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THE AUDIOLOGY AND SPEECH CLINIC

A. BRUCE GRAHAM, Ph.D.*

An Audiology and Speech Clinic was first organized within the Division of Otolaryngology at Henry Ford Hospital in September, 1952, and was designed to be closely interrelated with many other divisions of the hospital. Similar clinics are found in university centers and in a limited number of medical centers throughout the United States.

The purpose of such a clinic is to provide a center for the diagnosis and rehabilitation of all types of hearing and speech problems in both children and adults and to promote research in these fields.

Within the area of hearing the audiological evaluation, which may include pure tone audiometry by both air and bone conduction and speech audiometry to determine both speech reception thresholds and the discrimination ability of the patient, provides the otolaryngologist with information which is valuable in the diagnosis of the type of hearing loss which exists as well as assisting in the determination of whether or not medical or surgical rehabilitation of the loss is possible. Specifically, carefully calibrated equipment and controlled testing routines can establish the presence of either a conductive or perceptive type reduction in auditory acuity or a combination of the two. Research in the area has also shown that there are many audiometric configurations which are indicative of specific pathologies within the ear. Combined otolaryngological and audiological findings are thus critical to a full evaluation of hearing problems. If the loss is not remissible through the use of medication or surgery, but is found to be either static or progressive, appropriate recommendations for audiological rehabilitation are made. Depending upon the individual case these may include the use of amplification to provide speech at a practical or usable level, lipreading training to supplement the auditory cues, auditory training either in the use of a hearing aid or more adequate employment of the auditory stimuli available to the individual with his particular type of loss. One common misconception regarding hearing losses is that a hearing aid will compensate for any type of loss. However, in many instances amplification provides no practical help. At best the individual finds that the use of a hearing aid produces problems for which the audiologist can provide aid. It is the responsibility of the hearing and speech clinic to determine, through appropriate tests, the advisability of a hearing aid and to help the individual in his adjustment to the use of amplification. In many instances a speech conservation program is needed to prevent the deterioration of speech in an individual who no longer hears his own voice normally. All of these services are available to the hard of hearing adult at the Audiology and Speech Clinic.

With the hard of hearing or deaf child the problem is generally more complex. Critical to the rehabilitation program is the age of onset and the degree of the loss.

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The child who is born deaf and cannot learn speech in the usual way will need a total special educational program which will include training in lipreading, auditory training, and speech and language development. The child who becomes hard of hearing after the onset of speech may only need special training in lipreading, auditory training, and speech within the regular school program. Just as children without hearing cannot learn to speak so children with peculiarities of hearing patterns will learn to speak as they hear. For example, one of the most misunderstood types of hearing loss is that in which the child has normal hearing for the low tones and a high frequency loss. Because the child hears the basic tones of the human voice and many sounds in his environment he responds adequately enough to most stimuli and is not thought to have a hearing loss. However, this child would not be expected to refine his infantile type of speech and would be considered by many to speak "baby talk." This is the child that many parents and teachers feel is not paying attention because they have no explanation for the fact that the child responds to many sounds, but still does not seem to understand everything asked of him. Part of the role of any hearing and speech clinic is to bring about a greater understanding of such problems through parent and teacher guidance. The prognosis for the adjustment of a deaf or hard of hearing child to a hearing world is closely related to adequate diagnosis. The earlier a diagnosis of deafness can be made in a child and appropriate rehabilitation measures begun, the greater are the chances for complete adjustment to a hearing world. Because local public school facilities for the rehabilitation of the young deaf and hard of hearing are readily available, the Clinic serves predominantly as a diagnostic center with these children. However, with the very young child, the Henry Ford Hospital Clinic can provide, through parent guidance and also direct training, the background for communication skills which will assist the child in a better adjustment to the special educational handling when he reaches the age at which the schools will accept him.

