Ophthalmological Consultation for Children in Rural Iowa

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APPROXIMATELY 50 percent of the residents of Iowa live on farms or in small towns with populations of less than 15,000. There are few medical specialists in such areas, and therefore diagnosis and treatment of certain congenital and developmental problems amenable to early correction are delayed. Personnel and facilities necessary for the complete evaluation of and the appropriate planning for the child with multiple health problems or a chronic crippling condition are almost totally lacking.

The Iowa State Services for Crippled Children (SSCC), established in 1936, operates each year about 60 multispecialty clinics for diagnoses and consultation at sites throughout the State (see map). These general, cardiac, and ear, nose, and throat clinics are staffed by consultants from the colleges of medicine and dentistry of the University of Iowa and by the Iowa State Services for Crippled Children. These personnel include pediatricians, pediatric cardiologists, ophthalmologists, orthopedists, otolaryngologists, dentists, psychologists, physical therapists, speech and hearing consultants, medical social consultants, and public health nurses.

Children at a general clinic may be evaluated by several specialists in 1 day, saving parents the considerable time and expense necessary for individual visits. This convenience is especially valuable for the child with multiple handicaps who requires frequent and varied evaluation and observation. All Iowa children under 21 years of age are legally eligible for diagnostic services and are seen free of charge.

For the past 8 years, the department of ophthalmology, University of Iowa, has provided consultation in clinics in areas with no ophthalmologists and where ophthalmological services are needed. This study was undertaken to review and evaluate the role of the ophthalmologist in extended medical service for children in the rural community.

Method

Clinics are scheduled several months in advance, and are held in churches, schools, hospitals, and other public buildings. These clinics are held with the approval and at the invitation of local county medical societies. Every dentist and physician in Iowa receives a yearly schedule of clinic dates and the towns in which they will be held. One month before a clinic date all physicians and dentists in the area receive supplementary notice of the date, exact location of the clinic, and the type of consultation which will be available.

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Referral forms are mailed with the supplementary notices. The physicians and dentists return these forms to SSCC in Iowa City so that appointments can be arranged and so that records of previous diagnoses will be available for the examiners at the clinic.

Patients register at the clinic by appointment. Persons without a specific referral appointment are seen also but are requested to give the name of their family physician or dentist at the time of registration so that a report of the examination and recommendations for treatment can be sent to him.

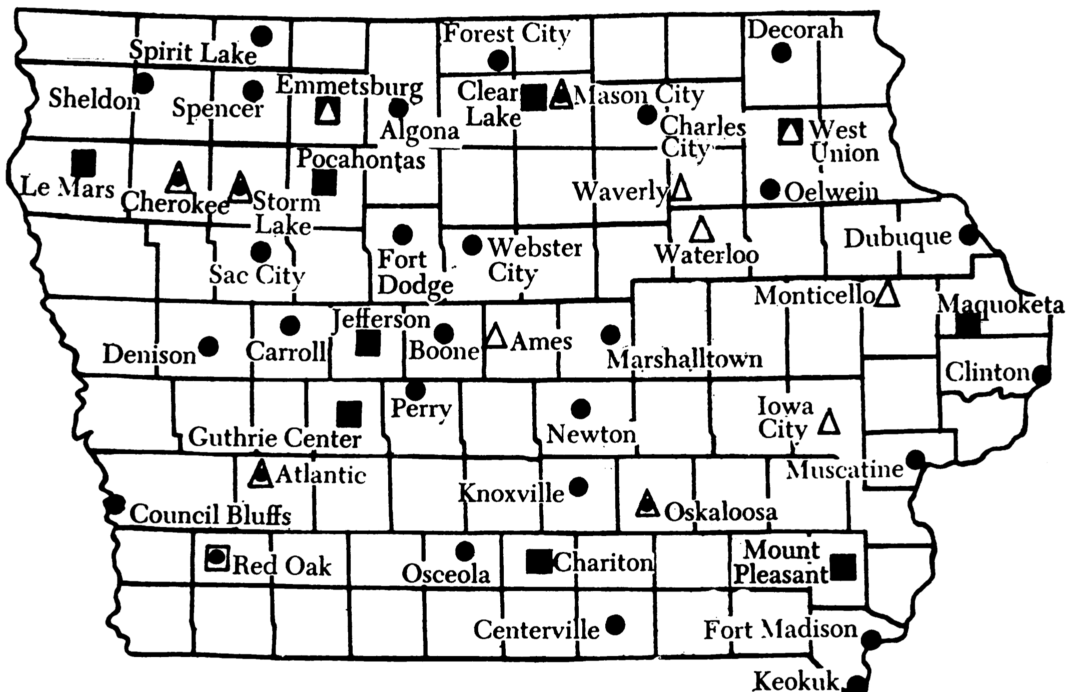
Local volunteers escort children to the proper examining area and assist the professional staff during examinations. Children who are scheduled for more than one examination report to a central assignment desk before each examination or visit to an X-ray or laboratory area. Thus, the workers at the assignment desk record the progress of the child through the clinic and arrange for cross referrals or additional tests as the need becomes apparent.

Examinations are performed in private rooms. After an examination is completed, each examiner dictates a description of his findings and his recommendations. Information from these recordings is compiled, edited, and used in the medical report which is sent to the referring physician or dentist.

