Round Table Discussion

SPEECH DEFECTS IN CHILDREN

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Chairman Bloomer: In leading this round table I have with me Dr. Charles Strother, Professor of Clinical Psychology in the College of Medicine of the University of Washington at Seattle. I am from the University of Michigan Speech Clinic in Ann Arbor. We are very glad to be with you at this round table because it suggests the close relationship between the fields of speech pathology and pediatrics.

We come to the American Academy of Pediatrics as representatives of the American Speech and Hearing Association which is the national organization for professional people interested in the study of speech disorders, their causes and their methods of treatment. Perhaps you are familiar with the official publication of the Association, the Journal of Speech and Hearing Disorders. We bring you greetings from the Association.

I think you may be interested in a brief outline of our general plan of discussion for the afternoon. The first part of our discussion will review the importance of a knowledge of speech disorders to specialists in pediatrics. Next we shall discuss in some detail the nature of these disorders and the etiologic factors which are frequently encountered, and then we shall suggest methods for handling the speech problems which the individual child may present. We shall be glad to have your participation, your questions, and your comments at any time during our discussion.

We feel that this subject is particularly timely because of the steadily increasing interest of pediatricians in the general aspects of child growth and development rather than in only the medical care of children. Certainly we must concede that the development of speech is fundamental to normal growth, and is highly dependent upon the physical and environmental circumstances which are the proper concern of pediatrics.

In suggesting the basis for the modern study and treatment of speech disorders there are 2 principles that I wish to state for you this afternoon. The first is that normal speech is a function of normal physical development, normal personality and an environment conducive to the learning and expression of language. I think we don't need to elaborate that postulate a great deal; we pretty well accept the notion that the normal child learns to talk normally. We accept also the idea that speech is a learned activity and that anything which interferes with the normal course of learning speech or language is destined to leave a permanent trace unless special means are instituted for correcting it.

The second point that I bring to your attention is that speech is essential to normal personal development. There are at least 4 ways in which speech influences the development of the individual. First of all, and this is quite important, speech affects the child's own evaluation of himself. If his speech is deficient and is thus evaluated by the child it often leads him to feelings of inferiority. Speech is a highly personal thing, one of the most personal things about us, and we are all well aware of the degree to which people judge us by our speech. Second, our speech affects not only our evaluation of ourselves but it has economic implications because it bears on our employment opportunities. There are many instances of people who have achieved success partly because of their superior ability in speech, and many instances of failure because of inability to use speech effectively. Third, the ability to speak partly determines our social status. This influence is frequently noted in our clinical practice and in our observation of school children. Children, in their selection of friends, tend to reject those children whose behavior, whether speech behavior or other behavior, deviates unacceptably from the average. There is a clear tendency for children to reject the child whose speech is abnormal. A fourth way in which speech proficiency affects the individual is in the field of educational advancement. To a large extent our willingness to persevere toward educational goals...
is dependent on our success in handling speech. Many a speech defective child or adult has quit school to avoid the humiliation of class recitations.

If we are to agree that speech is so important in personal development, it is logical at this point to ask how speech is acquired and by what stages it is acquired. Many of you are well aware of these things but it may be helpful to review them briefly.

First of all, the normal development of chewing, sucking, swallowing and breathing are basic to the acquisition of normal speech patterns. If those physiologic processes are disturbed in a child we are likely to find disturbances in his speech development. The natural drives of the child toward communication are conditioned also by such environmental circumstances as the stimulation from adults and particularly by the mother-child relationship with its noticeable effects on emotional life. It is extremely important for speech development that all of these processes should develop in an atmosphere which is physically and emotionally healthy. The age at which children begin to use speech and the success with which they achieve the use of speech depends a great deal upon early health, early feeding experiences, and the parent-child relationships established in the first year or 2 of growth.

The stages of development for the acquisition of speech are briefly these: Although speech is said to begin with the birth cry, crying is a rather nonspecific kind of behavior which I suspect provides very little basis for speech. Most speech probably develops out of the vocal play which begins and is more or less continually elaborated during the early months of life. Vocal play is observed not only with the normal child but also with the deaf child. Vocal play will not persist, however, or develop into more complex forms unless the child’s hearing is intact. Somewhere between the ages of about 9 months to 2 years the child begins to use words to express meaning. It is in this highly experimental stage that the child begins to use speech to manipulate his environment and goes through those endless activities in commanding obedience from his elders which are at once the delight and the exhaustion of his parents.

Somewhere between 1 and 3 years of age the average child begins to make use of sentences and to develop sentence structure and vocabulary appropriate to the situation.

It should be borne in mind here that when we speak of speech and language we are talking about a function which has at least 3 major uses. It is the child’s means of enlarging his intellectual sphere because through it he can manipulate symbols rather than things. It also provides his main means of social control. The world is magic for the small child and a good deal of that magic is accomplished by being able to vocally express his needs. Language further serves the very useful purpose of letting other people know about his internal state, and as such it does a great deal to relieve his internal tensions. It thus becomes a means of great emotional release as the child develops more specific use of language, and of course, its misuse can greatly complicate his emotional life.

From this extremely condensed overview of the development of language, the uses of language, and the effects which language has upon personal growth and development in the child we can easily draw the conclusion that speech is a complex process subject to many influences and in turn capable of exerting influence on many aspects of well being in the child. It is thus important for us to consider the means by which speech may become aberrant.

