



Managing Pediatric Dental Patients: Issues Raised by the Law and Changing Views of Proper Child Care

Donald C. Bross, JD, PhD

Dr. Bross is professor of pediatrics (family law), Kempe Children's Center, Department of Pediatrics, University of Colorado School of Medicine, Denver, Colo.

Correspond with Dr. Bross at bross.donald@tchden.org

Abstract

The purpose of this paper was to examine legal issues regarding the management of pediatric dental patients and changing views of proper child care. Standards of care in pediatric dentistry are not static. They change in response to research, patterns of reimbursement, patient and parental expectations of reasonable care, and consensus among practitioners. The law pertaining to accountability for pediatric dental patient treatment largely reflects standards of care established by the pediatric dentistry profession. However, the law can also reflect changes in public expectations of reasonable care that can effectively outrun the discipline's efforts to reflect new knowledge or changing public concerns. A major impetus for considering the care of children in all settings has been the increasing recognition of suboptimal children's care, as well as concerns that children have either been abused or neglected in a number of settings. Too often, practices towards children have been untested and based only on the assumption that what is done is "for the child's own good." Pediatric dentists can respond to changing standards of reasonable care for pediatric dental patients, as expressed in legal decisions. They can also usefully consider how attention to child maltreatment has sensitized parents to be better consumers of services on their children's behalf. Rather than reacting only to public pressures for better means of behavior management, the challenge is to exceed expectations via new research and thoughtful anticipation of improvements that can be made. (*Pediatr Dent.* 2004;26:125-130)

KEYWORDS: CHILD MANAGEMENT, LEGAL ISSUES, PEDIATRIC DENTISTRY

Learning from an old example of pediatric patient care
 Roald Dahl died a few years ago, following a remarkable career as a World War II decorated British fighter pilot, an intelligence agent for President Franklin Roosevelt, and an author of adult and children's fiction. Perhaps the least known of his works is an autobiographical book entitled *Boy: Tales of Childhood*, which describes his early life as a Norwegian emigrant to England. Once in 1924, when he was 8 and visiting Oslo, his mother took him to the doctor. Here is the book's account of that visit:

"Open your mouth,' the doctor said, speaking Norwegian. I refused. I thought he was going to do something to my teeth, and everything anyone had ever done to my teeth had been painful.

'It won't take 2 seconds,' the doctor said. He spoke gently, and I was seduced by his voice. Like an ass, I opened my mouth.

The tiny blade flashed in the bright light and disappeared into my mouth. It went high up into the roof of my mouth

and the hand that held the blade gave 4 or 5 quick twists and the next moment, out of my mouth into the basin came tumbling a whole mass of flesh and blood.

I was too shocked and outraged to do anything but yelp. I was horrified by the huge red lumps that had fallen out of my mouth into the white basin and my first thought was that the doctor had cut out the whole of the middle of my head.

'Those were your adenoids,' I heard the doctor saying."¹

Although this incident is a narration of medical rather than dental surgery, Dahl's experience illustrates the continuing problem of managing oral health care for young children while minimizing trauma.

While American children and parents might rarely appreciate how much care has advanced, what is different today from 1924 is obvious to pediatric dentists. Better management of pain, greater certainty of diagnosis, research supporting what is optimal care in different cases, and better informed consent are all improvements that most

reflective people would acknowledge. At the same time, issues remain for the profession and its pediatric patients, including the costs in money and time of using certain methods of care, the risks of anesthesia, and a desire for expedient procedures. Another possible consequence of advances in dentistry might be public expectations of “zero-defect” dentistry, which must be addressed as part of informed consent. “Zero-defect” dentistry means applying the standards of engineering processes in mass production to the inevitably individual nature of patient care. It is risk that arises especially if a dentist “sells” a service, implying a warranty of success. Although it is impossible to guarantee that patients will never leave the dental office unhappy, dentists must address yet another challenge if significant numbers of patients expect “zero-defect” dentistry.

Before leaving Dahl’s adenoidectomy, we can acknowledge that, in the early 20th century, surgical speed was an essential, esteemed, and primary skill for surgeons. The risks of anesthesia, with few options available, were much greater than today. Safe forms of sedation and local pain control were virtually unknown. There were no antibiotics. The systematic study of human behavior through the psychological and social sciences, as well as the application of such knowledge to patient care, had barely begun. Working quickly at the edge of a child’s airway in an office—not a hospital—and operating with virtually no warning of what was impending for the patient, the doctor must have met or exceeded the standard of care.

