOVA) found significant differences between the four methods ($F = 13.99$, $P <$

0.01). Fisher's exact tests reveal that overall, the written method produced significantly fewer parents who felt well informed compared with the other methods ($P < 0.05$). This pattern was relatively consistent across the eight behavior management techniques, except for TSD and AR. The other three presentation methods were not significantly different from each other, although the oral method resulted in more than 95% of the parents feeling well informed, while on average, less than 90% of all parents who viewed one of the videos felt informed.

Table 2 shows the breakdown of consent for each behavior management technique, presented by presentation method. All of the parents consented to the TSD technique, regardless of the method used to provide information, so this technique was dropped from subsequent analyses.

ANOVA determined there were no significant differences between the four conditions. The oral method, however, produced the highest consent rates, while Video 1 produced the lowest.

Fisher's exact test was then used to see if consent for each individual management technique differed among the four conditions. Results suggest that only the oral method produced significantly better consent for individual procedures. For both HOM ($P < 0.024$) and GA ($P < 0.027$), the oral method produced significantly more consent than Video 1. Fisher's exact test also was used to see if consent for each individual management technique differed without consideration to the four conditions. Results indicate that parents were willing to consent significantly more often to VC, AR, and NO than to PR or HOM ($P < 0.01$).

The parents in this investigation also reported that they felt information about each technique was relevant to their decisions to consent. More than 75% of all parents believed informed consent should always be obtained for the most invasive techniques (i.e., NO, PR, HOM, OP, and GA). Moreover, 70% agreed that consent should be obtained for all the management techniques, and more than 60% felt strongly that they should be informed about each technique, even TSD.

A logistic regression was used to estimate the maximum likelihood of different responses or explanatory variables predicting consent after accounting for all other variables. Acceptability ratings, child's age, SES level, informed ratings, and parental anxiety were considered (Table 3). Child's age predicted consent for NO, with younger ages predicting greater consent (χ^2 , $P < 0.03$). In addition, higher SES predicted greater consent for GA (χ^2 , $P < 0.02$), and higher mater-

TABLE 3. SIGNIFICANCE LEVELS FOR LOGISTIC REGRESSION (χ^2)

	VC	AR	NO	OP	GA	PR	HOM
Accept	0.001 [†]	0.001 [†]	0.008 [†]	0.001 [†]	0.001 [†]	0.001 [†]	0.001
Age	0.789	0.344	0.030*	0.337	0.870	0.630	0.601
SES	0.385	0.052	0.842	0.102	0.020*	0.108	0.591
Anxiety	0.644	0.090	0.383	0.022*	0.173	0.217	0.526
Inform	0.957	0.076	0.591	0.546	0.784	0.552	0.809

* $P < 0.05$. [†] $P < 0.01$.

nal anxiety predicted greater consent for oral premedication (χ^2 , $P < 0.022$). Only acceptability was predictive of consent for each of the seven models (χ^2 , $P < 0.01$). Note, however, that while acceptability was the best predictor of the variables chosen, these results reveal nothing about the strength of the relationship. In addition, some incongruencies were observed between consent and acceptability. Approximately one in every 10 occasions, a parent would indicate a high approval rating without providing consent or would indicate a low approval rating, but subsequently would provide consent. These inconsistencies were highest (12% of all occasions) with the PR and GA techniques.

Discussion

The results of this investigation extend the findings of previous investigations focused on behavior management treatment acceptability by showing how best to inform parents about behavior management technology and gain their consent. Consistent with previous research, the acceptability of a technique was found to be closely related to willingness to consent to that technique, yet the correspondence was not perfect. More important, the manner in which parents were informed about a specific technique was a significant predictor of how informed parents felt and whether or not they consented. Because this research moves beyond treatment acceptability and looks specifically at issues of informing and gaining consent, we feel it is important in light of increasing concerns about legal liability and changing standards of practice in pediatric dentistry.