Dr. Charles Strother, Seattle: I would like to stress what Dr. Bloomer has said about the complexity of speech. It is probably the most complex physical skill we ever acquire. It involves, of course, a great deal more than simply skill in the muscle movements that are involved. It assumes, in the first place, a reasonably normal speech structure. If there is an abnormality of the palate, for example, deviations in speech are almost certain to occur. Not only is a reasonably intact physical structure necessary but we need to remember that speech is what we call an overlaid, or learned, function. Strictly speaking, there is no such thing as a speech mechanism. We simply utilize for purposes of speech the mechanisms of respiration, mastication and so on. Speech is also dependent on the intellectual development of the child, on his emotional development, and to an important extent on the social environment in which he develops. This statement might constitute an outline for an etiologic classification of speech disorders. We are accustomed to differentiate disorders which are due to organic causes, disorders which are due to disturbances in the development of personality, disorders that are due to difficulties in intellectual development and finally disorders that are a consequence of an abnormal social environment.

Because so many factors enter into speech and because it is a relatively complex function, difficulties frequently occur. Speech disorders have a high incidence among children. The estimates differ according to the criteria one wants to apply but range anywhere from 1% to 22%. I think a conservative
estimate would be that between 5 and 7% suffer disorders due to speech that are of clinical significance.

These disorders present themselves in pediatric practice in a number of forms. My own experience in the Department of Pediatrics at the University of Iowa and at the Children's Orthopedic Hospital in Seattle indicates that a considerable number of children coming in to out-clinics or private offices are brought in either primarily or secondarily as a consequence of speech difficulty. The severe organic disorders of cleft palate and the speech disorders of cerebral palsy present themselves very early; parents become worried about speech retardation if the child hasn't started to talk by 12 or 18 or 20 months (depending upon how anxious the parent is for the child to develop); and the problems of stuttering and articulation present themselves all through childhood. Most frequently, speech disorders become a major concern to parents about the time when children enter school because that is the point at which the parent becomes more aware of the fact that the child has a handicap that is going to make a social difference.

While studies have shown that, if you take speech disorders generally, most of the disorders occurring in early childhood do tend to drop out as the child grows older and that by 6 or 7 only a relatively small proportion of them persist. As a consequence of the fact that speech disorders do tend to disappear more or less spontaneously in the early period of childhood there is a general impression that all speech disorders will be outgrown—will take care of themselves. That statement is very often made to parents. While it is true that a majority of them do it is of great importance that a considerable proportion do not. It is especially important for the pediatrician to recognize early those cases that may have more serious consequences than the ordinary speech deviations that we find in young children.

The principle reason for the importance of early recognition and early management of these disorders is the fact that speech disorders tend to grow worse with age where they do not spontaneously disappear. The more we talk the more we may be practicing incorrect habits of speech production which will become increasingly hard to change. Then, too, speech is our most important medium of communication. Almost everything the child wants to express and almost every control that he wants to exert over his environment is dependent on speech. If his speech is deviant, he becomes aware of it, others become aware of it, and it then begins at a very early age to have important consequences for him in his personality development. These personality effects of speech disorders tend to become greater and aggravate the disorder itself. If there are steps that can be taken to prevent this, it seems to us important that they be taken as soon as possible.

The pediatrician should be able to recognize when a disorder of speech exists and should be able to identify it. He should know something about the principal causes of the major types of disorder of speech and should know, in general at least, what diagnostic or therapeutic measures may be required by that particular disorder. The purpose of the present discussion is to present as clearly and concisely as possible some systematic information about those speech disorders which are of importance to pediatricians. But before we can proceed to recognize and identify disorders of speech some information concerning the general aspects of speech is necessary because our classification of the major syndromes of speech pathology is dependent on some knowledge of what the basic aspects of speech are.

Dr. Bloomer will take up that phase of it.

Chairman Bloomer: Dr. Strother's comment about the common expectation that all speech disorders will improve spontaneously reminds me of an incident which occurred in our clinic a few weeks ago. The father and mother of a 5½ year old boy who stutters came in because they were very much alarmed about the stuttering. There were certain other factors in his behavior which might have been a little bit alarming too, but the parents had not become aware of these things. It was the stuttering which caught their attention. The mother said the stuttering had gradually increased almost ever since the child started to talk. As a consequence of their concern, and upon the advice of the maternal grandfather, who also stuttered, the parents had taken the boy to their physician in a nearby city and discussed the matter with him. The physician had looked thoughtful for a moment and then had said, "Well, I'd just let it g-g-g-o; he'll p-p-pro-obably outgrow it." The mother's imitation of the man was very realistic.

In our consideration of the various types of speech disorders we should bear in mind that speech has both phonetic and linguistic aspects, or stated in another way, it has acoustic and semantic values. Disturbances can occur in any of these phases of speech. We can label disturbances of speech symptomatically according to whether articulation, voice, rhythm or language are affected. Ordinarily,
however, speech pathologists classify disorders of speech under more specific categories of which we shall list 7 for discussion of speech anomalies in children. These categories are: articulation disorders, stuttering, disorders of speech arising from hearing loss, delayed speech, voice disorders, cleft palate speech and cerebral palsy. Aphasia, a category sometimes included in such a list, will be treated briefly during the discussion of delayed speech.

I shall turn now to a discussion of the first of the categories—articulatory disorders. An articulatory disorder refers to the symptoms of sound substitutions, omissions or distortions of vowels or consonants.

Most people ordinarily think of there being 5 vowels. In American speech there are 14 or 15 vowels and diphthongs which are commonly used. We use with these vowels 25 consonants. It is the abnormal production of any of the consonants or vowels that we refer to as an articulatory disorder.

What are the etiologic factors responsible for abnormal articulatory patterns? This is a rather difficult question to answer because there are so many factors which can contribute to this type of speech disturbance. In many instances we have to assume that it is because of some interference with the child's learning; that is, he apparently does not perceive the sounds properly and has not learned to produce the correct articulatory movements. In other instances we have to look for additional factors of a physical or functional type which I shall discuss with you briefly.

