

Circumcision and Informed Consent: Is More Information Always Better?

Author(s): Jay J. J. Christensen-Szalanski, W. Thomas Boyce, Harriet Harrell and Mary M. Gardner

Source: *Medical Care*, Vol. 25, No. 9 (Sep., 1987), pp. 856-867

Published by: [Lippincott Williams & Wilkins](#)

Stable URL: <http://www.jstor.org/stable/3765684>

Accessed: 07-02-2016 23:55 UTC

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at <http://www.jstor.org/page/info/about/policies/terms.jsp>

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.



Lippincott Williams & Wilkins is collaborating with JSTOR to digitize, preserve and extend access to *Medical Care*.

<http://www.jstor.org>

Circumcision and Informed Consent

Is More Information Always Better?

JAY J. J. CHRISTENSEN-SZALANSKI, PHD, MPH,* W. THOMAS BOYCE, MD,†‡
HARRIET HARRELL, NNP, BS,† AND MARY M. GARDNER, NNP, BS†

This study observes that physicians routinely inform parents about a small minority of the medical complications and risks associated with elective circumcisions. When selecting which medical complications to mention to parents, physicians appeared to use a policy based on their subjective assessment of the frequency and seriousness of the complications' occurrence. Subsequent analyses revealed that the physicians' probability estimates were biased and their seriousness assessments were consistently less than those expressed by mothers of newborn sons. Replacing the physicians' policy of partial disclosure with a comprehensive disclosure of "unbiased" information of possible risks and complications had no effect on the mothers' decisions to have their sons circumcised but did generate numerous influences on the mothers' attitudes. Among the effects observed in mothers were a reduction in their confidence in the appropriateness of their decision and a dissatisfaction with their physician's behavior. The implications of these findings to informed consent are discussed, and a greater flexibility in providing informed consent is advocated. Key words: decision making; informed consent; circumcision; physician-patient communication; patient involvement; patient satisfaction. (Med Care 1987; 25:856-867)

Numerous medical and surgical complications have been reported following circumcision.¹⁻³ Because these complications generally outweigh the medical risks associated with not being circumcised, the

American Academy of Pediatrics has adopted a policy of discouraging the elective circumcisions of newborn males.⁴ In spite of this, nearly 80% of newborn males in the U.S. still receive elective circumcisions.^{5,6}

An insufficient knowledge of the medical complications associated with circumcision has been postulated as one reason to account for parents' continuing to have their sons circumcised.^{7,8} Parents are often not familiar with the possible medical complications prior to being admitted in labor, and physicians do not always provide parents with a complete disclosure of these possible complications.^{9,10}

Partial disclosure of risk information to patients is not unique to circumcision.¹¹ For

* From the Department of Management Sciences, University of Iowa, Iowa City, Iowa.

† From the Department of Pediatrics, University of Arizona, Tucson, Arizona.

‡ From the Child Study Unit, University of California, San Francisco.

A preliminary version of this study was presented at the Sixth Annual Meeting of the Society for Medical Decision Making, Bethesda, Maryland, October 1984.

Address correspondence to: Dr. Jay Christensen-Szalanski, Department of Management Sciences, University of Iowa, Iowa City, IA 52242.

example, one recent survey¹² observed that 68% of practicing physicians and 90% of pharmacists felt it was appropriate to provide only a partial disclosure of drug side effects to patients. Providing patients with only partial disclosure of possible medical complications associated with a procedure has been cited as a better policy than providing a comprehensive disclosure, because the latter may needlessly confuse patients or frighten them into avoiding needed treatment.¹³⁻¹⁵ This is of particular concern when the medical problem is serious and many of the complications are either extremely rare or self-limiting. Some practitioners^{16,17} have used these concerns to argue that the principle of "doing the patient no harm" gives physicians the "therapeutic privilege" to not always mention all possible risks.

At the same time, ethical and legal concerns have been raised regarding incomplete disclosure of all possible medical complications.^{11,18-20} These include the subjective and possibly paternalistic nature of the physician's selection process and the violation of the patient's right to autonomy. Critics of the partial disclosure policy posit that the negative effects of "too much" information have not been well documented;^{11,21,22} moreover, even if such effects exist, critics suspect that they are likely to be outweighed by the benefits of patients making more informed decisions^{19,21} and feeling more satisfied with their care because they were better informed.^{13,23-25}

This study examines the policy that pediatricians and obstetricians use to decide whether or not to mention a particular complication to parents and the appropriateness of this policy from the parents' perspective. The effects of the physicians' partial disclosure are then compared with those of a comprehensive disclosure of the possible medical complications. We hypothesized that increasing the amount of risk information provided to patients would increase their satisfaction with their care and alter their decision to circumcise their sons.

We also examined whether the effect of a verbal presentation of the risk information would be different from that of the written presentation. We hypothesized that the effect of a verbal presentation would be greater than that of a written presentation because the mothers would be more likely to attend to all the information and ask questions when they did not understand the information.

