Pediatrics

Fourth Edition

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Preface

The previous editions of *Pediatrics* have been met with overwhelming success. Medical students find the text concise and well-proportioned; residents use it extensively for review, and primary care providers consider it indispensable, particularly because of the inclusion of sections on differential diagnosis and pediatric emergencies.

The task of dealing with the impressive body of new knowledge, yet maintaining the usefulness of the book, has been monumental considering the decision to decrease the size of the text by one-third. Every effort has been made to deal with common and important problems in reasonable detail. Complex issues have been presented from a conceptual point of view, assuming that if they cannot be presented in a few simple words they are not worth the inclusion in a text of this size.

The credit for any success that the present edition might have goes to the distinguished and dedicated contributors. My special thanks are due to the staff of Little, Brown publishers, particularly Mr. Louis C. Bruno, Jr. for his expert assistance. Dr. Paul de Bellefeuille has provided excellent suggestions and honored us by joining as a contributor. The expert secretarial and managerial skills of Mrs. Macel Thompson have been the greatest asset. To her and all those who have made this 4th edition a reality, I am truly indebted.

M. Z.

Notice. The indications and dosages of all drugs in this book have been recommended in the medical literature and conform to the practices of the general medical community. The medications described do not necessarily have specific approval by the Food and Drug Administration for use in the diseases and dosages for which they are recommended. The package insert for each drug should be consulted for use and dosage as approved by the FDA. Because standards for usage change, it is advisable to keep abreast of revised recommendations, particularly those concerning new drugs.

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The Pediatrician, the Child, and the Family

The Well Child and the Physician

Infancy and childhood have implicit in them the beauty of growth and development and the anticipation of the future — the exquisite blend of nature and nurture, the genetic endowment and the impact of environment.

Pediatrics devotes its attention fully as much to the well child as to the sick child. It strives to preserve well-being or to achieve it when it is lacking, mindful of the present, anticipating the adult to be. The achievement of optimal health is an immediate target of the anticipatory years. The definition of *optimal*, of course, is primarily cultural, and *normal* is an elusive quality varying in the eye of the physician and with the circumstance of the individual patient.

We all, however, use the concept of the normal child, defining the concept in pieces if not in the whole, and we no longer restrict the concept to physical growth and organic development. It encompasses intellectual progress, emotional balance, and social adjustment. The concept underlies a perhaps pretentious goal, that of uniting all these components into a whole, permitting happy progress for the child, seeking the development of a competent, relatively independent being who, for the moment, is quite dependent in a setting of parents, family, and community, each defined by its varying customs and prejudices.

The role of the pediatrician in working toward this goal is shaped and ordered by the consent and cooperation of others. The physician's directives may be implemented only with the support of parents and school, and the pediatrician must be willing to offer support to these others who play a much larger role in the lives of most children. The physician may begin to assist the youth more directly to establish independence and personal identity during the time of middle and late adolescence. It is, however, but assistance, and it gives promise of a successful intervention only to the extent that the physician is able to recognize and to acknowledge constructively the other powerful factors in the patient's life.

Prenatal Period

The physical environment of a child may be said to begin at the moment of conception, but, in fact, it stretches back into infinity. Conception, however, can be reasonably accurately

dated, and sometime between this accidental, casual, or planned event and the delivery of the baby, the pediatrician should encourage at least one prenatal visit for expectant primiparous mothers and the fathers. Such a visit gives the chance to explore the hereditary background, to establish rapport, and to inquire into any deviation from normal in the pregnancy. First-time parents are generally excited and apprehensive. The discussion should be open but might include the material needs of the infant — clothing, bedding, bathing, and feeding. Feeding is always of particular significance. Breast feeding is the method of choice the world around, but to make it an inflexible demand would be a mistake. The mother who breast feeds her infant resentfully and because of pressure from family or physician might well have an irritable infant with poor weight gain. The circumstance should be encouraged but not be forced. It is better to have a contented mother who bottle feeds than an unhappy one wrestling with a hungry baby at an inadequate breast. Most women, however, anticipate nursing with joy and require only positive reinforcement from family, friends, and health professionals. The deprived families of the developing areas of the world need special services to assure proper advice concerning nutrition and health education.

The prenatal visit affords the opportunity to assess the temperament and character of the parents. An inquiry into their childhood experiences and feelings is often predictive of their responses to the expected child. This total picture will enable the physician to modify approaches to the problems of an individual child in a particular family setting. The decision concerning nursing, for example, is much facilitated in such an interview. Small brochures or booklets that describe what can be expected of the baby during the first weeks or months of life can complement such interviews prenatally and postnatally, but they cannot substitute for the live interaction of parent and health professional.