Malocclusion of the teeth may affect speech particularly if there is an overjet of the maxilla, an underjet of the mandible, an open bite, or malpositioning of the teeth in such a way that the teeth interfere with tongue contacts at the alveolar ridge. There is not, of course, a one-to-one relationship between malocclusion of the teeth and an articulatory disorder. Many children are able to make compensatory movements of the tongue and lips so that even with a bad malocclusion they can talk plainly. Clinical studies have shown, however, that malocclusion is more prevalent among persons with articulatory disorders than among the normal speaking population.

We must also look for neuropathologies affecting muscular coordination. In these neuropathologies we encounter not only the effects of gross paralysis but also the relatively minor disturbances in which the functions of muscular control are impaired but are not severely affected. Usually in our examination of these children we ask them to perform certain tongue movements. If they can perform these movements fairly accurately and fairly rapidly we feel rather certain that there is no serious deficiency in muscular control contributing to the articulatory disorder. Tests of diadochokinetic movements of the tongue and lips should be employed routinely as a part of the examination.

The function of the glands of internal secretion must also be considered as an etiologic factor since any serious retardation in physical or functional growth may cause a delay in the acquisition of specific articulatory controls. Nutritional deficiencies may likewise contribute.

Hearing loss is another important factor to be evaluated. Even if the loss should occur and continue for a relatively short time it may be etiologically significant if it occurs at a critical period in the child's development of speech. The ages from 2 to 4 years are particularly important and it is quite possible that a child may pick up habits of speech during this time which he will not correct spontaneously even if his hearing returns to normal.

I am not going to touch on the factor of mental retardation at this point except to state that there is a much higher incidence of articulatory disturbance among the severely mentally retarded than among children of the normal population. This statement does not, of course, imply that the existence of an articulatory disorder is in any way suggestive of mental retardation.

Deficiency of the palatopharyngeal muscles may be a contributing factor. The palate may or may not be cleft, it may be only a shortened palate or there may be some paralysis of the palate. In any such case it would be difficult for the child to build up oral pressure and the consonants will be consequently weak in intensity or perhaps distorted. The voice quality will, of course, be affected.

Defects in tongue structure sometimes occur but this is not frequently observed. I think that we should bear in mind that for clear articulation one need not be able to move the tongue extensively. One needs only to be able to touch the teeth, the alveolar ridge, or the palate to the extent that firm lingual contact is established. I recall seeing a child a number of years ago whose mouth had been severely burned by lye and who was unable to protrude the tip of his tongue at all. He could, however, make enough contact with the upper teeth so that there was nothing acoustically wrong with his speech.

Tongue tie is often thought to be a significant factor and I suppose that many a child has had his tongue clipped as a baby. We have seen few children in whom clipping of the tongue has produced beneficial results.
Question: Have you ever seen any?
Chairman Bloomer: One. I have seen others brought in because it was suspected that they had tongue tie but in only that one case did I feel that clipping was essential.

Question: Can you tell that at birth?
Chairman Bloomer: I can’t answer the question categorically. We had a child brought in at 4 months whose frenulum was somewhat shortened. We did not advise clipping the tongue at that time because there was considerable mobility of the tongue tip and we thought that in time it would adjust itself adequately.

The question of a relationship between enlarged tonsils and adenoids and defective speech is often brought up. In many children who have had the operation, improvement in speech has followed. We have seen significant numbers of children, however, for whom no improvement in articulation could be observed following T and A. My own feeling about it is that the removal of the tonsils may have therapeutic value for speech if the hearing is being affected through adenoid growth or if the adenoid tissues are sufficiently enlarged that the nasal passages are occluded and mouth breathing may become habitual. It is possible also that chronically hypertrophied tonsils may contribute to habitual lingual protrusion of the tongue.

In some instances adenoid tissue may even serve a useful purpose by assisting palatopharyngeal closure. It should be retained particularly if there is any difficulty in developing full mobility of the palate, I intend to mention this later in my discussion of children with cleft palate. In the latter cases we usually advise that the adenoids not be removed unless absolutely necessary.

One of the major factors in the etiology of articulatory disorders is emotional immaturity. Recognition of a relationship between speech immaturity and other evidences of immaturity has led to the use of the term “baby talk” in describing the speech of these children, and in this sense it seems to be an apt term. In other words, such children are likely to be immature in other aspects of development as well as in their speech. In such instances we need to assess the environment for its influence on personality and speech development. We need to know whether the child has had adequate patterns set for him. It may be pertinent to inquire as to whether there is a family history of speech defects for it is not infrequently found that one of the parents has had or may still have an abnormal speech pattern.

Dr. Alfred S. Schwartz, St. Louis: Since you mentioned baby talk, lisping, I would presume, would come in there. Would you say that it is indicative of emotional immaturity?
Chairman Bloomer: In some instances, yes.

Dr. Strother: May I add here the fact that in the normal development of speech we don’t expect perfect articulation until 7 or 8 or even 9 years of age. Difficulties are quite common particularly with the W, R, and L in the ages from 4 to 6 or 7. A large proportion of these improve spontaneously. It is only if they constitute an obstacle to intelligibility or if they are so conspicuous that they embarrass the child or cause him to be ridiculed that we consider the problem to be a serious one.

Question: Would you let a child start school if he lisps?
Dr. Strother: Yes, I would. I should have added “5” to the sounds that are characteristically slowest to be perfected.

Chairman Bloomer: I shouldn’t want to keep a child from school unless his speech were so unintelligible that he would be subjected to ridicule and might develop feelings of inferiority because he couldn’t meet the competition of other children.

Dr. Harold J. Freedman, Boston: Under those circumstances would you allow a child like this to get speech training in school?
Chairman Bloomer: We not only allow it but encourage it. In most of the large city schools and in hundreds of smaller communities there are active speech correction programs. I think in most instances the effects of the training enable the child to improve rapidly and to take his place among the normal speaking children. If the matter is handled rightly the child will not have any feeling of adverse discrimination. Most public school speech correction programs start with the first grade.

