In the scope of optometry's role as a primary care profession vast degrees of technical knowledge and testing has been gathered to care for today's patients. With these modern skills in optometry, all would be defeating if unable to communicate results and care for proper patient treatment.

A significant portion of our population has had this for-granted ability hindered or lost, referring to the deaf patient.

The challenge for optometry lies not only in the area of improving communication with deaf patients but in preparing to deal efficiently with a group whose visual deficiencies are considerably greater than those of the normal population. If there is to be improvement in the evaluation and care of visual problems of these patients, optometrist must:

1. Acquire a fuller understanding of the effects of the handicap, deafness.
2. Develop or modify techniques as needed for the deaf.
3. Improve the level of communication between them and their deaf and hearing impaired patients.
Understanding Deafness

All professional disciplines agree that although deafness is a consequence of disease, injury or genetic fault, it is not a disease; it is a disorder of a functional nature. Deafness (anacusis) is the term for severe, or complete loss of auditory sensitivity. The term is considered appropriate for adults if the hearing-threshold for speech is 93 db or worse and for children, (educational purposes) at 70 db or worse.

Significant degrees and development of deafness are the:

1. The adventitiously deaf: Those born with normal hearing but whose sense of hearing later becomes seriously impaired because of injury or illness.

2. The congenitally deaf: Those deaf at birth.

3. The prevocationally deaf: Those who could not hear and understand speech and had lost (or never had) that ability prior to 19 years of age.

4. The hard of hearing: Those whom the sense of hearing, although defective, is functional with or without a hearing aid.

For optometric purposes a deaf patient is one whose hearing loss is chronically of such character that, even with available amplification devices, he or she cannot hear and understand ordinary conversation sufficiently to permit optometric diagnostic and treatment services at their highest level.
Deaf persons usually experience their disability most keenly when they interact with persons who can hear. Communication is awkward. The deaf person has difficulty understanding because he or she cannot hear and the hearing person has difficulty because the deaf person's speech may be flawed or absent. The result is frequently mutual withdrawal. Society generally treats deaf persons with barely disguised hostility or patient condescension. The first due to the frustrated communication and the latter to the deaf person's appearance of intellectual deficit. Yet for a deaf person to make a successful adjustment, vocationally and socially, it is necessary for him or her to have higher than average intelligence. Our culture has become heavily audio-dependent, placing deaf people at a severe disadvantage.

Statistically, more than 13.3 million people are hearing impaired, of which 1.8 million are deaf, of which more than 400,000 are considered provocationally deaf. (See table of States)\(^7\)

In the deaf, the sense of sight is crucial to education and communication. Every effort should be made to identify and treat those that are deaf, especially children, with visual defects. Previous studies\(^1-6\) on the visual status of deaf children have consistently found a much higher rate of eye defects as compared to hearing children. Table 1 summarizes these reports showing ocular defects in from 38 to 60% of deaf children.\(^5\)
None of the previous studies involved optometric screening using the Modified Clinical Technique (M.C.T.) nor presented results in a manner to help in comparison to hearing children. In 1974 Pollard and Neumaier published the results of a modified M.C.T. (see Table 2 for standards used) screening at the California School for the Deaf.

<table>
<thead>
<tr>
<th>Study</th>
<th>% Defects</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burdge, 1933, Cincinnati Oral School for the Deaf</td>
<td>40%</td>
<td>Received glasses from oculist</td>
</tr>
<tr>
<td>Braly, 1937, New Jersey School Trenton, New Jersey</td>
<td>38% of 422</td>
<td>Failed 20/20 Snellen; higher in congenital vs. adventitiously deaf</td>
</tr>
<tr>
<td>Stockwell, 1950, Pennsylvania School for the Deaf</td>
<td>46% of 960 over 10 yrs. old</td>
<td>Needed glasses: only slightly higher in congenitally deaf</td>
</tr>
<tr>
<td>Suchman, 1967, Hearing and Speech Center, Gallaudet</td>
<td>58% of 104 elementary age</td>
<td>Failed 20/20 or other anomalies</td>
</tr>
<tr>
<td>Lawson and Myklebust, 1970</td>
<td>54% of 80</td>
<td>&quot;Visual abnormalities&quot;</td>
</tr>
<tr>
<td>Lahr and Dayton, 1971, St. Mary's School for the Deaf, Buffalo, New York</td>
<td>60% of 237</td>
<td>&quot;Serious eye problems&quot;</td>
</tr>
</tbody>
</table>

