

Routine Neonatal Circumcision: The Gap Between Contemporary Policy and Practice

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Attitudes, knowledge, and personal factors related to circumcision in the newborn period were analyzed among a group of 92 randomly selected primary care physicians and 103 parents of male infants. Sixty-five percent of the physicians conveyed a positive attitude about routine neonatal circumcision to their patients; pediatricians were more likely to have a neutral attitude, and both family and general practitioners were more likely to encourage routine neonatal circumcision ($P < .01$). Routine neonatal circumcision was favored more often by older, male, and circumcised physicians. Knowledge about the normal anatomy of the infants' foreskin was inadequate. Parents rarely perceived physicians as influential in the decision-making process ($P < .001$). In contrast, fathers' circumcision status and parental belief in medical indications were positively related to the decision to circumcise ($P < .001$ and $P < .01$, respectively). The data suggest directions for change in clinical pediatric practice that may bring contemporary policy with regard to routine neonatal circumcision closer to actual practice.

Circumcision of male newborn babies is the most common pediatric surgical procedure in the United States. The neonatal circumcision rate approaches 90 percent of newborn male babies in many parts of the United States today.¹ Cultural,² religious,³ social,⁴ and psychological⁵ considerations no doubt interact to make circumcision a "routine" part of newborn care for most male babies.

In order to provide guidelines for physicians who care for children in the newborn period, an American Academy of Pediatrics Ad Hoc Task

Force on Circumcision reviewed the subject in published manuscripts in 1971 and again in 1975.⁶ Both of these reports concluded that there are no valid medical indications for routine circumcision in the neonatal period.

Nevertheless, that male infants continue to undergo circumcision at a high rate raises some questions: Do deeply seated cultural, psychosocial, and religious factors dominate the decision making of parents? Are physicians equally affected by nonmedical considerations? Do physicians, in fact, play a significant role when parents decide about the circumcision of a newborn infant?

This study is an attempt to answer these questions. Through a randomized survey of both parents and physicians, the attitudes, knowledge, and personal factors related to routine neonatal circumci-

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sion were analyzed in order to understand the gap between contemporary policy and practice.

Methods

Two separate questionnaires were designed for this study. The first was mailed to primary care physicians who would be likely to care for newborn infants in San Diego, California, an urban community with a population of about 1 million. Among 405 pediatricians, obstetricians, family physicians, and general practitioners listed under those specialties in the yellow pages of the telephone book, one half (203) were randomly selected and mailed a study questionnaire and a stamped, addressed return envelope. Those who did not respond after a few weeks were called and encouraged to participate in the study.

Demographic data obtained by the questionnaire included sex, age, race, and medical specialty. Male physicians were asked whether they had been circumcised and, if so, at what age. Medical opinion toward routine neonatal circumcision, counseling of parents, rate of circumcision procedures, and knowledge of developmental anatomy of the newborn's foreskin were ascertained. These data were analyzed by medical specialty, age and sex of physician, and circumcision status of male physicians. Counseling practice, rate of procedure, and knowledge base were compared with physician opinions about routine neonatal circumcision.

A second questionnaire was designed for parents in order to investigate their attitudes about circumcision. Parents who had given birth to a male child within 1 to 12 months of the study date were eligible. Parents were enrolled in the study through the practices of pediatricians, family physicians, and general practitioners in San Diego. A random numbers table was used in order to select 27 physicians among approximately 250 private practitioners (excluding obstetricians) who might care for infants in this community. From the original group of 27 physicians contacted by telephone, 15 agreed to participate in the study. Each physician was sent 20 questionnaires to be given to parents of male infants in their practice. The questionnaire was anonymous, and informed consent was obtained.

Demographic data collected for the parent sample included marital status, age, race, income,

education, and religion of parents. Sources of parental information about routine neonatal circumcision and the parents' perception of attitudes about circumcision from those sources were investigated. Parents were asked about the content of physician counseling and its influence on the decision about this procedure. Specific personal and family factors that may have influenced the decision-making process were explored. Finally, parents were asked to evaluate the relative significance of the reasons that influenced them in their decision making by means of a five-point scale that ranged from "very important" to "very unimportant."