Neonatal Period

The initial approach to the newborn infant requires, first, the assessment of the child and the determination of normality and the discovery of abnormality, and, second, the communication of that information to the parents. Then, too, one must offer instruction about the baby and respond to questions. A happy outcome for this interaction requires empathy and a sense of this impressive moment in the life of the family. It requires the conscious effort for good rapport if there is to be an important immediate impact and if satisfactory continuous communication is to be achieved with the family.

The physician must, if problems are discovered, be honest yet sympathetic. It is not necessary to be harshly blunt or determinedly objective all the time. Deception, however, will taint the relationship and undermine confidence. The parents must be given continuing support as they absorb the initial blow, come to understand it, grieve for the loss that the problem with their child imposes, and establish life under the constraints of that problem.

First Year

Contact with the family is ordinarily most frequent during the first year of a child's life. The first-time parent may be somewhat more dependent and insecure; indeed, educational or social advantage does not assure security. Each of us needs direction and the reassurance of competence when the parent's role is assumed.

In particular, one must be ready to protect and support the self-esteem of the woman who becomes unsuccessful at breast feeding. The physician should make the point that the early weeks at the breast are the most important emotionally but that the mother may consider the use of supplementary bottles, early introduction of solid foods, or early weaning with deliberate caution but without guilt or a sense of failure.

Circumstances such as this require access to the pediatrician. Some prefer a set telephone hour for discussion of routine care and minor problems. Indeed, a weekly call by the mother can be helpful during the first month at home, and a home visit at least once during this period has important value for teaching the physician about the family and establishing communication and a base for support. Follow-up visits during the first year have a number of purposes:

1. To examine carefully for undiscovered congenital anomalies or for early signs of developmental abnormality. A checklist, assigning certain tasks to each visit, can help prevent omissions or oversights.
2. To assess growth and development, using measurement of the head size, height, and weight and inquiry into the developmental milestones (see Chaps. 3, 4). Social and cultural pressures are a major source of difficulty, for example, neighborhood competition over the size and weight of contemporary babies. It may be difficult to persuade a mother or grandmother that each child has a constitutional ideal and that one child may quite acceptably weigh as little as 8 kg at 1 year and another as much as 12 kg. Height and weight charts depicting normal upper and lower limits are mandatory in every child's medical record and are valuable educational aids (see Chap. 3). The

estimate of the developmental progress of the infant is vital to the early discovery of problematic states. Each such problem has prepossessing importance, but some are easier to find than others. It is difficult, for example, with "soft" signs to appreciate early that disabling but elusive condition inaptly named minimal brain damage (see Chaps. 3, 4).

3. To counsel concerning the infant's diet. A wide range of variations is possible, but the diet must fulfill the criteria of freedom from pathogens, adequacy in nutritional elements, and sufficiency without excess of vitamins. Poorly tolerated foods must be withdrawn. The potential of food sensitivity must always be considered, and constraint must always be exercised when considering the introduction of any food other than breast milk. Some pediatricians advocate beginning the use of a cup at 5 or 6 months and encourage the child's hand feeding whenever the child seems so inclined. It is a common practice in developing countries to continue breast feeding for 2 years or more since this may be the only source of animal protein for many infants. Socioeconomic factors that delay the introduction of solid foods until late in the first year need to be considered, and cultural factors should be allowed full play within the constraints imposed by the basic needs of the infant. There need certainly be no rush to introduce solid foods, and there is a need to be cautious about excessive parental devotion to particular regimens.
4. To administer immunizing agents that are regionally appropriate. Immunization against diphtheria, whooping cough, tetanus, poliomyelitis, and measles should be included for all normal children in all countries. Booster shots should be planned at proper intervals. In addition, BCG (antituberculosis immunization) and typhoid and yellow fever series are essential in many areas.
5. To provide the parents with an opportunity to ask questions and to discuss problems. A relaxed environment, attentive listening, and a few judicious remarks will provide much useful exchange regarding the parent-child interaction and sociocultural attitudes.
6. To educate regarding the prevention and treatment of accidents and injury. This is in many areas the principal source of morbidity and mortality in children past the age of 2 years.

One can recognize the expression of certain temperaments during the first year. Patterns of reaction and response are being formed that can persist for better or worse throughout life. Frequently these budding characteristics may not be tolerable to parents. Among the most valuable and enduring contributions of the physician are fostering the parents' understanding of the child's behavior, channeling strengths in positive directions, and ameliorating handicaps to the extent possible so that they do not impede progress toward realistic goals and ambitions. This is not psychotherapy; it is true mental hygiene. Good rapport with the family can be of incalculable assistance at this level of support and primary prevention.

1 to 3 Years of Age

The child from 1 to 3 years is an active, seemingly tireless explorer, striving to examine and to define the world through personal initiative and the use of all of the senses. Accidents and poisonings are common. A discussion with the mother about the potential of aspiration of foreign objects and ingestion of noxious agents is essential; advice regarding prevention of serious falls and street accidents, a must.