Dr. Irving Weinstock, Brooklyn: What is the earliest age in which you would attempt to correct a speech defect in the child either by itself or by sending the child to a speech clinic?
Chairman Bloomer: If you are referring to articulatory problems or to general problems there would be a difference.

Dr. Weinstock: I am referring to articulatory problems; the child who is able to make sounds but whose speech is not correct.

Chairman Bloomer: Our advice to parents has varied depending on how difficult it is for the
child to be understood and also some consideration of other personal and environmental factors. If the child has so much difficulty in being understood at 4 years of age that he cannot get along with his playmates (and that sometimes happens) then we would advise some kind of guidance for the child but we do not necessarily place him in a direct therapy program. That is not usually done before 5 years of age. Other clinics vary in their practices, but I believe their decision usually depends on how seriously disturbed the child is and how many other negative factors are present.

**Question:** Can any harm be done by inadequately trained speech correctionists?

**Chairman Bloomer:** Yes, certainly a good deal of harm can be done. In this connection you may be interested to know that the American Speech and Hearing Association maintains a classification of its membership according to the levels of clinical competency.

**Question:** At what age should children be able to perform repetitive speech movements rapidly?

**Chairman Bloomer:** The ability to control or achieve speech in repetitive movements increases somewhat with age. The child of 5 or 6 may produce 4 or 5 of these repetitive movements, such as pa-pa-pa-pa. By the time he has reached 14 or 15 he has probably very nearly reached adult standards and may be able to repeat as high as 8, 9 or 10 movements per second. You should bear in mind that the tongue tip is very much faster than the back of the tongue. Thus you can repeat sounds ta-ta-ta more rapidly than you can repeat ka-ka-ka.

**Comment:** There seems always to be a conflict between two factors: (1) a desire for early professional help in speech training for a child who shows some difficulty and (2) the fear that seeking help for that child will make him feel that there is something different about him, and therefore will aggravate the situation. In each individual case I try to decide which is the most important factor.

**Chairman Bloomer:** The decision is a very important one.

**Comment:** I think it is most important that we not put the cart before the horse in a lot of these cases, too. Many of these speech defects will stem from emotional problems in the home and if we go after the speech defect per se and forget what is behind it we are merely trying to smooth out the surface without facing the problem. I think that many parents observe the speech defect and they will go after that and will forget there is some reason for it.

**Chairman Bloomer:** I am glad you made that comment because I want to mention that often speech patterns are important diagnostically—that is, they are symptoms of an underlying problem. Many times the parent recognizes the speech disorder but does not recognize other areas of mal-development. He may come to you as a physician for advice about the speech, thus giving you an opportunity to use the speech disorder as a means of establishing a much better physical condition and a much happier home environment. I agree entirely with you that the entire focus should not be on the speech disorder. The child must not be lost sight of among the symptoms which he exhibits.

**Dr. Harold D. Lynch, Evansville, Ind.:** Dr. Strother, when you mentioned the incidence of speech disability, have you had any statistical evidence to show reading disability in relation to speech disability?

**Dr. Strother:** There is a significant correlation. A considerable number of children with speech difficulties also have a reading disability. In those cases where the 2 seem to be related, perhaps a perception disability is present affecting both visual perception and auditory perception.

**Chairman Bloomer:** The fact that there is a rather high correlation has lead me to feel that phonetic (or phonic) methods of teaching reading are superior in assuring good speech development to any of the flash card techniques often used. I think there is a current tendency for teachers of reading to return to methods of phonetic instruction.

**Dr. Robert J. Mason, Birmingham:** So many of these children are encouraged in baby talk and I presume that you have referred to immaturity of their parents and emotional instability of the parents. What is your suggestion to us as pediatricians specifically to override that baby talk?

**Chairman Bloomer:** I don't believe that the parents’ use of baby talk always indicates an emotional immaturity. I think many times parents do not realize that in using a baby talk they may be contributing to the persistence of it in the child. They think it is cute, they like to have the child remain in that small-child-parent relationship and they don't fully understand the effect it may eventually have on speech development. Dr. Strother, do you have any comment on this?

**Dr. Strother:** Well, if the parent were ready to listen to me, I would say that while this is cute now, the child is acquiring a stronger and stronger habit of talking in this way and it will be especially hard for him to break the habit later on. The time to develop good speech habits is early.

**Chairman Bloomer:** I wish to sum up our general procedures in advising parents who have children
with articulatory problems. First of all we want to eliminate or treat any physical disabilities contributing to the disorder. Functional as well as structural abnormalities must be improved or compensated. Secondly, if there is any question in your mind as to the adequacy of the environment or the parent-child relationship you may wish to undertake counseling or to refer the parents for guidance. Thirdly, if speech training is available by a competent therapist consideration should always be given to referral for this purpose.

Advice to the parent about what to do in the home would include a request that the parent not stop the child and make him repeat words or sounds which have been said incorrectly. This usually antagonizes the child and has a negative rather than a positive effect. It is better for the parents merely to repeat after the child the correct pronunciation of the word or phrase so that the child hears it frequently in its correct form. The parents can also help the child by rewarding him for improved speech instead of penalizing him in some way for his unsuccessful attempts.

Dr. Strother: I would like to discuss next the difficult and controversial problem of stuttering. First of all, the incidence of stuttering. For the earlier ages, 3 to 7 or 8, the incidence is usually quoted at close to 3%. In adolescence and adulthood, the incidence runs about 1%. There is a marked sex difference in this disorder. The ratio in young children of boys to girls is about 2 boys to 1 girl or 3 boys to 1 girl. By college age, it is about 10 boys to 1 girl. In other words, the recovery rate among girls is much higher than among boys. I am concerned primarily with what I shall call idiopathic stuttering but before I talk about that I would like to differentiate it from 2 other types of stuttering. First, organic stuttering. You are quite familiar with the fact that with brain injury, particularly a cardiovascular accident in older people, stuttering may develop as a consequence of the brain injury. I think the point should be made that sometimes a slight hesitation or repetition in speech may precede any other neurologic symptom of central nervous system disorder. Organic stuttering cases are rare among children. I can't say that I have ever seen a clear-cut case of organic stuttering in children with the possible exception of the cerebral palsy child with whom it is difficult to differentiate stuttering behavior from the dysrhythmia that is part of the cerebral palsy picture.