Statistical analysis was carried out using chi-square test.

Results

Primary Care Physicians

Forty-five percent (92) of the questionnaires were returned within two months after the mailing. The sample consisted of 93 percent male physicians, of which 94 percent were white, 4 percent black, and 2 percent of other ethnic backgrounds.

Physician attitudes and counseling behavior about routine neonatal circumcision are tabulated in Table 1. Sixty-five percent of all respondents favored circumcision, 29 percent expressed a neutral attitude, and 7 percent opposed the procedure. A majority of the pediatricians had a neutral attitude, whereas family and general practitioners were more likely to be in favor of it ($P < .01$). In addition, routine neonatal circumcision was favored more often by the older, male, and circumcised physicians in the sample.

Over two thirds of the responding physicians stated that they usually counsel prospective parents about routine neonatal circumcision. Family physicians and general practitioners were significantly more likely to counsel prospectively than were either pediatricians or obstetricians ($P < .05$). In contrast, physician age, circumcision status, and personal opinion about circumcision did not significantly affect the counseling rate ($P < .05$).

Among those physicians who said they counseled parents, 30 percent counseled during the prenatal period, 40 percent at the time of birth, and 30 percent both prenatally and perinatally. Mothers were counseled alone 57 percent of the time, and both parents were counseled 43 percent of the

Table 1. Routine Neonatal Circumcision (RNC) Physician Attitude and Counseling Behavior

	Attitude						Parent Counseling			RNC at Parent Request		
	N	Positive No. (%)	Neutral No. (%)	Negative No. (%)	χ^2	P	No. (%)	χ^2	P	No. (%)	χ^2	P
Total	92	59 (65)	25 (27)	8 (9)			66 (72)			82 (89)		
Specialty					18.49	<.01		9.18	<.05		3.57	NS
Pediatrics	15	5 (33)	9 (60)	1 (7)			8 (53)			11 (75)		
Obstetrics	32	20 (63)	10 (31)	2 (6)			20 (62)			27 (84)		
Family practice	21	17 (81)	4 (19)	0			19 (90)			21 (100)		
General practice	19	15 (79)	1 (5)	3 (16)			15 (79)			18 (94)		
Sex					3.25	NS		3.24	NS			
Male	84	55 (65)	21 (25)	8 (10)			58 (69)			76 (90)		
Female	6	2 (33)	4 (67)	0			6 (100)			4 (67)		
Age (yr)					6.32	NS		.63	NS			
30-40	25	11 (46)	11 (42)	3 (12)			19 (76)					
41-50	28	19 (68)	7 (25)	2 (7)			19 (67)					
51-60	38	28 (74)	7 (18)	3 (8)			28 (74)					
Circumcision Status (male)					12.07	<.01		0	NS			
Circumcised	57	41 (72)	14 (25)	2 (3)			39 (68)					
Uncircumcised	25	13 (52)	6 (24)	6 (24)			17 (69)					
RNC Attitude								1.86	NS		10.0	<.01
Positive	59						43 (73)			57 (96)		
Neutral	25						18 (70)			18 (71)		
Negative	8						6 (75)			7 (88)		

NS = not significant

time. Physicians who counseled included information on indications for neonatal circumcision (96 percent), contraindications (68 percent), complications (71 percent), and cost (56 percent).

The majority of physicians (89 percent) performed routine neonatal circumcision at the request of parents. Pediatricians performed the procedure less often than other physicians, although this difference was not statistically significant ($P < .5$). Physicians who expressed a neutral opinion about circumcision were less likely to perform the procedure than were those who expressed a positive attitude ($P < .01$).