Pedal locomotion focuses the attention of parents on the legs and feet of children of this age. Concern about bowlegs, knock knees, and flatfeet is frequently expressed. Most such conditions, perceived as abnormal, are truly phases in development, and many more are of constitutional heritage rather than signs of disease such as rickets. Shoe wedges and other manipulative devices are often unnecessarily prescribed. These interventions cannot substitute for sound education and explanation. Forbearance and rapport make good allies.

Speech is a major developmental feature. The child who is not using phrases at 2 to 2½ years of age becomes suspect for possible difficulties. Hearing problems must be considered early and appropriately investigated in any instance of retarded speech. Always respect and explore a parent's concern about hearing regardless of the age of a child.

The office examination is frequently a wrestling match at this age. The parent's lap rather than table should be relied on so that the child may feel more at ease. Reason, threats, or bribes are not very effective. It is just as well, therefore, for the parent to restrain firmly when necessary and for the doctor to complete the examination swiftly.

Preschool and School Age

The nursery school, day-care center, and kindergarten have, in recent years, given a further dimension to the early care of children, particularly as women have asserted their appropriate societal role in a more determined fashion. The multiple purposes and objectives of early childhood care and educational settings offer advantages to every social level — a safe and secure haven for the children of working

mothers; a noonday meal, sometimes government funded, to augment a perhaps limited diet; and an opportunity for children to see and to hear things, to take part in social activities, and thus to learn in a circumstance in which they may not have had previous experience and that the family might not otherwise have been able to provide.

The child's first approach to the school experience is a crucial step. Children are expected to enter school at an empirically established age in many countries. Educators have too often been forced to plan in a manner that establishes the so-called average child as a statistical concept. Curricula are designed to deal with groups and not individuals. Thus, many of the "slow" are laggard not because of an inherent lack of ability but, most often, because of individual physical, emotional, or social handicaps compounded perhaps by societal or institutional limitations or, unhappily, indifference or ignorance. These problems must be recognized. Humiliation and inadequate performance in the first grade of school can effectively establish a hostile, negative attitude, replacing achievement satisfaction with failure and too often resulting in school dropout and behavioral disorganization.

A thorough preschool evaluation, including assessment of visual and auditory acuity, therefore, is essential. Physical and mental handicaps that are to any extent distracting or exhausting should be recognized and properly managed. Children whose defects may warrant special consideration should be grouped for special classes or, if the circumstance suggests, considered for continuation in the mainstream of the childhood experience.

Many children might benefit by an additional year in the preschool setting. We sometimes tend to ignore the fact that future success or failure is far more important than the age of entry into school and that the best for each child must be individually determined. We must resist the tendency of educational institutions to compress the child into preset patterns and predetermined pathways.

The school, after all, controls as many as 30 hours a week of the child's time and constitutes the most compelling demand on his attention outside the family and home. The physician, therefore, should establish a comfortable and cordial relationship with the schools in the vicinity and should, as a child-oriented and an educated member of the community, strive to improve the educational opportunities for children. Talks, meetings, and personal communications with the staffs can be useful in this regard. The provision of appropriate pediatric care also requires full understanding of the method of administration and the significance of psychological tests commonly employed in the school system. In any event, the onset of the school experience, at whatever age in the life of the child, brings into play the need to balance those forces that are often in conflict: the desire for ultimate success and the impulsive reach for immediate gratification. The parent plays a major role here, and the child may often be a pawn. The pediatrician can be the moderating influence, an intermediary, often providing the view that preserves perspective for the child.

A great number of problems can evolve, then, during the preschool and school years. Some of them are discussed here.

BRAIN INJURY. The spectrum extends from evident and severe cerebral palsy, with multiple-system involvement to the extremely subtle conditions of cerebral dysfunction.

MENTAL RETARDATION. Recognition is easy in the severe circumstance. However, quite common borderline handicap may too often escape recognition until problems develop in school. The child then is put at risk for the frustration of efforts, becomes overwhelmed, resents the label of failure, and adopts defensive measures inimical to his or her best interests. The earlier an accurate appraisal, the sooner a more suitable setting can be planned for that child. Still, caution must be taken to assure that borderline manifestations of limited intelligence are truly organic and not psychosocial in origin. There can be difficulty in this instance in an abrupt transition from an illiterate or culturally constrained home to an alien, formal school setting (see also Chap. 4).

EMOTIONAL HANDICAPS. There are emotional problems so overpowering that little energy remains for the tasks of daily living and learning. The attempt to cope, to preserve energy, may result in withdrawal into personal fantasies and "model" behavior. Quite the opposite may occur instead. The expression of school phobia and the adoption of impulsive, disruptive behavior may trap the child in further difficulty if the institutional or parental response is insensitive to the true need and if, as a result, unenlightened discipline is imposed.