The second type of stuttering I want to mention is what is called hysterical stuttering. This kind of stuttering is frequently reported in traumatic neuroses of warfare as a temporary stage of the disturbance. Sometimes it is presented as a primary hysterical symptom. In the case of hysterical stuttering, the circumstances surrounding the onset of the stuttering are always emotionally disturbing circumstances but there has been no previous history of speech difficulty. The speech difficulty occurs under conditions of extreme emotional stress. All the other characteristic signs of hysteria are present.

What I want to talk about principally is what we sometimes call idiopathic stuttering—that is, stuttering that begins early in childhood and follows a course that I want to describe in detail, until it arrives at the chronic stage which is seen in practically all the adult stutterers. In idiopathic stuttering, the first stages occur in early childhood somewhere between the ages of 2 and 5 or 6. It should be made clear that, in the process of acquiring the very complex coordinations that are involved in normal speech, a great many children—some people estimate as high as 90 or 95% of all children—go through a stage where they show some hesitation and repetition. That hesitation and repetition will tend to fluctuate with their physical condition and with their emotional stability. Most of them, all except 1 or 2%, go through this early stage of hesitation into perfectly normal speech without any difficulty. We hesitate to call that stuttering at all. It is difficult, in some cases at least, to differentiate this early stage from a hesitation or repetition that is going to develop into something more serious.

We are more concerned about hesitations and repetitions at the point where the child begins to become aware of a difficulty of speech and begins to develop some degree of apprehension about speaking or the speaking situation. As soon as he becomes aware that his speech is different, that the way he speaks is amusing to other people or that his parents are concerned about it, he begins to transform what is normally an automatic process into something conscious—he begins to attempt to control his speech. You know what happens when you attempt to pay attention to your golf swing—it throws everything off because you are thinking so hard about a particular phase that the rest of your sequence of coordination is disturbed. That is what happens, too, when the child begins to be apprehensive about his speech. Not only that but he also begins to be anxious about speech situations. Thus anxiety creates conditions that are not conducive to good coordination.

After the initial stage of hesitation and repetition without apprehension and without any pressure to get the speech out, the child comes into the second stage where he is aware of difficulty. He is
of a learning process under conditions of anxiety. In the course of his random efforts to break through
apprehensive, he begins to try to find some way of getting over what he wants to say—to find some
way of getting over hesitation. From this stage on we are inclined to analyze what happens in terms
of a learning process under conditions of anxiety. In the course of his random efforts to break through
the block, the child will go through a number of associated movements. He may throw his head
back or blink his eyes or stick his tongue out or go through other movements. When we see children
between the ages of 4 and 7 who are going into this second stage of stuttering we see these move-
ments begin to come in. The child ultimately is going to develop a fixed pattern of stuttering. If you
watch an adult stutterer you will see that, although he goes through somewhat varied movements,
in general the pattern of stuttering for this man is different than for the other stutterers. The par-
ticular movements that come to persist are most probably movements that are accidentally associated
with breaking through the stuttering block.

I want to mention the fact here that not only is the child acquiring this characteristic habit of
stuttering but he is also acquiring what may be the worst part of his handicap, that is, certain sorts
of attitudes toward himself and also certain anticipations of stuttering. If he comes to learn, ‘when
I talk over the telephone or when I talk to a stranger or when I do something else I practically always
stutter,’ then he approaches that situation with some anticipation that he is going to have difficulty
and the more preliminary anxiety about it there is the more likely he is to have difficulty.

At the stage then when these associated movements—these patterns of stuttering—become fixed,
we say the individual has entered the chronic stage of stuttering. Before this, his stuttering pattern
has been more or less varied. Now he has come to have a more or less characteristic pattern of stutter-
ing. The prognosis becomes rapidly worse with age in stuttering. If you get children below 5 or 6 and
control their environmental conditions adequately, the very great majority will come through with
no subsequent difficulty. If the child is 9 or 10 when brought to you, the chances of being able to
eliminate this stuttering have become much poorer and many clinicians maintain that if the child
has reached adolescence the chance of eliminating all hesitation is practically nil.

Now let me say something about what we probably know the least about—the etiology. There are
a number of theories in the field, all of which have some supporters. A good deal has been made
of the biochemistry of stutterers and nonstutterers. The research does not tend to support any clear-
cut biochemical differences. One of the most influential and certainly one of the most widely known
theories has been a neurologic theory, suggested originally by Orton and developed more extensively
by Travis, that stuttering has to do with the cortical lateralization of speech. This theory still has
some exponents but in the main the research material does not support the notion that there are
significant differences in laterality between stutterers and nonstutterers.

Considerable stress has been placed on stuttering as a psychoneurosis. In the military services,
it was officially identified as a symptom of neurosis and the individual could be exempted on the
basis of a stuttering symptom. The prevailing opinion at the present time is that the development
and retention of stuttering is to be accounted for principally on a psychogenic basis and that reduction
of the anxiety involved in speaking is the primary goal in therapy.