Current legal duties to pediatric dental patients

The beginning of the 21st century is as good a time as any to not only consider progress but also try and anticipate changing standards of care. Even better, it is an opportunity to develop and promote standards of care that will be acknowledged as exemplary in their foresight and fitness.

The duty of all professions to provide “reasonable care” to patients is rarely disputed. The meaning and application of “reasonable care,” however, continually changes. To the extent that science demonstrates the superiority of one technique over another, it is easier to gain a fair degree of consensus about what the standard of care should be (ie, what is “reasonable care”). Areas that lend themselves less to scientific evaluation, such as dentist-patient relationships, patterns of reimbursement, and political and cultural changes, make discussions of reasonable care more difficult. There are, nevertheless, some legal and social science markers of changing behaviors and relationships in the practice of pediatric dentistry.

Informed consent issues

The process of informed consent is an apparent manifestation of the changing relationship between health care providers and patients in the last half of the 20th century. The change in dentist-patient relations that began in America in the 1960s and 1970s during the medical malpractice crisis moved the legal standard of care for consent from:

1. a barely written permission for care; to
2. what a reasonable dentist thought should be communicated; to
3. what a reasonable patient in the same or similar situation would want to know.

When a parent is consenting on behalf of a child, the standard to consider is “what would reasonable parents in the same or similar situation want to know about the risks and benefits to their child before consenting to care.” Equivalent information about probable outcomes, risks, and consequences for each of the feasible alternatives for care is also essential for full informed consent. In effect, an important starting point for advancing standards of care is to recognize that a patient’s dental problems are his/her own and not the dentist’s. Consequently, some patients will not receive optimal care or any care at all because they won’t agree to the proposed care.

While practitioners might view the modern doctrine of informed consent as too bureaucratized, time-intensive and unnecessary, its proper application might also offer remedies to some vexing patient-management problems. Informed consent allows parents to take responsibility for their children’s actions by indicating circumstances under which the dentist will not be able to provide necessary care with safety unless certain techniques or pharmacological interventions are employed. The time spent with the parent and child can give an early indication that there are unusual problems of behavior or personal history that will need to be addressed. Malpractice attorneys, health care providers who have been sued, and the author’s personal experience indicate that malpractice complaints are much more likely when there is not a good relationship between the provider and patient. Mistakes matter but are frequently accepted when the patient or patient’s parent likes the provider.

Communicating what is and isn’t possible is very important if inappropriate expectations of “zero-defect” dentistry are to be avoided. Informed consent helps clarify that the relationship is a contract between the provider and parent on behalf of the intended beneficiary patient, and the dentist can clarify the dentist’s requirements as to child and parental behavior during the discussion of care.

Discussing behavior management with patients and parents

Surveys indicate that behavior management techniques and pharmacological interventions are not part of informed consent for many dentists, although pediatric dentists appear much more attentive to this issue than general practitioners.² Some of these procedures (eg, nonverbal communications, tell-show-do, positive reinforcement, distraction, and voice control) might be so benign and implicit to ordinary human interactions as to not require discussion (assuming that how different people define these techniques is comparable). Other behavior management procedures would be controversial, and failing to discuss these is, in itself, a red flag for malpractice. Discussing

especially questionable behavior management techniques, including possible pharmacological alternatives, and costs all fall under informed consent.

Techniques some parents might find objectionable

Given that patients or parents have legal control of authorizing treatment decisions, there are techniques accepted by at least some dentists that might be objectionable or even unacceptable to the parents of at least some pediatric dental patients. Hand-over-mouth with airway restriction (HOMAR) is a prime candidate for abandonment.

In 1998, the results of an appeal by Parneet S. Sohl, DDS, of his suspension by the Dental Board of Ohio were reported in the legal literature. Dr. Sohl came to the attention of the board after his office manager complained of abusive practices towards patients. An expert hired by the board testified that—while “to those not trained in pediatric dentistry, acceptable behavioral management techniques can appear shocking or harmful”—he did find numerous departures from acceptable practice by Dr. Sohl.³

This statement red flags any procedure that “can appear shocking or harmful to the public,” especially if it is not explained fully or does not receive the parent’s informed consent. It appears that, in referring to the appearance of shocking or harmful techniques, the board’s expert was referring to HOMAR.