Methods

Subjects

Thirty-six Pediatric and Ob/Gyn resident housestaff at a university-based hospital participated in this study. These physicians were the primary care providers responsible for asking parents of newborn sons about their desire to circumcise their sons and for providing informed consent to the parents selecting the procedure. In addition, a total of 165 mothers who gave birth to a son during a 5-month period of time also participated in this study. Fathers were not included in this study because in the study setting the fathers were often absent when the physician normally visited with the mothers and circumcision orders were routinely based on the mothers' expressed desire.

Questionnaire and Data Collection

Physicians. Based on a review of the literature, a list of 14 possible medical complications of circumcision and 3 possible risks of not being circumcised was compiled (Table 1). Physicians were then given a written description (in nonprofessional terminology) of all 17 medical complications and risks and were asked to indicate for each complication or risk: (1) the frequency with which they inform parents about it (0 = never inform, 10 = always inform); (2) the probability of its occurrence; and (3) an assessment of its relative seriousness were it actually to occur (0 = not at all serious, 10 = worst thing that could happen).

Mothers Receiving Partial Disclosure. Beginning 1 month after the housestaff were surveyed and continuing for 4 additional months, we asked mothers of sons ($n = 151$) within 24 hours of giving birth to indicate how interested they were in having their son circumcised (0 = definitely not have him circumcised, 10 = definitely have him circumcised); and how confident they were that their decision to have their son circumcised or not was best for him (0 = just a guess, 10 = certain it is the correct decision). Demographic data were also collected on this questionnaire and are shown in Table 2. The only information about complications associated with being or not being circumcised formally given to all these mothers was that information routinely presented to them by the resident physician during the first-day visit.

Mothers Receiving Written Comprehensive Disclosure. Following the completion of the initial questionnaire, approximately half ($n = 71$) of the mothers were given the detailed list of medical complications associated with having or not having a circumcision that was used in the physician questionnaire. In order to control for any temporal effects on circumcision rates, this "total disclosure" subgroup was composed of all mothers who gave birth during the middle 2 months of the study period. The mothers indicated their assessment of the relative seriousness of each complication were it actually to occur; and they were given an estimated probability of occurrence based on the medical literature review. The mothers were then asked what reasons they considered when deciding to circumcise or not circumcise their sons, and for the second time they were asked how interested they were in having them circumcised and how confident they were of the appropriateness of their decision.

Mothers Receiving Verbal Comprehensive Disclosure. Upon completing the data collection on the effect of a written disclosure of risk information, an additional group

TABLE 1. Medical Complications and Risks Associated With Circumcision

Complications and Risks	Frequency of Occurrence ^a
Associated With Circumcision	
Pain	1.0
Adhesions	0.1
Meatitis	0.1
Significant bleeding	0.01
Surgical injury	0.005
Infection	0.003
Contra-indication (as, for example, in hypospadias)	0.001
Skin bridge	0.0001
Preputial inclusion cyst	0.0001
Concealed penis	0.0001
Chordee	0.0001
Urethrocutaneous fistula	0.0001
Surgical resection	0.000001
Death	0.000001
Associated With Not Being Circumcised	
Future circumcision	0.01
Foreskin and penis infection	0.002
Cancer of the penis	0.0017

^a Frequency estimates based on the best available information in the medical literature.

of mothers of newborn sons participated in a study of the effects of a verbal disclosure of risk information. (For reasons that will be explained later, the size of this group was limited to 14.) These mothers expressed to nursery nurses their prediscovery desire to have their sons circumcised and their confidence in their decision. Four to six hours later an attending pediatrician visited each mother, presented to her all the information contained in the written comprehensive

TABLE 2. Demographic and Background Data for the Patient Population ($n = 151$)^a

Mean age: 23.6 (5.23) years
Percentage married: 68
Mean years of education: 11.7 (2.33)
Median Income: \$500-750/month
Percentage Hispanic surname: 34
Percentage attended prenatal classes: 32

^a Data for the total population of mothers (numbers in parentheses are the standard deviations). No significant differences among the various categories were observed for the mothers in the different disclosure groups.

TABLE 3. Frequency With Which Physicians Informed Parents About Various Complications and Risks

Complications and Risks	Mean Frequency Informed ^a
Significant bleeding	9.9
Infection	9.5
Pain	8.5
Surgical injury	7.4
Foreskin and penis infection ^b	7.2
Future circumcision	4.9
Meatitis	4.6
Adhesions	3.6
Surgical resection	3.6
Contra-indication ^b	3.3
Cancer of the penis ^b	3.0
Death	2.3
Skin bridge	2.1
Chordee	1.5
Concealed penis	1.0
Preputial inclusion cyst	0.7
Urethrocuteaneous fistula	0.2

^a Frequency estimates based on a scale of 0 (never inform parents) to 10 (always inform parents).