**Table 1: Vision studies with the deaf, 1933-1971.**

**Table 2: Standards used.**

<table>
<thead>
<tr>
<th>Test</th>
<th>Problem Conditions - Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retinoscopy</td>
<td>Farsightedness Over + 2.25D</td>
</tr>
<tr>
<td></td>
<td>Nearsightedness Over −0.75D</td>
</tr>
<tr>
<td></td>
<td>Astigmatism Over 1.25D</td>
</tr>
<tr>
<td></td>
<td>Anisometropia Over 1.25D</td>
</tr>
<tr>
<td>Cover Test</td>
<td>Strabismus any</td>
</tr>
<tr>
<td></td>
<td>Esophoria over 4 ∆</td>
</tr>
<tr>
<td></td>
<td>Exophoria over 7 ∆ at distance</td>
</tr>
<tr>
<td></td>
<td>Hyperphoria over 1 ∆ at near</td>
</tr>
<tr>
<td></td>
<td>Amblyopia 20/40 or worse, over 1 Snellen line difference</td>
</tr>
<tr>
<td>Ophthalmoscopy</td>
<td>Pathology any pathology eg. cataract, heterochromia, fundus lesion etc.</td>
</tr>
<tr>
<td>Color Vision</td>
<td>Red-Green any defect, mild, medium, strong</td>
</tr>
<tr>
<td>Visual acuity</td>
<td>Possible Amblyopia 20/40 or worse</td>
</tr>
</tbody>
</table>
The results (Table 3) show 33% of the deaf population had significant visual defects. Refractive error is present in one of every four, and coordination problems in one of every fourteen students.

<table>
<thead>
<tr>
<th>Vision Defect</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refractive Error Only</td>
<td>93</td>
<td>18.2</td>
</tr>
<tr>
<td>Refractive Error and Eye Coordination Problem</td>
<td>26</td>
<td>4.7</td>
</tr>
<tr>
<td>Refractive Error and Eye Pathology</td>
<td>12</td>
<td>2.4</td>
</tr>
<tr>
<td>Refractive Error, Eye Coordination, and Pathology</td>
<td>2</td>
<td>0.4</td>
</tr>
<tr>
<td>Eye Coordination Only</td>
<td>17</td>
<td>3.3</td>
</tr>
<tr>
<td>Eye Coordination and Eye Pathology</td>
<td>2</td>
<td>0.4</td>
</tr>
<tr>
<td>Eye Pathology Only</td>
<td>19</td>
<td>3.7</td>
</tr>
<tr>
<td>None, Normal Vision</td>
<td>342</td>
<td>66.9</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>511</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 4 allows comparison of the deaf students with hearing students from the Orinda Study using similar screening techniques.

<table>
<thead>
<tr>
<th>Vision Defect</th>
<th>Orinda Criteria</th>
<th>Present Criteria</th>
<th>Deal Present Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nearsightedness</td>
<td>5-15%</td>
<td>(3.2-10%)*</td>
<td>13.3%</td>
</tr>
<tr>
<td>Farsightedness</td>
<td>6%</td>
<td>(3%)*</td>
<td>8.0%</td>
</tr>
<tr>
<td>Astigmatism</td>
<td>3%</td>
<td>(1.4%)*</td>
<td>7.3%</td>
</tr>
<tr>
<td>Anisometropia</td>
<td>3.4%</td>
<td>(1.4%)*</td>
<td>5.9%</td>
</tr>
<tr>
<td>Eye Coordination (all)</td>
<td>8%</td>
<td></td>
<td>8.9%</td>
</tr>
<tr>
<td>Strabismus</td>
<td>4.8%</td>
<td></td>
<td>4.9%</td>
</tr>
<tr>
<td>Amblyopia</td>
<td>1.2%</td>
<td></td>
<td>1.8%</td>
</tr>
<tr>
<td>Eye Disease (no color vision)</td>
<td>2%</td>
<td></td>
<td>3.6%</td>
</tr>
<tr>
<td>Color Vision only</td>
<td>8%</td>
<td></td>
<td>5.6%</td>
</tr>
</tbody>
</table>