The 1998 appellate decision contains additional information provided through testimony by Dr. Sohl’s business manager and 2 dental assistants. The witnesses testified that Dr. Sohl went further than HOMAR. The board found that his techniques included “applying heavy pressure with his hands over the mouth and nose of children to silence them, placing children in headlocks, choking children, applying a nitrous mask over children’s faces so that it left an indentation, threatening children with needles, and telling them ‘to shut up if they ever want to see mommy again.’”³ One could argue that Dr. Sohl’s practices were a violation of proper techniques of HOMAR, and that the procedure itself was not at issue.

The decision implies more, however. Once a state dental board recognizes and admits that some parents and pediatric dental patients might find HOMAR unacceptable, then the profession is “on notice” about the use of such procedures. Indeed, reading further in the decision, we find that the court ruled that any of 4 techniques used by Dr. Sohl were sufficient to justify the revocation of his license. One of the 4 techniques was “applying the hand-over-mouth technique in such a way as to deliberately prevent the child from breathing.”

Once a technique comes under special scrutiny and, in fact, is found to be legally unacceptable in one instance, a legal risk to the dentist arises either from failing to fully gain consent for the procedure or using the procedure. (The overriding importance of informed consent, when certain types of “behavior management” or “control” of patients

is being exercised, can be seen in the definition of “coerce”, as defined in *Webster’s New Collegiate Dictionary* [1978]: “Coerce: To restrain or dominate by nullifying individual will.”)

Considering an acknowledgement from a legally authorized representative of the profession in *Sohl v Ohio State Dental Board* that “acceptable behavioral management techniques” may shock or appear harmful to the public, it is puzzling how such techniques are not fully consented. If consent before using an “apparently shocking or harmful procedure” is of recognized importance, are dentists ready to provide the underlying science of the procedure’s risks and consequences that would facilitate “truly informed” legal consent?

Modern informed consent must provide patients with probabilities of success and risks for adverse outcomes as well as alternatives and the likely consequences of each option. Sophisticated information at this level usually is derived from scientific studies. Any technique that has not been empirically evaluated in controlled scientific studies can be harder to explain objectively, because this type of data will not be available. The alternative of simply not informing patients or parents of a technique considered universally standard (ie, HOMAR) by at least some dentists today can easily lead to a misunderstanding and is a major liability risk.

Before leaving the case of *Sohl v Ohio State Dental Board*, it is useful to review 4 other law findings of fact and conclusions reached by the Ohio State Dental Board. These other findings reveal how out of the ordinary the care of a dentist might be before liability is found, the importance of making clear what is acceptable and unacceptable behavior management, and the difference between struggling with reasonable standards and responding to outrageous conduct.

In addition to discrediting the use of HOMAR as applied, the hearing examiner held that Dr. Sohl mistreated and abused his patients by:

1. placing hypodermic needles between the eyes of the patient, threatening them, and telling them to “shut up,” in conjunction with either the unacceptable use of a needle as a threatening device or the unacceptable action of telling the child if he/she behaved, the parent would be able to return to the room;
2. HOMAR;
3. grabbing patients by the throat and choking them; and
4. holding one patient up against the wall of the operatory and shaking him.

With respect to HOMAR, there is reason to think that at least some attorneys believe juries will find it intrinsically unjustifiable. In a wrongful death case, the plaintiff’s attorneys attempted to introduce the use of HOMAR as a basis for a disabled child’s death even when the court ruled they had not provided a sufficient factual basis to believe that the dentist being sued had actually used the technique. The dentist did prevail at trial and on appeal, but it is instructive that the complaining side felt they could gain advantage if they could establish the use of HOMAR.⁴

Pharmacological management as an alternative

Identification of an especially risky procedure from the public's perspective, as represented by the plaintiffs in *Sohl v Ohio State Dental Board*, some members of the dental community, and at least some appellate judges, serves only as a starting point for a comprehensive evaluation of options for behavior management of pediatric dental patients. An obvious alternative to HOMAR is the use of general anesthesia (GA). Anesthesiology is an aspect of medical practice that is frequently litigated, however, and dentists have learned in criminal and civil law settings that the risks of GA require special training, equipment, and perhaps team approaches in specialized settings.