In sum, these disabilities are diverse and seemingly infinite in number and complexity and, added to the problems caused by visual defects, hearing disorders, speech defects, cardiac lesions, and epilepsy, among many others, alert attention is required for the earliest possible detection and integration of the management of the problem in a manner least disruptive to the child's and the family's life. The pediatrician as advocate may need to function at the interface of child with family or family and child with school. Appropriate advocacy requires, first, recognition of the fact that this is part of the role of the pediatrician and, after that, a multitude of sensitivities and skills, not the least of which is the ability to balance constantly the life requirements of each

of the persons involved. There may be conflicting needs and, in the end, it is the child who is the patient and the child in the context of the family who must be served first. Obviously, in the early years, school is one of the prime imperatives, but, as time passes, the work of adolescence and the struggle for identity and independence — the reach for the future — take center stage.

Adolescence

Adolescence (see also Chap. 22) is one of nature's most fascinating transformations, and it is fair to characterize the period as frequently turbulent and tumultuous. Some children may live it evenly with gradual evolution to maturity; others may endure a tortured, laborious time. There is, however, a Gaussian distribution to the quality of the experience. Certainly the period is a proving ground for the physician, and if there is inherent value in the continuity of the doctor-patient relationship from infancy on, it becomes evident here. A heritage of positive experience with the patient and the family will make possible valuable interaction during the time of adolescence.

The first challenge perhaps is in the wide normal variation in physical growth and development. This is, after all, a time of accelerated growth and of body transformation that heralds the unleashing of sexual interest and desire and the struggle for emancipation. It is imperative to seek acceptance by contemporaries, to set goals, to test values, to explore life's purpose, and to decide on an occupation.

Adolescents may find some of the somatic and parallel emotional transformations overwhelming. Some may face the change earlier than others, and those who must wait need a sensitive, temporizing explanation and reassurance. In any event, when change ensues, the new physical habitus may approach that of the adult, but social acceptance in that status will quite often lag considerably behind.

These are years of physiological and psychological stress and organic vulnerability. Repeated thorough examinations are important since psychic strains may be diversely expressed and somatization is not uncommon. Successful intervention requires intimate knowledge of the individual. Time *must* be taken to achieve this sensitivity; if it is not, the potential for the provision of good medical care is too readily lost.

It is important to respect the adolescent's need for privacy and self-esteem. A first step involves exclusion of the parents from the examining room, a distinct, symbolic change after all the years of working with the child through intermediaries. The youth should be encouraged to take on direct responsibility for health care and for communication with the doctor. The parent can, of course, be invited into the examining room on the patient's expressed desire or as a chaperone when that is necessary. Certainly it is vital to include examination of the genitalia in both males and females. This should, of course, be sensitively done. Too many physicians omit these procedures and, in so doing, lose the opportunity to gain vital information, to reassure, and to give positive messages regarding the body and human sexuality.

Indeed, attention to physical needs should not be lost in the social, behavioral context of adolescence. For example, tuberculin test conversion increases in frequency; urinary tract infections increase in number, particularly in females; and, also in females, anemia associated with the onset of menses and aggravation of abnormal spinal curvatures become more evident. There must, then, be attention to a changing frequency distribution of the kinds of problems encountered. The thyroid gland must be palpated with care. Recurrent headaches may assume the classic pattern of the migraine or tension varieties. Undiagnosed abdominal complaints may develop the periodicity of peptic ulcer or culminate in the bleeding of ulcerative colitis. Above all, anatomical and physiological evidence of gonadal maturation should be observed and recorded. These changes are most likely to cause anxiety. Be it the obvious acne or the concealable masturbation, the mysteries are many and the confusions perplex and preoccupy.

It is essential, therefore, to be ready and willing to discuss all this openly with the adolescent. The wide variations in onset and completion of the physical and emotional processes of this period must be explained with conviction and with honesty.

Age itself is the first clue to the need to give this kind of attention. Physical change also alerts. Breast changes usually precede menstruation by about 2 years. This allows adequate time to engage in anticipatory counseling. Variations in height, from too short to too tall, require reassurance, as do variations in the onset of nocturnal emissions or of menses. Metrorrhagia, menorrhagia, dysmenorrhea, and amenorrhea, both primary and secondary, present a variety of concerns. Primary amenorrhea and short stature arouse suspicion of gonadal dysgenesis. Secondary amenorrhea suggests pregnancy. Unfortunately, there may be reluctance to do a "complete" physical examination — particularly the rectal and pelvic procedures in the female. There are those who advocate a rectal examination for every child. Others fear that this is destructive to the relationship one is attempting to preserve and a violation of the exaggerated modesty quite common at this time. Nevertheless, these examinations are often necessary, and a personally secure, mature,