Only 36 percent of all responding physicians were aware that the newborn's foreskin is charac-

teristically not fully retractable. General practitioners appeared to be the least knowledgeable. Among all respondents, those who circumcised newborns in their practice were more likely than those who did not circumcise (38 percent vs 17 percent) to demonstrate an appropriate understanding about foreskin retractability. When asked if a nonretractable foreskin in a newborn is an indication for circumcision, 47 percent of all respondents answered incorrectly. Pediatricians gave the correct answer significantly more often than other specialists ($P < .05$) (Table 2). Furthermore, some physicians were not aware that hypospadias and epispadias are contraindications against routine neonatal circumcision.

Table 2. Physician Knowledge of Foreskin Anatomy and Circumcision

	N	The Foreskin Is Not Retractable in > 50 Percent of All Newborns (%)*	A Nonretractable Foreskin Is an Indication for Routine Neonatal Circumcision (%)**
Specialty			
Pediatrics	15	36	13
Obstetrics	29	35	55
Family practice	20	47	50
General practice	15	20	67
Total	83	36	47

*The statement is correct; tabulated responses reflect the percent of physicians who answered correctly ($\chi^2 = 2.07, P > .05$)
**The statement is incorrect; tabulated responses reflect percent of physicians who answered incorrectly ($\chi^2 = 9.5, P < .05$)

Parents

Completed questionnaires available from 103 families came from the practices of 10 physicians in private practice: 7 pediatricians, 2 general practitioners, and 1 family physician. Five of the original group of physicians subsequently chose not to participate. The source of the data was primarily from mothers (86 percent). The mean maternal age was 28.5 years and the mean paternal age was 29.6 years. Eighty-five percent of the families were intact; 15 percent of the parents were single, separated, or divorced. The parents represented all income levels, with a predominance of middle and upper-middle income groups. Approximately one half of the parents had a college degree. Sixty-eight percent of the families were white, 3 percent were black, and most of the remaining families represented mixed ethnic marriages. Parents reported their religion as Protestant (39 percent), Catholic (21 percent), Jewish (7 percent), and either agnostic, atheist, or not stated (29 percent). Ninety-eight percent of the women in the sample received prenatal care, 83 percent of which was initiated in the first trimester.

Eighty-seven percent (90/103) of the surveyed parents reported that their newborn was circumcised. There were no significant associations with the decision to circumcise and any of the demographic parental variables.

Table 3. Parental Perceptions About Attitudes of Counselor and Content of Counseling

	Physician Counseling (n = 69)	Childbirth Class (n = 43)
Attitude*		
Positive	31 (45)	9 (21)
Neutral	24 (35)	33 (77)
Negative	3 (5)	1 (2)
Unknown**	11 (15)	
Content		
Indications	32 (47)	NA**
Contraindications	20 (29)	NA**
Complications	17 (24)	NA**
Cost	24 (35)	NA**

* $\chi^2 = 11.5, P < .005$
**Physician attitude was not known by 15 percent of those counseled by physicians
NA = Information not ascertained

Two thirds of the parents stated that they received information about routine neonatal circumcision from a physician; the majority of physician sources were obstetricians and pediatricians. Forty-four percent of the parents were informed

Table 4. Factors Relating to Decision to Circumcise

Circumcision Status	N	Decision to Circumcise Baby		χ^2	P
		Yes	No		
Father					
Circumcised	83	78	5	21.6	<.001
Not circumcised	17	9	8		
Unknown	2	2	0		
Brother					
Circumcised	34	32	2	0.69	>.05
Not circumcised	3	2	1		
Parental belief in valid medical indications					
Yes	72	68	4	9.08	<.01
No	26	18	8		

about circumcision during a childbirth class, although over two thirds attended these classes. A minority of respondents (20 percent) stated that they received most of their knowledge about circumcision from magazines, books, relatives, friends, or nurses.

Among the parents who received counseling about circumcision from a physician, 45 percent reported that the physician's attitude about the procedure was positive, 35 percent neutral, and 5 percent negative; 15 percent did not report the physician's attitude. Childbirth educators who presented information about circumcision were more likely than physicians to be neutral according to parental perceptions ($P < .005$). Less than one half of the physicians who counseled parents were reported to include information in each of four areas regarding routine neonatal circumcision: indication, contraindications, complications, and cost (Table 3).