In concluding what I have to say about stuttering, I would like to suggest what you ought to do
about stuttering children. Let us talk now about a child between 2 and 4 or 2 and 5 who is showing
hesitations and repetitions in his speech frequently enough to concern a parent, so the parent brings
this up for pediatric advice. Let us assume that the child is showing some effort to force through
the stuttering block—that some amount of muscular tension and forcing is accompanying his hesita-
tions and repetitions. Let us assume that he is not particularly apprehensive about speaking situa-
tions, that he is not much aware of the fact that there is a difference in his speech and that he has
not yet begun to develop any persistent associated movement. I am talking now about a child who
may be in the primary stage. I would assume that, in such a case, if the environmental conditions are
reasonably good, the child is not going to continue having speech difficulty. Notice I said that if
the environmental conditions are good. I would interpret the mother’s concern over this hesitation
and repetition just as I would interpret her concern over feeding or any other difficulty as an evidence
that she may be too apprehensive about the child or that too much pressure is being put on the
child. I would begin to look into the background of the child’s situation as you would look into it
if you were concerned about the mother’s attitude toward feeding. In other words, look for signs
of poor mental hygiene in the home. Then I would try to remedy these undesirable conditions or
attitudes. I would watch the child and if the suggestions are taken, if the home atmosphere is
improved, the strong probability is that the hesitations and repetitions will begin to drop out and
within a few months the child will show no evidence of stuttering.

Let us now concern ourselves with the child in the secondary stage, when hesitations and blocking
become worse, the child becomes aware of difficulty and anxiety develops. At that point we become
quite concerned because, unless the right things are done, more severe and chronic stuttering may
easily develop. The usual age range in the secondary stage I would say might be anywhere from 4
to 6 or 7—sometimes earlier, sometimes later.

In the secondary stage, we need to concern ourselves with active treatment. This is the point at
which we need to begin to look quite intensively into the family attitudes toward the speech diffi-
culty. We need to concern ourselves with the way in which the stuttering is reacted to by all the
people in the child’s environment and particularly at school. The family and the classroom teacher
play an important part in the treatment. In general, the objectives are to reduce the child’s anxiety
and embarrassment about his speech and to provide speaking situations which are relatively easy for
him and which enable him to develop confidence. (Wendell Johnson’s Open Letter to the Mother
of a Stuttering Child, which is available from the University of Iowa Speech Clinic and his book
Speech Handicapped School Children, available from Harpers Bros., contains material useful for your
own reference and for the guidance of parents and teachers.) If there is a qualified speech therapist
in the school or community, the child should be referred at this time.

When the child has developed a fixed pattern of stuttering the problem is difficult. The prognosis
is significantly poorer than it was in the secondary stage. The child needs to be in the hands of
someone who is experienced in dealing with stuttering. The therapy will involve both speech therapy
and, at least, limited psychotherapy. Preferably both phases of therapy would be carried out by the
same clinician but if the speech therapist is not qualified to do the requisite psychotherapy his work
will need to be closely coordinated with that of a psychotherapist. Similarly, the results obtained by
psychotherapists who are not familiar with speech therapy are frequently unsatisfactory.

Dr. Sandar A. Levinson, Paterson, N.J.: Would you consider hypnosis as a means of relaxing
the child in handling the second stage?

Dr. Strother: There is a long history of different treatments—even keeping the child under quite
considerable sedation over a period of time. Almost any method which has suggestive value or
relaxing value will temporarily relieve the symptoms—and most of the quack schools of stuttering
treatment are based on that notion—but in most cases the stuttering shortly comes back in full force.

Chairman Bloomer: The next topic for discussion concerns speech defects due to hearing loss.
I should like to point out that since hearing is our way of monitoring our speech, any deficiency
of hearing may affect almost any characteristic of speech, depending, of course, on the degree of loss,
its type, its duration and the age at which it occurs. There are 3 principle kinds of speech disorders
resulting from hearing loss. The first is that of language retardation, second, articulatory defects,
third, defects of voice quality, pitch, loudness and inflection. There are also the associated problems
such as educational retardation, and personality disturbances which may be caused by the hearing
loss and which will also affect speech.

The recognition and proper diagnosis of hearing loss as an etiologic factor in speech defects is
often an extremely difficult thing to achieve. It is sometimes hard, for example, to separate a true
hearing loss from a failure to respond to sound because of some deep-seated emotional problems.
In many instances children who have some degree of brain damage have difficulty in learning and
may exhibit evidences of both hearing loss and the direct effects of the brain damage. In these cases
it is hard to decide how much of the problem may be due to hearing loss, how much is related to
a central loss, and how much to his emotional reaction to the frustration consequent to his difficulty
in communication. Thus the problem of properly diagnosing deafness can be a very time consuming
one.

Question: In the totally deaf child, to motivate that child to use his vocal chords, is it necessary
to establish a painful situation to start this motivation, or can it be done without it?

Chairman Bloomer: I have never known of a painful stimulation being used in any of the better
schools for language and speech instruction. As far as I know, the teachers have motivated the child
by rewarding him. In my opinion, painful stimulation is not only unnecessary but is reprehensible.

Question: What about hearing aids for the child who is partially deaf?

Chairman Bloomer: We have had good results and I think that most places where they have been
used find that if the child is willing to use an aid especially in the classroom, it will help a good
bit if it has been possible to make a good hearing aid selection. I should say something also about
the placement of the child in the classroom. This is something we need always to attend to. If he
has any hearing loss he should be placed in part of the room where he can see the teacher's face with
enough light reflection that he can read lips and also get the maximum use of his hearing.

The need to detect the hard-of-hearing child is of course extremely important. Many a child has
failed in school because no one realized that he had a hearing loss. Sometimes the child does not
realize himself, yet cannot hear enough of the discussion to keep up with his class.

Question: What is the youngest age that you can rely on an audiometric test?

Chairman Bloomer: If you are willing to take the time, I think that you can go down to 2½ or
3 years of age, with a fair indication of the response.

Comment: The average test is done by the eye, ear and nose doctor. My experience is that they
can't do too much under 5 years.