There are many medical and dental appellate court decisions related to the standard of care for GA. As Stephen Wilson⁵ indicates, "At least one category of behavior management technique consistently taught, albeit in variable formats, and the most likely to cause potential long-term adverse outcomes, is that of the pharmacological management of the patient." Wilson⁵ extensively describes the research literature on pharmacological management in the dental setting, listing 11 factors known to play a role in outcomes. Rather than repeat the elements of Wilson's analysis, a few cases from the legal literature will illustrate some of the issues associated with use of pharmacological interventions. It must be clear, however, that tragedies represented by these examples do not provide an epidemiological record on which policy can be based. Instead, these cases illustrate 2 realities that must be addressed:

1. the risk that pharmacological interventions will not be done correctly; and
2. pharmacological interventions carry risks that add to the responsibilities of health professionals who must employ them.

Dr. James Michael Davis was "temporarily" allowed to continue placing patients in conscious sedation in Texas after that state, in 1989, began to tighten requirements for licenses to provide conscious sedation. According to the official court transcripts of *Davis v Texas*:

"A manufacturer's representative had personally informed (Dr. Davis) that he had been administering overdoses of Versed to his patients, but Martha Alvarado, one of (his) dental assistants, said that (his) only reaction was to laugh. (This) prompted Alvarado to give (him) notice that she was leaving his employ. Despite having subjected a majority of patients, to whom he administered Versed to deep sedation, a level of sedation beyond conscious sedation that posed greater risks and required additional training and safety measures to properly administer, (Dr. Davis) did not train his staff in emergency procedures. (His) dental assistants, and apparently (the dentist) were not certified in CPR (cardiopulmonary resuscitation), and the dental assistants were not trained in how to maintain a patient's airway in the event that the patient suffered respiratory problems. Furthermore, the only monitoring equipment that (he) had was a blood pressure

*monitor; he did not have a pulse oximeter, oxygen, an oral airway tube, or other emergency resuscitative equipment readily available."*⁶

After a 32-year-old male patient died and just after Dr. Davis had trouble resuscitating the previous patient—a 16-year-old boy—from a "substantial overdose" of Versed, Dr. Davis was charged and convicted of involuntary manslaughter of a patient with a deadly weapon and sentenced to 5 years in prison. A conviction for second degree murder of 3 dental patients, one an adolescent, was upheld against Dr. Tony Protopappas, for whom the California appellate court ruled: "This is more than gross negligence. These are the acts of 'a person who knows that his conduct endangers the life of another and who acts with conscious disregard for life.'"⁷

Criminal charges usually involve extreme fact patterns, such as those just described. For the average dentist, a more realistic risk would be a negligence lawsuit for inappropriate use of or response to complications of anesthesia. For example, in *McKinley v Vize*, an 18-year-old asthmatic suffered a heart attack and died in a local hospital's operating room, with a nurse-anesthetist present, immediately following extraction of 2 impacted wisdom teeth. Only the patient's long-term dentist was successfully sued for failing to communicate the patient's diagnosis of asthma to the nurse-anesthetist.

Decision-making in the face of limited knowledge, risk, and negotiated responsibility

The risks of various behavioral management techniques have not been well studied. Some interventions appear reasonably benign, assuming reasonable applications. The risks of anesthesia have been better researched. While there is almost no documented risk from most behavioral management techniques, the risks of anesthesia include brain damage and death. On the other hand, millions of patients are anesthetized without death or other severe repercussions.

Considering that pediatric dentists do not know the extent of certain risks, it is important to communicate that information in age-appropriate language to patients and their parents. There are psychological limits to the process of informed consent for patients. For example, even though the possibility of death or serious impairment due to anesthesia is very remote in terms of probability, the worst possible consequence is something that most people can understand quite well. What most people appear to have trouble understanding is the meaning of probabilities and likelihoods for them as individuals. Thus, many patients sometimes cannot agree to something very beneficial to them, even though the probability of a catastrophic outcome is very slight. If the dentist withholds key informed consent information, even with good intentions, the dentist can assume an unwarranted burden.

In the long run, however, it is the goal of health care professionals and scientists to reduce the extent of our ignorance.

The kinds of research needed to reduce the dilemmas of behavior management of pediatric dental patients should be determined.