The father's perceived circumcision status and a parental belief that there are valid medical indications for circumcision were positively related to the decision to circumcise the newborn ($P < .001$ and $P < .01$, respectively) (Table 4). In contrast, only 12 of the 102 parents stated that a physician was influential in their decision ($P < .001$). Furthermore, the majority of parents (91 percent) did not describe the decision-making process as difficult. For most of those families, both parents

participated in the decision-making process (68 percent) and perceived that their participation was active (93 percent).

When parents were asked to rate the importance of various reasons for or against routine neonatal circumcision, the reasons most frequently cited by those who had their newborn circumcised were medical (eg, hygiene, cancer prevention) (81 percent) and a personal preference for the child (63 percent). Of less importance were advice of family or friends (19 percent), religion (20 percent), advice of medical personnel (28 percent), and a belief that circumcision was required (9 percent). Among the parents whose newborns were not circumcised, reasons most frequently cited were medical (62 percent), a personal preference for child (59 percent), belief that the procedure was unnecessary or unnatural (69 percent), surgical complications (31 percent), and advice from family or friends (8 percent). Cost was not mentioned as an important factor by any of the parents.

Discussion

The methods chosen to select parents and physicians for this study may have biased the results unintentionally. For example, choosing physicians from the available list in the yellow pages may have limited the selection process. However, it was assumed that most primary care physicians

who cared for pregnant women or babies would be listed in the telephone book. Approximately one half of the physicians returned the physician survey. Unfortunately, personal characteristics of nonrespondents could not be compared with those of the respondents. The parent survey was distributed to participating parents by only 10 practitioners. These physicians came from a random selection of an original group of 250 eligible practices; 17 out of 27 randomly selected physicians refused participation. Differences between physicians who agreed to give the survey to their patients and those who refused were not ascertained. Similarly, there may have been important differences in those parents who refused to participate. These observations in the study design limit, but do not distract from, the conclusions of this study.

With the noted exceptions of Jewish and Muslim religious traditions, circumcision is an elective, cosmetic procedure for most Americans. That once-held medical indications (eg, cervical and penile cancer prevention, genital infections, improved sexual function) are no longer tenable has been stated unequivocally by the American Academy of Pediatrics.⁶ Yet, approximately one half of the physicians surveyed in this study were found to favor the procedure, and most of the remaining physicians conveyed a neutral attitude to parents. Parents in this study reported that their physicians conveyed similar attitudes toward routine neonatal circumcision.

Compared with other primary care physicians, the policy of the American Academy of Pediatrics was more likely to be practiced by the pediatricians surveyed in this study. The attitude about routine neonatal circumcision among pediatricians was more neutral compared with a more positive attitude among other medical colleagues. This represents a shift of opinion by pediatric specialists when compared with a 1963 study of physician attitudes about routine neonatal circumcision.⁷ Furthermore, in support of a previous study among general practitioners,⁸ circumcision was less likely to be performed by all four groups of physicians who reported a neutral or negative attitude. A more neutral and less-positive attitude about routine neonatal circumcision among younger physicians in the present study suggests that recent educational experience influences attitude.

Perhaps continuing education programs or highly publicized policy statements about routine neo-

natal circumcision in journals read by obstetricians, family physicians, and general practitioners might bring contemporary attitudes more in line with today's recommendations. Policy statements on routine neonatal circumcision similar to that of the American Academy of Pediatrics have appeared in journals of these specialties recently. Furthermore, the data from this study and a recent survey among pediatricians in Utah⁹ suggest that physicians need a more accurate understanding of the anatomy and normal development of the newborn's foreskin. Contrary to the response of most of the physicians surveyed, retracting the foreskin is not possible in the majority of newborn boys, and the lack of retractability is not an indication for neonatal circumcision. It has been demonstrated that only 4 percent of newborns have a fully retractable foreskin; by the end of the first year of life 50 percent remain not fully retractable, and by three years old, as many as 10 percent are not retractable.¹⁰ In the Utah study, pediatricians' advice concerning hygiene in uncircumcised infants varied greatly, and none of the mothers of uncircumcised children had been told when the foreskin could be expected to retract.⁹