^b Risks associated with not being circumcised.

disclosure handout, and asked her to assess the seriousness of the complications. The pediatrician then answered any questions she had, and recorded her postdisclosure desire to have her son circumcised and her confidence in this decision.

Analyses

In general, all between-group comparisons were analyzed by use of Student's *t*-test, and within-group comparisons were analyzed with a matched *t*-test. When for various reasons the size of the samples being analyzed was less than 20, the Mann-Whitney U and the Wilcoxon Signed Rank tests were used instead of the *t*-tests. Among the dependent variables used to predict the physicians' decision to inform mothers about a given complication was the product of the physicians' mean assessed seriousness of the complication and the mean estimated probability of occurrence. This product computes the complication's "expected seriousness," a measure com-

monly used in models of "rational" decision making and risk management.^{26,27}

Results

Physicians' Policy of Informed Consent

Table 3 shows that physicians routinely informed parents about only three of the possible medical complications associated with circumcision and none of the possible risks associated with not being circumcised. An examination of the physicians' decision to inform a parent about a specific complication revealed that the judged "expected seriousness" of a complication was the best predictor of the physicians' decision to inform the parent about a given complication ($r = 0.72$, $P < 0.001$), and was a significantly better predictor than either the complication's frequency or seriousness measure alone ($P < 0.01$).

Subsequent analyses revealed that the physicians' two judgments that define a complication's expected seriousness were flawed. A comparison of the complication's actual frequency of occurrence with that of the physicians' estimates showed that the physicians overestimated the rare complications and underestimated the more common complications (Fig. 1, slope less than 1.0, $P < 0.01$). Additionally, the physicians' assessed seriousness of all 17 complications and risks was significantly less than the mothers' assessments ($P < 0.01$, Fig. 2).

Effects of Written Comprehensive Disclosure

Providing mothers with the written comprehensive disclosure of risk information had little effect on the mothers' decision. There was no difference in the circumcision rate of the group of mothers who received the handout detailing the comprehensive disclosure of all complications and the group of mothers who received only partial disclosure (57% versus 56%). In addition, the comprehensive disclosure of the complications had little discernible effect on the

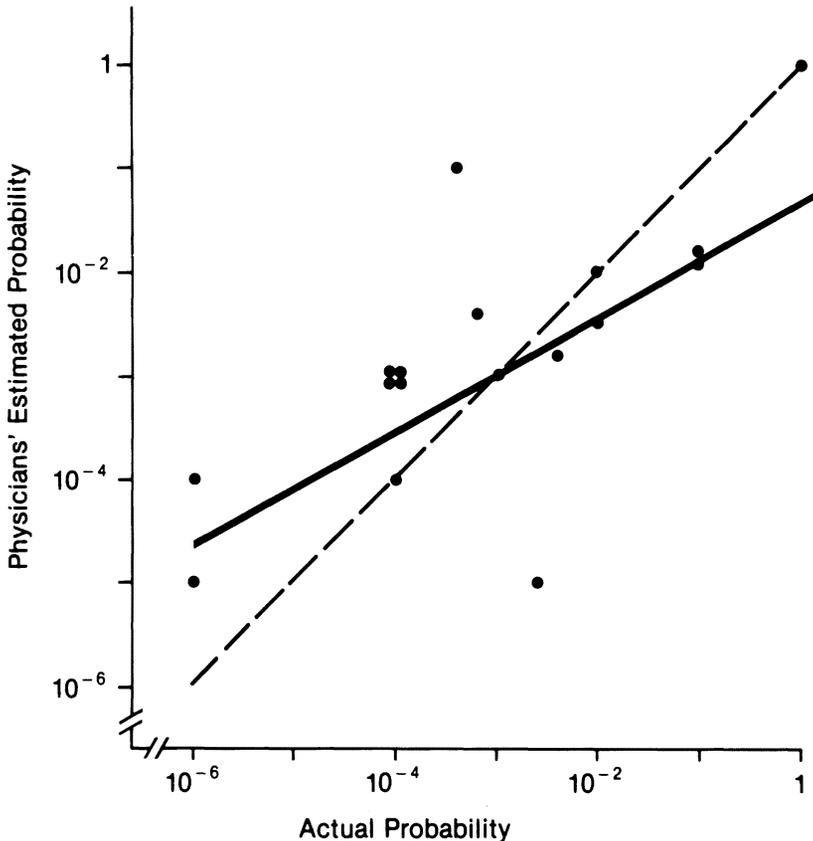


FIG. 1. Observed (solid line) and unbiased (dashed line) relationship between physicians' mean estimate of the complications' occurrence and the medical literature's estimate of the frequency of the complications' occurrence.

mothers' desire to have their sons circumcised. Figure 3 separates the mothers given comprehensive disclosure into two groups—those who initially desired to have their sons circumcised (prior to receiving the comprehensive disclosure handout) and those who initially desired not to have their sons circumcised. (Only 2% of the mothers expressed an indifference measure of "5" prior to receiving the comprehensive disclosure and are omitted from this Figure.) The mean of each group shows that prior to the comprehensive disclosure of the risk information the mothers either strongly wanted their sons circumcised or strongly wanted their sons left uncircumcised. For each of

these groups, the comprehensive disclosure of the risk information had virtually no effect on their desire for circumcision ($P > 0.4$).