Chairman Bloomer: If the child has a profound hearing loss and you cannot communicate with
him then the results in a young child are unreliable. But you can set up a play situation for the child
who has usable hearing; for example, you can use audiometric testing by placing the earphone, then
giving the child a card that has a bird or animal on it and say "I am going to make the sound of
this animal and as soon as you hear the sound I want you to put your finger over his mouth and
that will stop him.” If you get the child interested in the game, you can get a useful indication of
his hearing response.

Question: When should you send the child to a speech teacher?

Chairman Bloomer: If the child is profoundly deaf and you are well convinced of that, I think
the instruction should be started as soon as the child and the parents can accept the separation
for him to commence special residential or day school training. That may be as early as 2½ or 3 years
of age. The parents are fortunate if they have day schools that they can use. There are state schools
and private schools such as the Central Institute for the Deaf in St. Louis where they accept young
children and are able to accomplish a good deal. Instruction for home training can be obtained from
the Tracy Clinic.

Question: Can you rule out deafness in a child of 18 months who has a rich jargon but doesn't
say a word?

Chairman Bloomer: I think you can tentatively rule out deafness in that case. Jargon is not
infrequently encountered in normal children of that age.

Dr. Strother: I would like to state 2 points in regard to cerebral palsy—the speech training of
the cerebral palsy child is simply a part of a comprehensive, long range rehabilitation program and
it seems to me, the responsibility for the coordination of that program and for its long range super-
vision tends to rest on the shoulders of the pediatrician. It involves a great many things, not only
pediatric care but orthopedic care, occupational therapy, physical therapy and speech therapy. One
thing in particular I would like to say about speech therapy is that from the beginning the kinds
of uses the child is making of his oral muscles and his respiratory musculature are important in
preparing him for the use of those musculatures in the process of speech.

A recent article by Dr. Harold Westlake in The Crippled Child outlines some of the essential
steps involved in the early muscle training in feeding situations and other situations around the home
where there are a few things that the parents can do. Opportunities to suck and to chew are quite
important in developing coordination. If the child is fed and especially if he is spoon fed, and has
no opportunity to chew and to suck, he is losing a chance to get some of the early stages of muscle
practice that are involved in speech development.

Speech therapy is simply a phase of physical and occupational therapy that is such a complicated
and long range program, varies so much from case to case and is so dependent on the details of
muscle analysis of the specific kinds of difficulty the child has in carrying out his activity, that
treatment must be worked out on an individual basis.

Chairman Bloomer: Before we leave the subject of cerebral palsy I want to add a word. There
is a tendency, I think, for parents to be unnecessarily over-protective of these children. The child
should be allowed as much opportunity as can be permitted him to develop his own self-help pattern
and I think the wise parent will let him feed himself even if he scatters food all over the kitchen
or wherever he is placed. He should acquire a feeling of independence.

Dr. Strother: We will now turn to the subject of delayed speech. The criteria of speech retarda-
tion are arbitrary and authorities differ. My own opinion is that if a child does not show comprehension of the names of a few objects or the meaning of some language by 12 months, his speech is retarded; if he is not producing some words consistently, in relationship to certain sorts of situations by between 24 to 36 months he should be considered retarded. We do find some children who do not use single words and then at 2½ or 3 years begin using quite mature speech. In such children, however, one is reassured by the maturity of language comprehension.

Let me say a few things about the etiology of speech retardation. Differential diagnosis in this field is difficult. I think there are more controversial diagnoses in cases of speech retardation than in almost any other conditions relating to developmental status of the child.

The most frequent cause of speech retardation is, of course, mental deficiency. If we take all speech retarded children, the highest proportion of them will be retarded by reason of mental deficiency. Mental deficiency, however, is coming to be recognized as a much more complex condition that it has frequently been considered to be. Technics of examination are just now beginning to develop to the point that we are aware of the multiplicity of the types of mental retardation and the possibility that what we are dealing with in an apparently retarded child is not lack of potential but a lack of development which may be, at least partially, removed by the right kind of treatment. The fact that mental deficiency is a complex problem makes it important for the pediatrician to take a conservative attitude toward apparent retardation and even toward psychometrically established retardation in a child.

Hearing disability, which Dr. Bloomer has mentioned, is not a cause of speech retardation unless the hearing disability is quite severe. With mild loss, the child is still able to develop some degree of language use and some degree of language comprehension.

Another cause which must be mentioned is inadequate stimulation and motivation. If the child does not need to talk then he may be slow in developing speech. The Dionne quintuplets were slow to talk partly because their schedule was so routine and their wants were anticipated so that the need to use language as a way of controlling the environment was reduced. Emotional maladjustment may also be a cause of speech retardation. Immaturity, negativism and autism may affect speech development, as they affect other forms of social behavior. Except in cases of severe autism or of juvenile schizophrenia, children with speech retardation due to emotional maladjustment usually give evidence of substantially normal comprehension of language even though they may not be using any speech.

Finally, I would like to say a few words about what I call idiopathic language retardation but what many people call aphasia. There is real objection to the use of the term aphasia to describe language disability in children because aphasia implies the loss of language due to brain injury. These children have never had any language to lose and, in most cases, no brain pathology can be demonstrated.

We can identify 2 kinds of idiopathic language retardation. The first type affects both the comprehension and the use of language but is considered primarily a receptive disorder. This is termed, in some of the pediatric literature, "congenital auditory imperception" or "congenital word deafness." This is a condition in which the child, although he may not have any hearing loss, still seems unable to comprehend language. He may be able to respond to sound but to learn the meaning of sounds seems to be exceedingly difficult. Often these children have such a lack of interest in sound they appear to have a much more severe hearing disability than they do.

A second type of idiopathic language retardation is characterized either by a fairly fluent gibberish that resembles the paralalia in adult aphasics or by a slow, ataxic, labored articulation that resembles some cases of motor aphasia. In these cases, comprehension may be relatively unimpaired.