*The present criteria indicate a 36%, 50%, 57%, and 60% reduction in the prevalence of nearsightedness, farsightedness, astigmatism and anisometropia, respectively, as compared with the original Orinda Criteria.
Many causes have been determined to cause deafness include meningitis, rubella, erythroblastosis foetalis, "RH" factor, mumps, pertussis, influenza, and others. A cause of deafness in a special interest to optometry is Usher’s syndrome, a recessive genetic condition associated with the condition of retinitis pigmentosa. The disease is also associated with obesity, dwarfism, psychosis, mental retardation, and other major neurophysiological pathology. The hearing loss affects the high tones first but it develops late in the disease, after the visual fields have narrowed. Even though no treatment is presently available, the earliest detection possible is essential to effective vocational and genetic counseling.
Developing Techniques for Examining the Deaf

Each practitioner has an uniqueness in performing a visual examination with a goal in obtaining accurate and reliable results. With years of training and vast experience it is difficult to announce a "most" correct method in obtaining these results, only suggestions may be offered. It is emphasized that an extensive examination on the deaf not have any part of the examination deleted because of the difficulty of communication.

Suggestions:
- A trial frame allows for greater doctor-patient communication.
- Tumbling E's and visual matching may speed and simplify visual acuity measurements.
- Ophthalmometry is of highest importance in objective data.
- Hand-held prisms and Jackson X-cylinders may simplify out-of-the-refractor examinations.

Optometry has a responsibility to be aware of physical and medical anomalies especially in the young. In the process of screening infants and children for visual deficiencies screening tests for hearing should be incooperated into the optometrist's scope of evaluations.

In a screening test, one starts with the assumption that hearing is probably normal and it cannot be too strongly emphasized that the main function is to detect all those
children who have normal hearing. Every child who fails to produce normal responses must be referred as soon as possible to a specialized clinic.

The "First year" Test

All children should be examined within the first year of life. It is not suggested that the screening tests of hearing (or of sight) should be carried out as isolated tests, but rather that they should be incorporated, when they are indicated, within the framework of this general examination.

The normal infant is most easily tested between the 7th and 9th months, when it is a relatively simple matter to examine him with distraction techniques. The sounds used should be faint sounds but it is also important that they should be meaningful sounds. Many children at this age will pay little or no attention to the banging of a drum or the clapping of hands, but they will nearly always react briskly to the much fainter sounds which have meaning to him in their everyday activities. - the soft call of his name in his mother's voice; the squeaking of a favorite toy; the sound of his rattle; or the clinking of a spoon on a cup.

The child, seated on his mother's lap, is distracted by an observer and the test can be started as soon as he has settled down. Each ear should be tested separately from a distance of three feet or more and the examiner should stand to each side of the child, just outside his range of vision. The normal reaction of the hearing child is a brisk turning of the head
but he will often show no response at all if the sound is made immediately behind him or immediately above his head.

These simple distraction tests will certainly pick out children with severe degrees of hearing loss and will also bring to light some of the slighter degrees of partial deafness in many other children. Some children will pass through the screen at this age, it is therefore necessary to have a further check at some later stage if there are suspicions.
Languages Between the Optometrist and the Deaf Patient

Speechreading, Speech, and Written Word.

All these may be used where appropriated with limited losses. Speechreading method notes that two-thirds of the 42 sounds that make up English either look like (on the lips) some other sound, or they are simply invisible. A speech reader must grasp and internalize the sounds that are visible during that split-second they appear on the lips. If the sole source of communication is lipreading, then at the most, only 20% of the conversation is understood if the speaker is speaking naturally.

An Interpreter

The interpreter may use the method of transliteration which is the exact reproduction of words spoken using signs and spelling accompanied by a mouthing of the words, or translation by moving from one language to another, as English to sign language and the reverse.