Table 4 suggests one reason for the comprehensive disclosure's lack of effect on parental decision concerning circumcision. These mothers largely ignored the medical information when deciding whether or not to have their sons circumcised, and instead based their decision on social, traditional, and religious reasons.

The comprehensive disclosure of information did have one notable effect on the mothers who decided to have their sons circumcised: it reduced their level of confi-

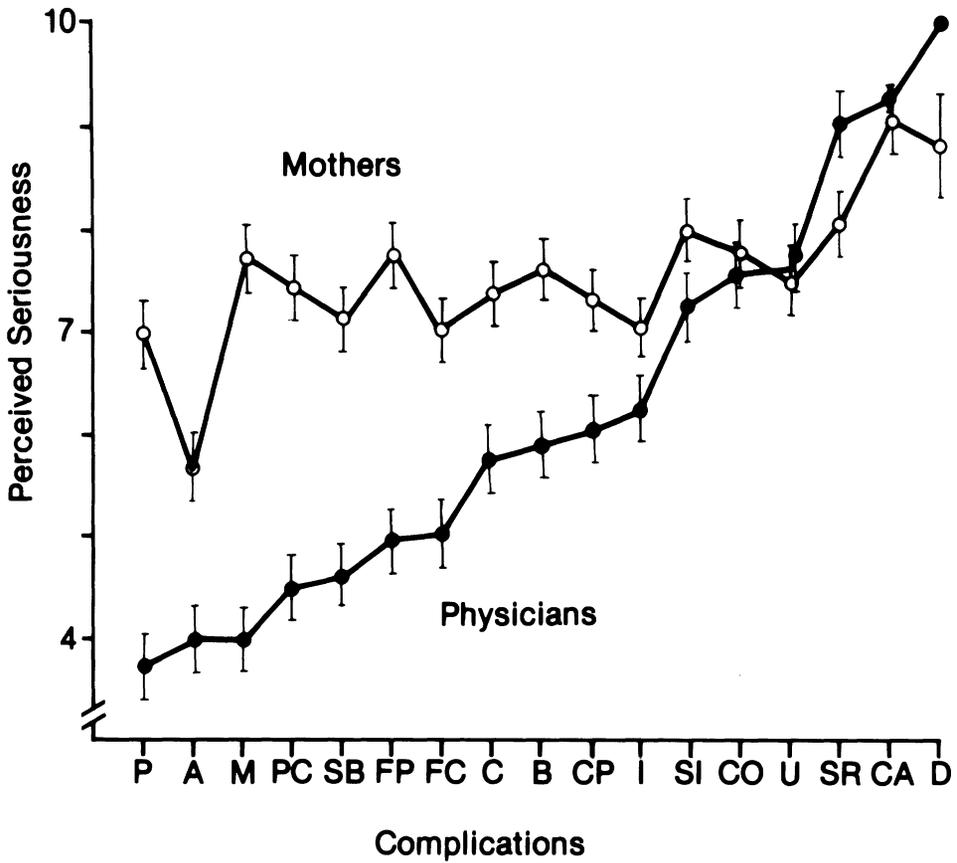


FIG. 2. Relationship between the physicians' and mothers' perceptions of the seriousness of the occurrence of different complications. Both groups received identical, nontechnical descriptions of the different complications. Letters refer to the complications listed in Table 1. Bars indicate the standard error associated with each mean.

dence in the appropriateness of their decision (mean pre-versus postconfidence = 9.2 versus 8.1, $P < 0.001$). The information had no effect on the mothers who decided not to have their sons circumcised (7.3 versus 7.4, $P > 0.45$).

In summary, replacing the physicians' policy of partial disclosure with a written comprehensive disclosure resulted in the mothers making exactly the same decision that they would have made with the physicians' partial disclosure policy, only now those deciding to have their sons circumcised—the nonreversible option—felt less confident in the appropriateness of their decision.

Effects of Verbal Presentation of Comprehensive Disclosure

The results of the verbal presentation of comprehensive disclosure partly mirrored those of the written disclosure study. Hearing the comprehensive disclosure of risk information did not alter the mothers' desire to have their sons circumcised ($P > 0.40$) and did reduce their confidence in the appropriateness of their decision (mean pre-versus postconfidence = 9.1 versus 6.0, $P < 0.05$).