In this investigation, the oral method of delivering information to parents about child behavior management techniques was the best method of ensuring that the average parent felt well informed and was likely to consent. Although the oral delivery was not significantly better than all of the other methods, it consistently produced more well informed parents and more consent. In some cases, for example, Video 2 produced consent rates higher than the oral delivery, but both the Video 2 and Video 1 methods were less successful at informing parents. Indeed, parents only felt well informed when viewing some of the least invasive techniques. Videotapes are thought to be particularly attractive as a time-saving device, but for those interested in reducing liability, the data suggest that the videotapes may not provide adequate information. In addition, the oral delivery need not be more costly than a videotape. In this investigation, the dental "staff person," rather than the dentist, informed the parents in an average of only 10 min.

Interestingly, the results suggest that the written method may be a poor alternative for gaining informed consent. The written method was as useful in producing consent as the other methods, but it was significantly worse than any other method as a means of informing parents. The fact that both the written and oral methods contained the same information suggests

a problem in the transfer of that information (i.e., reading or comprehension). Although we ensured that each parent was literate prior to inclusion in the study, we did not ensure that each parent actually read every word or comprehended the written form. This may, in fact, be common with written forms. For those interested in adhering to the most rigorous informed consent scenario, these data suggest not simply handing parents a written description to read, but instead providing parents with an oral description of the behavior management techniques typically used.

Interestingly, the average parent considered information about each technique to be "material" or consequential to their decision to consent. Although all parents consented to and approved the TSD procedure, more than two-thirds still felt it was important to be informed about every technique, even TSD. This may reflect parents' desire to learn about the nature of pediatric dentistry and how it may differ from general dentistry. Pediatric dentists should view the need to provide complete information as an opportunity for education rather than just a requirement to avoid litigation. Regardless, this further defines the most rigorous informed consent scenario as one that includes descriptions of each behavior management technique that may be used.

These data confirm that the more acceptable techniques are more likely to receive consent. Techniques that have been found in previous studies to be less acceptable (e.g., HOM, PR) were much less likely to receive consent from parents. Indeed, even when parents reported not being well informed, they were more likely to consent to traditionally more acceptable techniques such as TSD, VC, and NO. Note, however, that some parents consented to techniques they rated unacceptable and others refused techniques they rated as acceptable. Neither of these situations is surprising. Some parents may dislike a technique but recognize the need for it. Others may approve of a technique only for "other people's children". Thus, approval or acceptability data about behavior management techniques are not a good substitute for consent.

Unfortunately, there were no other reliable predictors to help the dentist anticipate which techniques were likely to receive consent. Parents of younger children were more likely to consent to NO and parents from higher SES were more likely to consent to GA, but these relationships account for a small amount of variance. Age, anxiety, and SES were not reliable predictors of consent for behavior management techniques. We suspect that the acceptability of these techniques is such a salient feature of consent that it simply overrides less important variables such as age and SES. There are, of course, variables not explored here that may be better predictors, such as previous dental experience. It is unlikely, however, that any predictor will do so reliably enough to permit a dentist to use a technique without seeking consent. Nor should dentists

abandon a technique without seeking consent, particularly if they are confident that it can provide the level of management needed to effectively treat a patient.

This study represents an initial effort at closely examining how informed consent can be obtained most effectively and as such, contains some limitations. First, previous experience with each of these management techniques was not directly assessed. Previous experiences with any management techniques (whether positive or negative) is likely to effect consent, regardless of how the information is provided. Second, there may have been an interpersonal characteristic of our research assistant that made her particularly effective with the oral presentation, while another individual presenting the same information might get markedly different results. For example, interpersonal variables may be responsible for how well people attend when being informed or how likely they are to consent due to social desirability effects or demand characteristics of the situation. Finally, our respondents were all the patients' mothers. Results drawn exclusively from females may limit the generality of the results. Males may have attended differently to a female presenter, or may express different tolerances to some of the more invasive techniques. The influence of historical and demographic variables such as gender and previous experience on the process of seeking informed consent warrants further investigation.