If an interpreter is used:

1. Take care not to let the third party come between him and his patient. Look at the patient while speaking... establish and maintain eye contact even though the patient will be looking at the interpreter most of the time.

2. Be constantly aware of the fact that the deaf patient attaches great significance to facial expression and
body posture. A pleasant expression may do more to establish the proper relationship than anything else.

3. Do not confide to the interpreter information withheld from the patient. The doctor should never say anything in the presence of the deaf patient which he does not want translated.

Direct communication

This method between doctor and patient uses "Total Communication". "Total Communication" includes a range of gestures, signs, speechreading, pantomime, fingerspelling, hearing aids, speech, and the written word, individually or all, wherever appropriate.

The following pages, "Eye Examination in Sign", will hopefully supplement the optometrist in the communication with the deaf.
Fingerspelling- Manual Spelling

The first technique in sign language that an optometrist should develop is fingerspelling. This consists of an arrangement of the fingers of one hand for each letter in the English alphabet. Any word in the English language can thus be spelled. Fingerspelling is relatively easy to learn and the skill can be maintained with a moderate amount of practice.

The following are "rules" for its use. The following drawings are as the person reading the letter would see them.

1. Place your right hand (or left, if you are left-handed) at the level of your lips.
2. Spell with palm of the hand facing the person you are addressing.
3. Do not use your wrist, except the slight movement required to make g, h, j, p, and q.
4. No arm movement is necessary. Do not throw your spelling at your patient.
5. Fingerspelling of the whole alphabet is not as useful as combining two letters such as am, be, on... and then moving to three-letter words and those relating specifically to vision.
6. Make an effort to spell smoothly. The deaf person reads spelling as you do writing.
7. As you spell a word, say it. Do not say letters.
<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>H</td>
<td>I</td>
<td>J</td>
<td>K</td>
<td>L</td>
</tr>
<tr>
<td>M</td>
<td>N</td>
<td>O</td>
<td>P</td>
<td>Q</td>
<td>R</td>
</tr>
<tr>
<td>S</td>
<td>T</td>
<td>U</td>
<td>V</td>
<td>W</td>
<td>X</td>
</tr>
<tr>
<td>Y</td>
<td>Z</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The American Sign Language alphabet
DOs and DON'Ts for Optometrist and Staff

Do learn fingerspelling. Practice with the words you use every day in the office.

Do remember that spelling, signs, gestures, and speech-reading are pictures... they must be clearly seen to be clearly understood. Light behind your back or shining into the eyes of your patient limits/distorts communication.

Do remember that a deaf patient with his face in the phoropter cannot respond to spelling, signs, gestures unless they are made inside his viewing area.

Do not call out; "Mrs. Jones, the doctor will see you now"—if Mrs. Jones is deaf she will not respond. She will respond to the two simple signs of "Doctor ready."

Do not shout. A deaf person won't hear you, and most hard of hearing patients won't appreciate it.

Do speak the word or sentence aloud as you sign it; Many of your deaf patients rely on speechreading to aid in understanding signs, and vice versa.

Do remember not to use the terms "deaf and dumb" and "deaf mute." The word "dumb" has a disagreeable connotation; and almost no hearing impaired person, even if profoundly deaf, is mute or dumb in the sense that he lacks the power of speech.

When your patient is a young person or a child with a severe vision problem, do explain to the parent the importance of hearing and suggest referral to an ear doctor. Adult patients need the same advice.
Do re-examine all your handouts about care of eye glasses—plastic and glass ... the importance of frame alignment; contact lens. If these are not clearly, directly written, do rewrite your instructions for your deaf patients.

If you have any doubt that you and your deaf patient are communicating about a matter critical to your examination... do ask the patient to come back with an interpreter.

If your deaf or hard of hearing patient does not understand—whether speaking, writing, fingerspelling, or signing: do not repeat; do rephrase.

With hard of hearing patients wearing hearing aids:

Do remember that a patient who wears a hearing aid in his glasses is virtually deaf when the frames are removed for eye examination.