The verbal presentation of comprehensive disclosure also yielded other effects not apparent when the information was pre-

sented in a written format. Several mothers were visibly uncomfortable having to listen to the 5–10-minute presentation of all the information. On several occasions they seemed to express guilt about their decision and resentment toward the physician for creating doubt about their previously established beliefs regarding circumcision. One mother even informed the pediatrician that the process of being told about all the medical complications and risks of the procedure was so aversive that she had decided not to bring her child to his pediatric clinic for subsequent well-child visits. In addition, the pediatrician received criticisms from obstetrical nurses who felt that the information presented to mothers intellectually overreached their capacity to assimilate and understand. Given the small sample size of this study ($N = 14$), these results should be viewed qualitatively. Attempts to increase the study sample size, however, were abandoned when the interviewing pediatrician quit the study, citing as his reasons the amount of time needed to present all the risk information and the harassment from nursing staff and mothers about the presentation.

Discussion

Physicians' Policy of Providing Informed Consent

In this study, physicians were routinely informing mothers about only a small minority of the medical complications associated with circumcision and none of the risks associated with not being circumcised (Table 3). When deciding which complications to mention to mothers, physicians appeared to be using a measure commonly used in models of "rational" decision making and risk management, namely the complication's expected seriousness. This measure has both a probabilistic and a seriousness component. Consequently, this policy implies that the more frequently a complication occurs and the more serious it is, the

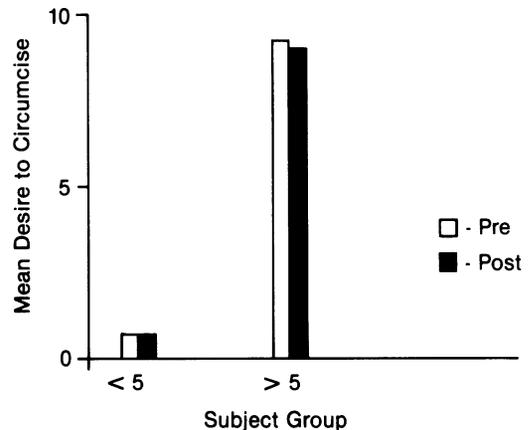


FIG. 3. Mothers' mean desire to have their sons circumcised (0 = definitely do not want son circumcised, 10 = definitely want son circumcised) as expressed before and after receiving a complete disclosure of the possible medical complications. The group on the left with a predislosure score less than 5 were mothers who initially preferred not to have their sons circumcised. The group on the right initially preferred to have their sons circumcised.

more likely it is that the physician will mention it to the parent. It also implies that a serious complication may or may not be

TABLE 4. Mothers' Considerations When Deciding Whether to Circumcise Sons

Reasons	Frequency (%) ^a
When Son Was Circumcised (N = 40)	
Father was circumcised	63
Hygiene	60
Physical appearance	38
Relatives' recommendation	33
Tradition	30
Brothers were circumcised	23
Religion	20
Medical complications and risks	5 ^b
When Son Was Not Circumcised (N = 31)	
Father not circumcised	65
Brothers not circumcised	32
Relatives' recommendation	26
Tradition	23
Medical complications and risks	16 ^b

^a Percentages based on the group of mothers who received the comprehensive disclosure of possible medical complications and risks. Mothers could indicate more than one consideration.

^b $P = 0.07$ (Fisher's exact test).

mentioned depending upon the probability of its occurrence, just as a very common complication may or may not be mentioned depending upon its level of seriousness.

Despite the underlying "rationality" of the physicians' use of a complication's "expected seriousness" as part of their policy of informed consent, the physicians' two judgments that define a complication's "expected seriousness" were flawed from the mothers' perspective. The physician expressed a previously observed²⁸⁻³⁰ bias in estimating the probability of the complications' occurrence (Fig. 1) and consistently regarded the seriousness of the complications' occurrence to be less than that assessed by the mothers (Fig. 2).

Previous studies^{31,32} have concluded that the existence of such statistically significant biases in physicians' judgment recommends the replacement of the physicians' judgment with actuarial-based decision aids or protocols. However, drawing upon issues originally raised by Finestein,³³ Christensen-Szalanski³⁴ emphasizes that in making policy conclusions, policy makers must attend to the clinical or meaningful significance of a judgment bias, namely the effect of the bias on the outcome of interest.

In the current study, a major outcome of interest is the parents' decision to circumcise their sons. Clearly, the more dependent the parents' decision is upon the medical information they receive from the physician, the more clinically important the physicians' judgment biases become. However, in the present study, mothers largely ignored the physicians' information on medical complications and based their decisions on social, traditional, and religious reasons (Table 4).

At first glance, such a finding might suggest that the existence of the physicians' judgment biases are more of academic interest than of any practical significance. However, additional data from this study show that the replacement of the physicians' biased policy with a more objective policy of

comprehensive disclosure generates a number of undesirable outcomes: 1) it made parents less confident in the appropriateness of their circumcision decision; 2) it generated resentment among the parents toward the physician; 3) it generated antagonism among the obstetrical nurses toward the physician; 4) it required more of the physician's time; and 5) it generated mental discomfort in the physician. This suggests that the physicians' policy of partial disclosure may actually provide some benefits—or at least limit the costs associated with a comprehensive disclosure of risk information.