In differential diagnosis, several steps are of considerable importance. Under the physical examination, general developmental status should be studied carefully. Neurologic status should be evaluated with particular attention to mild subclinical signs of motor incoordination. A thorough audiologic examination is required to rule out hearing disability. Ewing's work demonstrates that many cases of high-frequency loss are wrongly classified as cases of idiopathic retardation. On the other hand, the fact must be kept in mind that an apparent loss may show improvement as a consequence of speech therapy.

In taking the social history, attention must be given to the emotional development of the child and to the amount of motivation and speech stimulation given in the home. There is available a simple measure of social maturity which will be found helpful. The data required is obtained by interview with a parent and can easily be incorporated in the routine office interview. It yields a
measure of social maturity which is diagnostically useful. For example, if the child's intelligence is normal but his social maturity score is low, it is most probable that the methods of child training used in the home are inadequate.

Question: Where may this test be obtained?

Dr. Ströther: I was referring to the Vineland Social Maturity Scale, which may be obtained from the Vineland Training School, Vineland, N.J. Placement in a residential training center may be necessary. The procedures used are those that have been developed for the severely hard-of-hearing or for the brain-injured child—a progressive program of step-by-step acquisition of understanding and of use of language.

Chairman Bloomer: We have a few moments left to discuss speech defects due to cleft palate. If the palate is nonfunctional and the lips and alveolar arch are malformed the main disturbances of speech will involve both articulation of vowels and consonants, and voice quality. I don't have time to say much about the etiology of speech disorders in the child with cleft palate except to suggest to you that all the speech problems cannot be attributed directly to the anatomic defects. In addition to the consequences of the structural abnormalities a child with a cleft palate may have an articulatory, voice or language problem completely unrelated to the cleft. Since he is a human being he is also subject to the many constitutional, physical and environmental pressures which would affect any other child. Some of his speech difficulty may be due to the hearing loss caused by diseases of the ear to which these children are susceptible. There was formerly a much higher incidence of such loss before the antibiotic drugs were brought into widespread use. We must also remember that a factor which influences personality development and hence speech development is the child's own reaction to his noticeable anatomic defect and his reaction to the rejections expressed by his parents or playmates.

I shall try briefly to indicate a kind of pattern to be followed in the management of these children commencing at birth and continuing to maturity. Through the employment of such a pattern you can do inestimable good by using it to guide parents in their planning.

It is important to start early with these children of course. You must start with the parents as soon as they realize they have a defective child. Very often the rejection which follows is profound. If the parent can be led to see that the defect is not irreparable, that it has occurred through no fault of his own and that much depends on his help, he can be brought to provide the normal loving care that any child should have.

Attention to early feeding practices is essential. There is a tendency to want to give the child food by enlarging the rubber nipple holes too much. The effect is thus to feed the baby so that he does not have to perform any swallowing activity and he may not learn to swallow normally. This is a great mistake. It is important that the baby be held for feeding and he be supported in a partially sitting position. He should also be required to do some real sucking. If he has a complete cleft of the palate it is possible to build a little rubber palate attached to a rubber nipple so that it can cover the cleft in his mouth and enable him to establish true suction.

You can of course help the parents by placing them in touch with a good oral surgeon.

Chairman Bloomer: Is there any objection in your mind to the very early repair to the lip alone?

Dr. Sirother: I see no objection to early repair of the lip, provided as much tissue as is willing to operate conservatively.

We believe that by 2 or 2 1/2 years of age (if the surgeon is willing to operate conservatively) the child may get a good speech result from palatal operation. There is a growing tendency among some surgeons to delay operation because of the fear that they may be disturbing growth centers of the maxilla. Some surgeons recommend waiting until the child is 4 or 5 years of age. In my own experience I have observed that generally good speech results are achieved when the palatal closure...
is accomplished in 2 or 3 stages. The surgeon closes the hard palate first and later the soft palate. This is sometimes followed by a set-back operation. An attempt to do the whole thing in one operation is oftentimes too traumatic for the development of good function.

It will be necessary to warn the parents that they must continue with dental care from babyhood on through adulthood. There is a tendency, even among some dentists who don't want to bother with the care of children's teeth, to say, "Let the baby teeth go; they will be replaced by others so you don't need to worry about them." These children cannot afford to lose any tooth, since premature loss contributes to mouth deformity and to speech defects. The permanent teeth are required even if it is eventually necessary to construct a prosthetic appliance.

Chewing habits should be established through the use of food which requires vigorous chewing. The child should be encouraged to suck liquids through a straw to develop vigorous action of the palate. The adenoids should not be removed unless the adenoidectomy is required to preserve the health or hearing of the child. The existence of a pad of adenoid tissue can help in effecting palatopharyngeal closure during the periods most critical to speech development.

Since our time is almost up I want to suggest sources to which you may write for professional help. The American Speech and Hearing Association may be addressed through Dr. George Kopp, Executive Secretary. His offices are at the Speech Clinic, Wayne University, Detroit.

The organization responsible for many of the pamphlets which you received today is the National Society for Crippled Children and Adults with offices at 11 S. LaSalle St., Chicago.

A majority of the states now maintain public school services to children who have speech or hearing disorders. I suggest that you write to your state department of public instruction for information regarding vocal speech correction services.

Throughout the midwest and the west and in a few of eastern states, you will find that most of your state universities maintain speech clinics which are committed to research programs, professional training of therapists, and direct service to children and adults who have speech and hearing handicaps. You will find them ready to assist you.

I think you can understand our inability to cover thoroughly in one meeting such a large topic as speech disorders in children. We sincerely hope that the information and the discussion have been useful to you.
### Round Table Discussion: SPEECH DEFECTS IN CHILDREN

HARLAN BLOOMER, CHARLES STROTHER, BURTIS B. BRESEE and A. L. GLEASON

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