Progress regarding pediatric dental patient behavioral management dilemmas

There are a number of behavior management research areas that can be identified. Perhaps behavior management research can progress through:

1. a concerted effort by the American Academy of Pediatric Dentistry;
2. special awards of recognition, fellowships, or research funds for advances in practice;
3. systematic efforts by dental schools; or
4. partnership support from foundations and government.

Giving individuals a perception of more choices enhances their learning and compliance with behaviors thought to produce favorable outcomes. *Choice and Perceived Control*, a seminal source of work within this framework, was edited by Perlmutter and Monty in 1979 for the US Army Human Engineering Laboratory and remains a valuable resource today.⁸⁻¹⁶

More recently, researchers like Ron Blount have examined infant's and children's distress and coping during acute painful medical procedures and injections; Blount has undertaken projects to determine the effects of parents' psychological functioning on the severity of syncope symptoms (eg, fainting, emergency room visits) in pediatric cardiac patients, as well as projects related to infants and children undergoing frightening and/or painful medical procedures.¹⁷ These types of research might provide new avenues for behavior management of pediatric dental patients.

Perhaps 2 questions should be asked:

1. What perceptions do different professionals have of child patients when caring for them?
2. How do the perceptions of professionals significantly alter both the way the child is treated and the child's compliance?

In a study of institutionalized adults, Houts et al examined the attitudes of staff toward patients in light of changing legal and political changes. They asked the question: "What are the cognitive mechanisms used by staff to deal with the inconsistencies implicit in viewing a client as dependent on staff and, at the same time, choosing and directing staff's work?"¹⁷

While that study did not look at children as clients, the adults were affected by mental illness or mental retardation. Thus, the adults are of interest at least to the extent that their ability to affect their environment was impaired. Results showed that "when staff approve of the client's controlling behaviors, subjects perceived the client as more cooperative, kind, contented, courteous, gentle, congenial, respectful, grateful, calm, safe, obedient, happy, careful, and strong. With the exception of the trait strong, this list describes a client who is well adjusted to institutional life and whom

[sic] staff can work with easily. Where staff disapprove of the client's controlling behaviors, the client is perceived as a more difficult person to work with. These results indicate that staff's response to a client's behavior does influence general traits that were ascribed to that client."¹⁷

Overall, "these results suggest that when control is viewed negatively by staff, clients will be seen as less respectful and less cooperative than when control is viewed positively. We do not know, from these data, how these cognitive differences will affect how staff treat clients. If, as is likely, staff expectations influence client behavior, this may spiral into more noncompliant behavior and even stronger feelings on the part of staff. This is an important question for future research."¹⁷

Simultaneously, the unique problems working with children when possible discomfort and pain are associated with consciousness, possible obstruction of breathing, inevitable interference with talking, and other movement, present an extremely valuable "laboratory" for researching the management of pediatric patients—research that could be helpful to all forms of health care. Partnerships with other pediatric providers can be opportune, particularly at this time.

Among research topics that might be considered are:

1. What are the adverse and positive effects from various behavioral management techniques?
2. Can the process of "negotiating informed consent" be improved to reflect research knowledge about perception of control and positive outcomes?
3. How does the attitude of dentists towards patient control affect the "negotiation" of care?
4. Can the tradeoffs between various behavioral and pharmacological management approaches—as well as variations in the combined use of behavioral techniques and anesthesia—for the wide range of patients needing treatment be better explored?
5. How can different pharmacological interventions and a broad range of communicative approaches be best combined for optimal results for different patients?
6. How is the use of behavioral techniques and anesthesia altered as a function of funding type for patient care?
7. How do parental decisions change when anesthesia needs to be paid for by the patient?
8. How do personal safety perceptions, caregiving characteristics, and protocols of dentists and their staff alter the need for specific behavioral techniques and pharmacological management?
9. What common procedures or techniques might be viewed as "shocking" or "inherently harmful" by the public, and how should these perceptions be addressed?

In the interrelationship between ethics, law, and behavioral management, the issues that need to be addressed include:

1. re-examination of informed consent procedures to determine when and how to permit knowing waivers of extended consenting, perhaps by category of procedure;
2. how better attention to specific, rather than extensive, written informed consent documentation related to high or even remote risk procedures can increase opportunities for quality audits and reduced liability;
3. how a better allocation of decision-making responsibility can be achieved between parents and dentists, as related to tradeoffs among various techniques; and
4. how increased use of developmentally appropriate “assent,” from children of different ages, encourages understanding and cooperation from child patients.