Do give instructions and explanation to hearing aid-in-eyeglass wearer slowly and clearly before removing his glasses/hearing aid. He should understand fully what is expected of him before he is deprived of amplification of sound.

Do remember that hearing aid wearers respond better if a slow, clear explanation is made before the examination starts.

Do speak clearly, distinctly, and slowly to a hard of hearing person wearing a hearing aid, but do not speak loudly.

Do employ an amplifier when possible.

Do indicate, by coding patient's records, the type of hearing problem.
### TABLE OF STATES

The National Association of the Deaf, in cooperation with the Deafness Research and Training Center at New York University, conducted (1960-1974) a National Census of the Deaf Population. Although the analyzers of the data secured point out that the state estimates have “very large standard errors,” we are convinced after studying the project’s methodology that any error is more apt to be on the low side than the high side.

**Distribution of the Hearing Impaired Population by States:**

**United States, 1971**

<table>
<thead>
<tr>
<th>State</th>
<th>a) Hearing Impaired</th>
<th>b) Deaf</th>
<th>c) Prevocationally Deaf</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>United States</strong></td>
<td>13,362,842</td>
<td>1,767,046</td>
<td>410,522</td>
</tr>
<tr>
<td>Alabama</td>
<td>234,498</td>
<td>30,832</td>
<td>6,753</td>
</tr>
<tr>
<td>Alaska</td>
<td>20,480</td>
<td>2,664</td>
<td>553</td>
</tr>
<tr>
<td>Arizona</td>
<td>130,613</td>
<td>16,986</td>
<td>3,530</td>
</tr>
<tr>
<td>Arkansas</td>
<td>131,577</td>
<td>17,299</td>
<td>3,789</td>
</tr>
<tr>
<td>California</td>
<td>1,427,928</td>
<td>185,708</td>
<td>38,595</td>
</tr>
<tr>
<td>Colorado</td>
<td>160,902</td>
<td>20,926</td>
<td>4,349</td>
</tr>
<tr>
<td>Connecticut</td>
<td>179,486</td>
<td>20,921</td>
<td>5,209</td>
</tr>
<tr>
<td>Delaware</td>
<td>37,506</td>
<td>4,931</td>
<td>1,080</td>
</tr>
<tr>
<td>District of Columbia</td>
<td>49,350</td>
<td>6,489</td>
<td>1,421</td>
</tr>
<tr>
<td>Florida</td>
<td>472,263</td>
<td>62,093</td>
<td>13,600</td>
</tr>
<tr>
<td>Georgia</td>
<td>312,096</td>
<td>41,035</td>
<td>8,988</td>
</tr>
<tr>
<td>Hawaii</td>
<td>52,990</td>
<td>6,891</td>
<td>1,432</td>
</tr>
<tr>
<td>Idaho</td>
<td>52,274</td>
<td>6,798</td>
<td>1,413</td>
</tr>
<tr>
<td>Illinois</td>
<td>719,792</td>
<td>105,815</td>
<td>26,510</td>
</tr>
<tr>
<td>Indiana</td>
<td>340,011</td>
<td>49,985</td>
<td>12,522</td>
</tr>
<tr>
<td>Iowa</td>
<td>184,017</td>
<td>27,052</td>
<td>6,778</td>
</tr>
<tr>
<td>Kansas</td>
<td>143,395</td>
<td>21,080</td>
<td>5,281</td>
</tr>
<tr>
<td>Kentucky</td>
<td>220,203</td>
<td>28,952</td>
<td>6,342</td>
</tr>
<tr>
<td>Louisiana</td>
<td>247,499</td>
<td>32,541</td>
<td>7,128</td>
</tr>
<tr>
<td>Maine</td>
<td>58,036</td>
<td>6,765</td>
<td>1,685</td>
</tr>
<tr>
<td>Maryland</td>
<td>267,783</td>
<td>35,208</td>
<td>7,712</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>335,423</td>
<td>39,097</td>
<td>9,734</td>
</tr>
<tr>
<td>Michigan</td>
<td>579,614</td>
<td>85,208</td>
<td>21,347</td>
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<tr>
<td>Minnesota</td>
<td>250,234</td>