Within the area of speech defects one of the common problems is that of the child with delayed speech. This is the child in whom the onset of speech has not occurred within the usual range of readiness. In a majority of cases these problems are referred through pediatricians since the family generally seeks the advice of the child's doctor regarding why he has not begun to talk. Quite frequently it is assumed that this child must not hear adequately. The determination of the etiology of delayed speech, however, is most complex. Many factors may contribute to this retardation of speech, but the speech pathologist is concerned with four major areas in his differential diagnosis. Basically, he must determine whether or not a hearing loss of sufficient degree exists. Secondly, marked mental retardation will cause a delay in the development of speech. Such mental inadequacy may appear in the child as an apparent hearing loss because he lacks sufficient alertness to respond to auditory stimuli in the normal way. A third item of importance is the possible existence of psychological problems so severe that the child maintains no contact outside of himself and therefore does not respond to either speech or the gross sounds in his environment. A fourth, and very important factor which contributes to delayed speech is aphasia. Obviously, the therapeutic approach to a delayed speech problem will be altered considerably by adequate knowledge as to etiology. Certainly the child needing psychiatric

care for himself and parents should not be assigned to a school for the deaf. Problems of this nature demand the coordinated efforts of many divisions within the hospital in order to provide adequate diagnosis.

A second major speech problem is that of articulatory disorders. These children are the ones spoken of as not talking clearly or plainly. Basically, articulation problems may be either organic or functional and may possess a wide range of causal factors in either area. Again a team of medical and educational specialists may be needed for both diagnosis and therapy. The child with a cleft palate is a classic example of the necessity of cooperative functioning of many divisions within a medical center. The oral surgeon is concerned with functional closure of the cleft. In many cases where such closure is impossible because of an inadequacy of tissue the prosthodontist may provide artificial closure including speech appliances. Because of the many problems associated with cleft palate the orthodontist, pediatrician, and otolaryngologist, to name a few, may also contribute to the rehabilitation. The total evaluation of the individual's needs provides the framework for the type of speech training planned for the child. In many fortunate instances no speech therapy is necessary, but in others it is a prolonged affair covering years of concentrated effort.

The cerebral palsied child also demands the services of a group of specialists. In cases uncomplicated by mental deficiency, hearing losses, and aphasia, the coordinated efforts of the speech therapist, occupational therapist, and physical therapist can be expected to bring about a greater adjustment through providing a means of communication, an increased capacity for independence through self-help in dressing, feeding, and other activities. The careful evaluation of the type of cerebral palsy and the individual's potentiality to improve is critical to planning the therapeutic program.

In recent years a new speech problem has been added to the group with which the speech pathologist is concerned. Modern medicine has vastly increased the number of bulbar polio cases which survive. In many of these cases both a voice and articulation problem exists which resembles that of cleft palate speech. Instead of any inadequacy of tissue here, however, there is an inadequacy or weakness of function particularly of velo-pharyngeal closure. Since all but three sounds in the English language require varying degrees of velo-pharyngeal valving, there is a considerable degree of involvement of the articulation for speech as well as a change in voice quality, as a result of the excessive nasal emission of air.

As a result of brain damage due to war injuries a considerable amount of research has been carried out in the area of aphasia. This research has provided more appropriate methods of rehabilitation for individuals suffering a loss of speech following cerebral vascular accidents. In general, one thinks of adults only, particularly older adults, in conjunction with aphasia. However, the same condition may exist in brain damaged children as well. In children, the problem is more complex because there is no former capacity against which to compare nor on which to base the training program. Nevertheless, although the prognosis is slow, the adequately trained speech therapist can expect to contribute considerably toward the rehabilitation of many aphasic patients. The extent of

the lesion, age, pre-trauma intellectual capacity, and other factors necessarily alter the expected result.

The laryngectomized patient, if cooperative, can expect to learn to use esophageal speech for more adequate communication. This type of speech, using "belching" as the basic tone to be articulated, can be refined to such a degree that there is again intonation to the voice.

The problem of stuttering is always a major one in any hearing and speech clinic. At Henry Ford Hospital the psychiatrist, psychologist, and speech pathologist cooperate in the diagnosis and planning of the rehabilitation program which will best suit the individual's needs.

In summary, the Audiology and Speech Clinic at Henry Ford Hospital functions in close cooperation with many other divisions in the diagnosis and rehabilitation of the speech and hearing handicapped of all ages and types.