Summary

It is no longer possible to provide care to children only on the premise that what dentists do is “for their own good.” Increasingly, all child-caring professions and institutions will have to establish:

1. “metrics” or evidence that what is stated to be good is actually good and how we know that; and
2. what the limitations are of what is proposed.

Following the 1988 Iowa City conference, pediatric behavior management has advanced enormously in less than 2 decades through a documented reduction in use of aversive techniques. Thanks to a better understanding of the need for improved behavior management and how needed behavior can be negotiated or achieved, further opportunities exist to apply multidisciplinary research and practice towards an ultimate goal: That pediatric dental care will be the least abusive, or most benign regarding untoward consequences, of the major health services for children.

Acknowledgements

The author wishes to thank Roberta Reis, a law clerk at the University of Denver School of Law, for help in preparing this paper, and Henry Zelas, a retired dentist from Christchurch, New Zealand, who critiqued an earlier version of this paper.

References

1. Dahl R. *Boy: Tales of Childhood*. New York: Viking Penguin Books; 1984:69-70.
2. Adair S. A Survey of Members of the American Academy of Pediatric Dentistry on Their Use of Behavior Management Techniques. Conference paper presented at: American Academy of Pediatric Dentistry Consensus Conference on Behavior Management. November 21-23, 2003; Chicago.
3. *Sohl v Ohio State Dental Board*, 720 NE2d, 187-188 (Ohio App, 1998).
4. *Frans v Gausman*, 27 Kan App 2d 518 432 (Kansas Ct of App, 2000).
5. Wilson S. Pharmacological management of the dental patient. Paper presented at: American Academy of Pediatric Dentistry Consensus Conference on Behavior Management; November 21-23, 2003; Chicago.
6. *Davis v Texas*, 955 SW 2d 340 (Court of App of Texas, 1997).
7. *People v Protopappas*, 201 Cal App 3rd 152, 246 Cal Rptr 915 (Calif Ct of App 4th Dist, 1988).
8. Effect of reduction in the amount of choice and the perception of control on learning. In: Perlmutter LC, Monty RA, eds. *Choice and Perceived Control*. New York: John Wiley & Sons; 1979:91-106.
9. Blount RL, Morris JAB, Cheng PS, Brown RT, Campbell RM. Parent and child psychosocial factors in pediatric syncope and other somatic symptoms. *J Consult Clin Psych*. In press.
10. Blount RL, Piira T, Cohen LL, Cheng PS. Procedural pain. *Behav Modif*. In press.
11. Blount RL, Seri LG, Benoit MA, Simons LE. Effective coping: Essential but ignored in pediatric pain assessment. *The Suffering Child. A Multidisciplinary Journal of Children's Pain*. 2003;4. Available at: www.thesufferingchild.net. Accessed October 19, 2003.
12. Blount RL, Piira T, Cohen LL. Management of pediatric pain and distress due to medical procedures. In: Roberts MC, ed. *Handbook of Pediatric Psychology*. 3rd ed. New York: Guilford; 2003:216-233.
13. Frank NC, Brown RT, Blount RL, Bunke VL. Predictors of affective responses of mothers and fathers of children with cancer. *Psychooncology*. 2001;10:293-304.
14. Cohen LL, Blount RL, Cohen RJ, McClellan CB, Bernard RS, Ball CM. Children's expectations and memories of acute distress: The short- and long-term efficacy of pain management interventions. *J Pediatr Psychol*. 2001;26:367-374.
15. Blount RL, Bunke VL, Cohen LL, Forbes CJ. The Child-Adult Medical Procedure Interaction Scale-Short Form (CAMPIS-SF): Validation of a rating scale for children's and adults' behaviors during painful medical procedures. *J Pain Symptom Manage*. 2001;22:591-599.
16. Manimala R, Blount RL, Cohen LL. The effects of parental reassurance versus distraction on child distress and coping during immunizations. *Children's Health Care*. 2000;29:161-177.
17. Houts PS, Quann P, Scott RA. Staff perception and client initiative and control. In: Perlmutter LC, Monty RA, eds. *Choice and Perceived Control*. New York: John Wiley & Sons; 1979:143,148-152.