<td>36,786</td>
<td>9,216</td>
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<tr>
<td>Mississippi</td>
<td>150,024</td>
<td>19,725</td>
<td>4,320</td>
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<tr>
<td>Missouri</td>
<td>303,982</td>
<td>44,688</td>
<td>11,196</td>
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<tr>
<td>Montana</td>
<td>53,706</td>
<td>6,566</td>
<td>1,364</td>
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<tr>
<td>Nebraska</td>
<td>96,799</td>
<td>14,231</td>
<td>3,565</td>
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<tr>
<td>Nevada</td>
<td>35,732</td>
<td>4,647</td>
<td>966</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>44,408</td>
<td>5,177</td>
<td>1,288</td>
</tr>
<tr>
<td>New Jersey</td>
<td>423,821</td>
<td>49,401</td>
<td>12,299</td>
</tr>
<tr>
<td>New Mexico</td>
<td>72,753</td>
<td>9,462</td>
<td>1,966</td>
</tr>
<tr>
<td>New York</td>
<td>1,074,764</td>
<td>125,275</td>
<td>31,190</td>
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<tr>
<td>North Carolina</td>
<td>343,204</td>
<td>45,124</td>
<td>9,883</td>
</tr>
<tr>
<td>North Dakota</td>
<td>39,507</td>
<td>4,320</td>
<td>1,364</td>
</tr>
<tr>
<td>Ohio</td>
<td>694,198</td>
<td>102,053</td>
<td>25,567</td>
</tr>
<tr>
<td>Oklahoma</td>
<td>175,209</td>
<td>23,036</td>
<td>5,046</td>
</tr>
<tr>
<td>Oregon</td>
<td>154,815</td>
<td>20,174</td>
<td>4,184</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>694,455</td>
<td>80,946</td>
<td>20,153</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>54,151</td>
<td>6,312</td>
<td>1,571</td>
</tr>
<tr>
<td>South Carolina</td>
<td>173,440</td>
<td>22,804</td>
<td>4,995</td>
</tr>
<tr>
<td>South Dakota</td>
<td>42,854</td>
<td>6,299</td>
<td>1,579</td>
</tr>
<tr>
<td>Tennessee</td>
<td>269,825</td>
<td>35,477</td>
<td>7,770</td>
</tr>
<tr>
<td>Texas</td>
<td>767,887</td>
<td>100,961</td>
<td>22,113</td>
</tr>
<tr>
<td>Utah</td>
<td>78,626</td>
<td>10,225</td>
<td>2,126</td>
</tr>
<tr>
<td>Vermont</td>
<td>26,836</td>
<td>3,128</td>
<td>780</td>
</tr>
<tr>
<td>Virginia</td>
<td>308,692</td>
<td>40,587</td>
<td>8,990</td>
</tr>
<tr>
<td>Washington</td>
<td>243,036</td>
<td>31,608</td>
<td>6,568</td>
</tr>
<tr>
<td>West Virginia</td>
<td>119,121</td>
<td>15,662</td>
<td>3,430</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>288,823</td>
<td>42,460</td>
<td>10,637</td>
</tr>
<tr>
<td>Wyoming</td>
<td>24,204</td>
<td>3,148</td>
<td>654</td>
</tr>
</tbody>
</table>

*Defined as “having trouble hearing in one or both ears”—half of which reported difficulties in both ears.*

b) Those reporting they could not hear and understand speech.

c) Those within the deaf group whose hearing was lost before age 19... 73.6 percent of which had suffered prelingual losses.

*In 1976, the Texas Commission for the Deaf estimated that there were then in Texas 110,961 all-ages deaf, of which 24,500 were prevocationally deaf and 12,200 prelingually deaf; the estimate for the deaf adult population 60 years and older was 28,000.
   New York, 1977

2. Hoffman, J., Hoffman, B., Gransee, D., Fox, A., James, J.,
   Schmitz, J., Sign Language for Everyone, California
   State Department of Health, Joyce Motion Picture Company,
   1975.