Patients' Desire For a Comprehensive Disclosure

Numerous studies have reported a strong and increasing interest in risk information among patients.^{13,35-37} Because physicians sometimes underestimate this interest,^{13,23} they have been criticized for unnecessarily limiting the amount of information given to patients.^{11,21,38} However, this criticism is not always merited, because patients may not always want additional information.^{37,38-40} For example, patients may find that the best way for them to cope with adverse complications is to avoid hearing about their possible occurrence.⁴¹ This may partly account for why mothers in the current study frequently did not desire a comprehensive disclosure of the medical complications and often seemed to resent the physician for presenting it to them. In this case the desire to have a partial disclosure of the medical complications may be a result of the social, traditional, or religious considerations that motivate the request for this elective procedure. Patients who base their decision on considerations other than the medical risks involved likely recognize that information on the medical risks will not change their decision but may contradict their pre-established nonmedical convictions and create an undesirable internal conflict. This finding is

consistent with those observed in studies of people who were asked whether they would be willing to donate a kidney to save the life of a member of their family.^{42,43} Many of the prospective donors reported that they immediately agreed to the operation because they felt it was the "right thing to do," independent of any associated medical risks. When forced by the physicians to consider the medical costs and benefits before making a decision, the patients either ignored the information or selectively avoided and devalued information that was inconsistent with their decision to donate and increased the weight of information that was consistent.

Physicians' Obligation to Provide Patients a Comprehensive Disclosure

One may argue that even when patients do not want to know about the medical risks, physicians still are obliged to provide a comprehensive disclosure of the risks to the patients as part of the process of making the patient a more "informed" decision maker.¹⁹ This argument is particularly persuasive if one assumes that by presenting the information to the patient, the physician is doing more good than harm. Taylor and Clark⁴¹ in their review cite numerous studies for which an increase in the amount of information presented does have beneficial effects on the patient's adjustment to treatment, but they also report that presenting large amounts of information to the patient can result in an information overload that adversely affects the patient's adjustment to the treatment.^{44,45}

Results from this study further question the universality of the assumption that providing more information does more good than harm. Study mothers already had very strong notions about circumcising their sons by the time the physician disclosed the medical complications to them. Consequently, the physician's comprehensive disclosure of all the possible medical complications to the

mothers had no effect on altering the mothers' decision. At the same time, the comprehensive disclosure decreased the mothers' confidence in their decision and made them resent the physician who informed them about the medical complications such that some were less interested in returning to the physician's clinic. Practitioners in these circumstances may find it difficult to regard these side effects as contributing a net benefit to their patients. This is particularly true if the total disclosure of risk information so alienates a patient that it reduces the physician's ability to help the patient in the future or encourages the patient to obtain medical care from less qualified medical or nonmedical providers who may be "more respectful" of the patient's wishes. In addition, given the practical realities of providing care, a physician may consider the benefit and harm of informed consent not only to the patient, but also to himself or herself. For example, in the current study, the physician providing a comprehensive disclosure experienced more mental strain as a result of the patients' subsequent feelings of resentment and the nurses' feelings of antagonism and experienced a potential loss of income with patients' not seeking return visits to the clinic. These costs to the physician are not easily ignored in real life, and to do so requires a further investment of mental effort by the physician.

Respect for Patient's Autonomy. Regardless of the benefits and harms of providing the information, one might still argue that a full disclosure of risk information is morally justified on the basis of respect for patient's or family autonomy. However, as Saks⁴⁶ shows in his study of informed consent to organ donors, basing a policy on a "moral" principle of autonomy also has its attendant problems. Saks reports that a common practice of transplantation teams is to discourage prospective donors from making a decision to donate an organ until

they have submitted to a series of exams, tests, and briefings on the risks and benefits associated with the procedure. The physicians' rationale is that "the burden of deciding to be a donor should morally be placed only upon those for whom an affirmative decision could not later become mooted by biology" (p. 684).

Saks then proceeds to draw upon the social psychological literature to show that regardless of its "moral" merits, this procedure of obtaining informed consent by submitting the patient to a series of briefings and exams actually *reduces* the prospective donor's autonomy to decide not to donate. He concludes that

if physicians adopted a stance of being in the business of selling treatment and hired social psychologists to develop techniques to obtain compliance from prospective patients, their consultants could hardly improve on the existing techniques [of providing informed consent] (p. 685).

Although the procedure of obtaining informed consent from transplantation donors is not representative of all informed consent procedures, Saks' study does serve to illustrate that even the moral obligation of providing total disclosure prior to allowing a person to decide upon treatment can create forces that subtly and inadvertently reduce the prospective donor's freedom in the decision-making process.