Attitudes and counseling behavior of physicians may not be influenced by intellect alone. Older and circumcised physicians were more likely than either younger or uncircumcised physicians to maintain a positive attitude about routine neonatal circumcision. Although the number of female physicians in this study was limited, they were less likely than male physicians to favor circumcision. The discovery that physicians' age, sex, and circumcision status were related to attitudes about routine neonatal circumcision suggests that further knowledge about scientific issues may not change attitudes, which may be unconscious. Additional support for this conclusion comes from the parent study, which demonstrated a significant positive association between paternal circumcision status and the circumcision status of the newborn. These results must be interpreted cautiously, as one third of male adults in a clinic facility have been shown to report their circumcision status incorrectly.¹¹

Beyond an informed physician, informed consent from parents is required in order to circumcise. If parents are to be expected to make an intelligent decision based on medical knowledge, it is the responsibility of physicians (or other health personnel) to educate accurately and completely.

That only 72 percent of the physicians counseled parents about newborn circumcision suggests either an unnecessarily low counseling rate or that physicians who generally do not perform the procedure do not perceive the necessity for counseling. For example, the lower counseling frequency among pediatricians may be a reflection that obstetricians perform circumcisions and that pediatricians may not examine the baby until after the circumcision has been completed. Nevertheless, it could be argued that, for women receiving prenatal care from an obstetrician, the baby's physician should meet with the parents during the prenatal visit. Circumcision should be discussed with both parents at that visit in order to prepare them for the decision.¹² Among physicians who counsel parents in this study, 40 percent limited the encounter to the newborn period. This result is only slightly better than the time of counseling ascertained in previous studies.^{7,13,14}

The results from this study additionally demonstrate a disparity between physicians and parents in reporting content areas of counseling, including indications, contraindications, complications, and cost of circumcision. Less than one half of the parents recalled specific counseling in these topics, which is considerably less than that reported by the physicians surveyed. The study design, which used two separate randomized populations, limits comparisons between groups of the physicians and the parents. Perhaps parental responses reflect the lack of recall; at the same time primary care physicians in a busy practice may desire to give parents more information than is actually conveyed.

Only 12 percent of surveyed parents reported that their physician was influential in the decision about newborn circumcision, suggesting a parallel between advice about circumcision and the limited effect of physician counseling about car restraints for children¹⁵ and other preventive aspects of well-child care.¹⁶ A question is raised whether the reported low frequency of physician influence reflects limited physician input (eg, content, time, and style of counseling) or the inherent inconsequence of any physician counseling. The present study and others^{12,13} are in agreement that parents usually state that medical reasons and their own personal preference for the child were the major reasons for deciding in favor of circumcision. Among those parents who did not have their newborn circumcised, over one half concluded that

they saw the procedure as unnecessary or unnatural. These results suggest that more enlightened counseling with regard to the medical myths about circumcision may dissuade future parents.

Routine neonatal circumcision is viewed by physicians with various degrees of favor or disfavor. The discrepancy of opinion can no longer be found in scientific explanations; the American Academy of Pediatrics appears correct in its judgement that the procedure in clinical practice is grounded in medical myths. The cultural, social, and historical imperatives surrounding routine neonatal circumcision seem to be in control for both physicians and parents. Whether counseling from medical personnel can bring about a shift in the 20th century trend toward circumcision awaits a controlled study among various racial and socioeconomic groups. The present study suggests the need for more informed objective counseling of parents by primary care physicians, who have a responsibility to provide parents with factual and informative medical data regarding circumcision. The final decision, based on informed consent, remains with the parents.

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