4. Pfetzing, D., Zawolkow, E., Gustason, G., Signing Exact

5. Pollard, G., Neumaier, R., Vision Characteristics of

6. Texas Optometric Association, Basic General Diagnostic
   and Treatment Services in Sign Language, Austin, Texas, 1979.

7. Texas Optometric Association, What did you say Doctor?,
   Austin, Texas, 1978.

8. Uniacke, N., Wolf, T., Pond, P., Tests & Procedures I,
   Health Observation and Evaluation, Laboratory Syllabus
   and Course Outline, 1978.
HELLO  MY  NAME  IS  DOCTOR

TO HELP US UNDERSTAND EACH OTHER BETTER.

I WILL SHOW YOU THESE CARDS
HOW ARE YOU OLD ARE YOU TAKING MEDICINE ARE YOU HEALTHY
BLOOD
YOU
HAVE
HEART
YOU PRESSURE
I HAVE
OR
DIET
PROBLEMS
HOW OLD ARE YOUR GLASSES WAS YOUR EXAMINATION
DO
YOU
WEAR

YOUR GLASSES

ALL THE TIME

ONLY FOR DRIVING
ONE—YES.

TWO—NO.

IS YOUR VISION GOOD AT READING FAR
I HAVE YOU HURT YOUR EYES.

I HAVE HAD OPERATION OF YOUR EYES.
DO YOU SEE DOUBLE

DO YOU SEE FLASHER

LIGHTS?

WHEN
Is a member of your family blind have crossed eye.
WHICH WAY ARE THE LETTERS POINTING?

UP DOWN LEFT RIGHT
LOOK AT THE LIGHT AT

THE END OF THE ROOM

LOOK AT THE LETTERS
Look at the letters.

Raise your hand when you cannot read them.
LOOK
AT
MY
FINGER.
LOOK
AT
THE LIGHT
AT

THE END
OF THE ROOM

LOOK

UP
DOWN
LEFT
RIGHT
PUT YOUR HEAD HERE.

LOOK STRAIGHT
Look at the letters. Raise your hand when you can read them. Read them.
I WILL SHOW YOU

TWO LENSES, WHICH IS BETTER

ONE OR TWO OR SAME
Look at two groups of letters which is better.
CAN YOU READ THE SMALL

LETTERS?

ONE-yes TWO-no
LOOK AT THE LETTERS

RAISE YOUR HAND WHEN YOU CANNOT READ THEM
DOUBLE RAISE YOUR HAND
WHEN
THE LETTERS
DOUBLE

WHEN
THE LETTERS

BECOME
1
ONE
PUT YOUR HEAD HERE.

LOOK STRAIGHT
Look at the cross which lines are more black? Up and down? Show me?
I WILL SHOW YOU

LETTERS

RAISE YOUR HAND

WHEN

THEY ARE

IN A STRAIGHT LINE

LIKE BUTTONS ON A SHIRT
RAISE YOUR HAND

WHEN

THE TWO LETTERS

ARE SIDE BY SIDE

SIDE
Look at the cross. Which lines are more black? Are they up and across? Show me?
PUT YOUR HEAD HERE.

LOOK STRAIGHT
NOW
I
WILL
CHECK
THE PRESSURE

INSIDE
YOUR
EYE
DON'T
MOVE

IT
WILL
NOT
HURT

YOU
WILL
FEEL
A LITTLE
PRESSURE
PUT
YOUR

HEAD
HERE.

LOOK
ONLY
HERE

RAISE YOUR HAND

WHEN
YOU

FIRST

SEE

THE LIGHT
I WANT YOU TO DO SOME VISION

TRAINING FIRST WATCH ME NOW

YOU COPY DO THIS EVERY DAY

EVERY MORNING EVERY NIGHT GOOD

NO DO IT AGAIN
YOU DO NOT NEED GLASSES NOW.

YOUR EYES ARE HEALTHY.
This is the prescription for your glasses. You need them for reading, sewing, only for reading, and to see far. Only for driving and TV.
DO YOU WANT TO ASK QUESTIONS?
COME AGAIN FOR AN EXAMINATION

IN DAYS

MONTHS

YEARS

WEEKS