Flexibility in Providing Informed Consent

Because individuals differ in their desire for a comprehensive disclosure of the medical complications associated with a procedure,^{37,39,40,42-50} and given that the disclosure of the information may do more harm than good or may inadvertently reduce patient autonomy, then perhaps one needs to alter the extent to which medical complications are disclosed according to each specific circumstance. Such a flexible policy toward informed consent has already been advo-

cated by the President's Commission for the Study of Ethical Problems in Medicine¹¹ and others.⁴⁹⁻⁵⁵ This flexibility might be applied to when, what, and how information is presented. For example, in the present circumcision context, physicians might want to present the risk information to parents *during prenatal visits* when parents may still be undecided about circumcision.⁵⁶ Alternatively, if physicians present the information soon after delivery, they might continue to decide subjectively which subset of medical complications to mention to the parents *and* then offer the parents the opportunity to read about all possible medical complications associated with the procedure. Additionally, should physicians perceive that the parents are coping with the medical risks of the procedure by denying their possible existence, then the physicians may want to avoid the increased tension sometimes associated with a one-time presentation of all risk information by presenting the information over a *series of encounters*.⁵⁷

Some policy makers might bristle at this flexibility and tolerance of the physicians' subjective judgment, particularly given the observed biases in the components of the physicians' judgment policy. However, in the present study at least, the judgment biases were not meaningfully important because factors unrelated to the physicians' judgment (i.e., parents' traditional, religious, and social values) prevented the biases from having an effect on the parents' decision. In fact, given the undesirable side effects associated with the more objective presentation of all the medical complications, one might even propose that the physicians' subjective policy was the preferable policy.

References

1. Warner E, Strashin E. Benefits and risks of circumcision. *Can Med Assoc J* 1981;125:967.
2. Boyce WT. Care of the foreskin. *Pediatr Rev* 1983;5:26.

3. Kaplan GW. Circumcision: an overview. *Curr Probl Pediatr* 1977;7:3.
4. Committee on Fetus and Newborn. Report of the ad hoc task force on circumcision. *Pediatrics* 1975;56:610.
5. Metcalf TJ, Osborn LM, Mariani EM. Circumcision: a study of current practices. *Clin Pediatr* 1983;22:575.
6. Lovell JE, Cox J. Maternal attitudes toward circumcision. *J Fam Pract* 1979;9:811.
7. Herrera AJ, Cochran B, Herrera A, et al. Parental information and circumcision in highly motivated couples with higher education. *Pediatrics* 1983;71:233.
8. Maisels MJ, Hayes B, Conrad S, et al. Circumcision: the effect of information on parental decision making. *Pediatrics* 1983;71:453.
9. Herrera AJ, Trouern-Trend JBG. Routine neonatal circumcisions. *Am J Dis Child* 1979;133:1069.
10. Grimes DA. Routine circumcision of the newborn infant: a reappraisal. *Am J Obstet Gynecol* 1978;130:125.
11. President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research. *Making Health Care Decisions: The Ethical and Legal Implications of Informed Consent in the Patient-Practitioner Relationship*. Vol. 1: Report. Washington DC, US Government Printing Office, 1982.
12. Keown C, Slovic P, Lichtenstein S. Attitudes of physicians, pharmacists, and laypersons toward seriousness and need for disclosure of prescription drug side effects. *Health Psychol* 1984;3:1.
13. Keown C, Slovic P, Lichtenstein S. Influence of information about side effects on perceived risk of prescription drugs. *Health Marketing Quarterly* 1984;1(2/3):111.
14. Guarino RA. Patient package inserts. *Food Drug Cosmetic Law J* 1979;34:116.
15. Epstein LC, Lasagna L. Obtaining informed consent: form or substance. *Arch Intern Med* 1969;123:682.
16. Kirby MD. Informed consent: what does it mean? *J Med Ethics* 1983;9:69.
17. Kessler HW. Pre-operative education and the informed patient. *Legal Aspects of Medical Practice* 1977;46.
18. Judicial Council of the American Medical Association. *Current Opinions of the Judicial Council of the American Medical Association—1984*. Chicago: American Medical Association, 1984.
19. Graber GC, Beasley AD, Eaddy JA. *Ethical analysis of clinical medicine. A guide to self-evaluation*. Baltimore: Urban & Schwarzenberg, 1985.
20. Skegg PDG. Informed consent to medical procedures. *Med Sci Law* 1975;15:124.
21. Bok S. *Lying: moral choice in public and private life*. New York: Pantheon Books, 1978.
22. Morris LA, Halperin JA. Effect of written drug information on patient knowledge and compliance: a literature review. *Am J Public Health* 1979;69:47.
23. Strull WM, Lo B, Charles G. Do patients want to participate in medical decision making? *JAMA* 1984;252:2990.
24. Vernon DTA, Bigelow DA. Effect of information about a potentially stressful situation on responses to stress impact. *J Pers Soc Psychol* 1974;29:50.
25. Wolfer JA, Visintainer MA. Prehospital psychological preparation for tonsillectomy patients' adjustment. *Pediatrics* 1979;64:646.
26. Fischhoff B, Lichtenstein S, Slovic P, et al. *Acceptable risk*. New York: Cambridge University Press, 1981.
27. Raiffa H. *Decision Analysis*. Reading, MA: Addison-Wesley, 1970.
28. Lichtenstein S, Slovic P, Fischhoff B, et al. Judged frequency of lethal events. *J Exp Psychol [Learn]* 1978;6:551.
29. Christensen-Szalanski JJJ, Beck DE, Christensen-Szalanski CM, et al. Effects of expertise and experience on risk judgments. *J Appl Psychol* 1983;68:278.
30. Manu P, Runge LA, Lee JY, et al. Judged frequency of complications after invasive diagnostic procedures. *Med Care* 1984;22:366.
31. Kleinmuntz B. Diagnostic problem solving by computer. A historical review and the current state of the art. *Comput Biol Med* 1984;14:255.
32. Cebul RD, Beck LH: Teaching clinical decision making. New York: Praeger, 1985.
33. Finstein AR: Clinical biostatistics—XXVII: The derangements of the 'range of normal.' *Clin Pharmacol Ther* 1974;15:528.
34. Christensen-Szalanski JJJ. Improving the practical usefulness of judgment research. In: Brehmer B, Jungermann H, Lourens P, et al., eds. *New directions in research on decision making*, New York: North-Holland, 1986:383.
35. Fleckenstein L, Joubert P, Lawrence R, et al. Oral contraceptive patient information. *JAMA* 1976;235:1331.
36. Joubert P, Lasagna L. Patient package inserts. I: Nature, notions, and needs. *Clin Pharmacol Ther* 1975;18:507.
37. Miller P, Shada EA. Preoperative information and recovery of open-heart surgery patients. *Heart Lung* 1978;7:486.
38. Royal Commission of the National Health Service. *Patients attitudes to the hospital service HMSO*, London, 1978.
39. McIntosh J. Processes of communication, information seeking and control associated with cancer: a selective review of the literature. *Soc Sci Med* 1974;8:167.
40. Weiler MC. Postoperative patients evaluate preoperative instruction. *Am J Nurs* 1968;68:1465.
41. Taylor SE, Clark LF. Does information improve adjustment to noxious medical procedures? In: Saks