These data support recent calls to reexamine some traditional management procedures.¹⁹ The state-of-the-art in managing child behavior in the dental chair is changing, and requires that dentists continue to explore the need for and development of an expanding armamentarium. Some alternatives already have preliminary research support, and these alternatives may prove to be viable, cost-effective management techniques, even for the most difficult children.²⁰ Some incentive to develop alternatives has been provided by behavioral dentistry researchers, concerned about long-term impact of some management techniques on dental fear.¹⁹ Additional incentive has been provided by dentists concerned about legal liability. The results of this investigation should help all dentists make informed decisions themselves about the need for behavior management alternatives and how best to obtain informed consent.

Conclusions

Dentists concerned with increasing liability for child behavior management techniques have been advised to follow the most rigorous informed consent scenario. The results of this investigation suggest that an interpersonal (oral) delivery of information to parents about each technique is most likely to result in parents who feel well informed and who are likely to provide written consent. Handing parents a written form to read independently and sign, or having them watch videos depicting the techniques do not appear to be adequate

to ensure that parents are well informed and likely to consent. In addition, the prudent dentist may wish to explore acquiring competencies with alternative management techniques to the more objectionable invasive techniques that are less likely to receive consent.

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Young children at day care centers at most risk for pneumococcal disease

RISK ALSO ASSOCIATED WITH FREQUENT OTITIS MEDIA AND FAMILY DAY CARE

Day care center attendance is a major risk factor for invasive pneumococcal disease in children under age 2, according to an article in a recent *Journal of the American Medical Association*. Aino K. Takala, MD, and colleagues from the National Public Health Institute, Helsinki, Finland, questioned the parents of 433 children under the age of 15 between 1986 and 1989. Approximately one-third of the children (149) were identified through a prospective nationwide surveillance for invasive bacterial diseases among children in Finland. The rest were matched to the case group by age, sex and residence.

The researchers found that children younger than 2 years who attend day care centers have 36 times more risk of contracting invasive pneumococcal disease than children who stay at home; children younger than 2 years who attend family day care have nearly 4.5 times greater risk; and children younger than 2 years who had three or more episodes of otitis media (middle-ear infection) in the preceding six months had nearly 9 times the risk of invasive pneumococcal disease.

Invasive pneumococcal disease or streptococcus pneumonia (*Pnc*) is one of the most important pathogens causing serious infections, such as pneumonia, septicemia (blood poisoning), and meningitis in children. According to data cited in the study, *Pnc* is also the most frequent bacterium causing otitis media among infants and children. It is the most often recovered organism from blood cultures from pediatric walk-in patients with an illness associated with fever.

Day care attendance was not a significant factor in determining the risk of invasive *Pnc* in children over age 2. However, the researchers found that if the child had a sibling younger than 2 years, the older child had double the risk for *Pnc* disease.

The study also showed that the parents' education level and smoking status had virtually no bearing on the results. The researchers say this is not surprising because the subjects in the study were generally homogeneous in socioeconomic status with few smokers. However, the researchers say they were surprised when the study showed that breast-feeding was not associated with risk for invasive *Pnc* disease because other investigations have indicated that breast-feeding is protective against invasive haemophilus influenzae type b (*Hib*) disease, which shares many of the epidemiologic characteristics of invasive *Pnc* disease. The researchers say their results may be due to a small sample size in the stratified analyses.

The researchers say this study is important because the results are relevant for other countries and may explain some of the difference in epidemiology of *Pnc* between countries. The authors write: "Incidence of invasive *Pnc* disease in Israel is higher and disease occurs earlier in infancy and childhood than in Finland. In addition, in Israel the incidence is significantly higher among non-Jews than Jews. Among the former, the family size is larger and they live in more crowded conditions. The incidence of invasive *Pnc* disease among children in the U.S. is as high or higher than in Finland. Day care attendance, the most marked risk factor detected in the present study, has been more common in the U.S. than in Finland."

The authors conclude: "Prevention of invasive *Pnc* disease among infants and children with new pneumococcal conjugate vaccines looks promising in the near future. If effective, the vaccine should ideally be offered to all infants and children. If a special target or high-risk group should be added to the present recommendations (sickle cell disease, functional or anatomic asplenia [no spleen], nephrotic syndrome [kidney disease], cytoreduction [cell reduction] therapy, or hiv disease), children younger than two years attending day care centers as well as children with frequent otitis media might be considered."