MJ, Saxe L, eds. *Advances in applied social psychology*, Vol. 3. Hillsdale, NJ: L. Erlbaum Associates, 1986:3.

42. Fellner CH, Marshal JR. Kidney donors. In: Maccauley J, Berkowitz L, eds. *Altruism and helping behavior*. New York: Academic Press, 1970.

43. Simmons RG, Klein SD, Thornton K. The family member's decision to be a kidney transplant donor. *J Comp Family Studies* 1973;4:88.

44. Miller SM, Mangan CE. Interacting effects of information and coping style in adapting to gynecologic stress: should the doctor tell all? *J Pers Soc Psychol* 1983;45:223.

45. Mills RT, Krantz DS. Information, choice, and reactions to stress. A field experiment in a blood bank with laboratory analogue. *J Pers Soc Psychol* 1979;37:608.

46. Saks MJ. Social psychological contributions to a legislative subcommittee on organ and tissue transplants. *Am Psychol* 1978;33:680.

47. French K. Surgical patients' worries and the role of information. *Proc R Coll Nurs Res Soc* 1980.

48. Wallace LM. Informed consent to elective surgery: the 'therapeutic' value? *Soc Sci Med* 1986;22:29.

49. Lankton JW, Bachelder BM, Ominsky AJ. Emotional responses to detailed risk disclosure for anesthesia: a prospective, randomized study. *Anesthesia* 1977;46:294.

50. Cassileth BR, Zupkins LV, Sutton-Smith K, et al. Informed consent—why are its goals imperfectly realized? *N Engl J Med* 1980;302:896.

51. Levine RJ. Informed consent in research and practice. Similarities and differences. *Arch Intern Med* 1983;143:1229.

52. Baker MT, Taub HA. Readability of informed consent forms for research in a Veterans Administration medical center. *JAMA* 1983;250:2646.

53. Drane JF. Competency to give an informed consent. A model for making clinical assessments. *JAMA* 1984;252:925.

54. Hollander RD. Changes in the concept of informed consent in medical encounters. *J Med Educ* 1984;59:783.

55. Christopherson BG, Pheiffer CP. Varying the timing of information to alter pre-operative anxiety and post-operative recovery in cardiac surgery patients. *Heart Lung* 1980;9:854.

56. Rand CS, Emmons C-A, Johnson JWC. The effect of an educational intervention on the rate of neonatal circumcision. *Obstet Gynecol* 1983;62:64.

57. Shipley RH, Butt JH, Horwitz EA. Preparation to reexperience a stressful medical examination: effect of repetitious videotape exposure and coping style. *J Consult Clin Psychol* 1979;47:485.