No treatment is provided at the clinics. SSCC specialists serve only as consultants to the family physician or dentist. The child remains under the care of the family physician or dentist unless he and the child's parents decide referral to University of Iowa Hospitals in Iowa City or to specialists elsewhere is desired.

Except for slit-lamp evaluation, eye examinations can be given competently at a field clinic with the following portable equipment.

- Snellen acuity charts
- Occluder
- Pirate patch
- Pen light
- Muscle light
- Prism bars, vertical and horizontal
- Cross cylinder
- Dilating and cycloplegic drops
- Facial tissues
- Retinoscope
- Direct ophthalmoscope
- Indirect ophthalmoscope



● General clinic

Δ Cardiac clinic

■ Ear-nose-throat clinic

Sites of clinics held by Iowa State Services for Crippled Children

Fixation sticks	Topical anesthetic drops
Worth 4-dot white and red-green glasses	Schiotz tonometer
Fly and glasses	Fluorescein strips
Red filter	Ruler
Trial frame	Loupe
Trial set	Scratch pad and pen
	Extra bulbs and batteries

The main requirement at the field clinic site is a room 20 or more feet long with adequate lighting. The examinations could be done in a smaller room by using a projector and chart calibrated for the shorter distance.

Results

Eight hundred eighty-six children made 1,080 visits to 61 field clinics during the period 1959–66 for eye evaluation. Most of the children were seen only once, but a few were seen two or more times.

Eye abnormalities were found in 676, or 76 percent of the children. Most of the remaining 210, or 24 percent, of the children had signs and symptoms of eye disease, various syndromes, or other systemic health problems in which eye disorders may be present.

Although a wide variety of eye disorders was found, the cases were tabulated on the basis of a primary clinical diagnosis (see table). Many children had a combination of eye abnormalities, but each case is presented in the table by the one diagnosis which was judged most significant.

Most children examined by the ophthalmologists had other health problems requiring consultation with different types of specialists. Two-thirds of the 886 patients were seen by at least one other specialist, and one-third were referred for evaluation of their eyes only.

Discussion

A significant number of the eye disorders of infants and young children can be handled effectively only if diagnosis is made early and treatment is instituted promptly. In strabismus, for example, the prognosis for eliminating the cosmetic blemish, preventing amblyopia, and obtaining fusion is greatly enhanced by early evaluation and therapy. If a consultant is not readily available, valuable time is lost, thereby decreasing the prognosis for good visual function.

Sending specialists into the rural community is a means of providing the necessary evaluation. Specific recommendations regarding further management are made to the parents and family physician, and direct referral routes to the university center for specialized or emergency care are available.

Public health nurses and medical social con-

Ophthalmology field clinic summary, Iowa State Services for Crippled Children, 1959–66

Primary clinical diagnosis	Number of cases [1]
Strabismus	337
Esotropia	273
Exotropia	57
Hypertropia	7
Refractive errors	132
Amblyopia (without strabismus)	19
Congenital ptosis	18
Phoria	16
Esophoria	8
Exophoria	8
Nystagmus	13
Cranial nerve palsies	13
III nerve	2
IV nerve	1
VI nerve	10
Optic atrophy	12
Chorioretinitis	12
Congenital cataract	11
Nasolacrimal duct obstruction	10
Microphthalmos	9
Duane's syndrome	9
Traumatic injuries	7
Conjunctivitis	6
Coloboma	5
Mongolism (ocular signs present)	4
Marcus Gunn syndrome	3
Keratitis	3
Subluxated lenses	3
Cysts involving lids	3
Conjunctival and limbal tumors	3
Hemangiomas, upper lid	2
Corneal opacities	2
Brown's superior oblique tendon sheath syndrome	2
Congenital glaucoma	2
Persistant hyperplastic primary vitreous versus retinoblastoma	2
Blepharitis	2
Total	660

[1] 1 case each of the following 16 abnormalities was found: congenital bilateral anophthalmos, bilateral retinoblastoma, optic nerve tumor, Sturge-Weber syndrome with retinopathy, Adie's pupil, retinitis punctata albescens, rubella retinitis, ocular hysteria, early hypertensive retinopathy, medial canthus hemangioma, optic nerve dysplasia, bilateral papilledema, cutaneous sinus, postoperative enucleation, iris tumor, and intermittent lid edema (exact cause not known, possibly allergy).

sultants counsel the families and provide detailed followup. Parents are interviewed by the public health nurse before leaving the field clinic. Families needing financial assistance are referred to the medical social consultants. Children from such families may be referred to university hospitals, where State funds are used to pay for treatment. The public health nurses and medical social consultants maintain contact with families needing help. During the community planning conferences held several weeks following a clinic, SSCC personnel and local health, education, and welfare representatives discuss followup of children from these families.

These field clinics have proved beneficial to the university clinic staff. The examiner at the field clinic encounters a vast array of eye problems which are stimulating and educational. Each year many of the children are referred from the field clinic to the ophthalmology department for further examination and treatment.

The ophthalmologist at the field clinic also has an opportunity to participate in the evaluation of the child with multiple health problems. Disorders such as cerebral palsy, mongolism, diabetes, hydrocephalus, galactosemia, Marfan's syndrome, rubella syndrome, and cystic fibrosis are seen along with such common problems as reading difficulties, learning disabilities, and behavioral disorders. Eye abnormalities may play a prominent role in any of these conditions, and the ophthalmologist renders an important service in the "team approach" to the evaluation and management of such conditions.

This unique program has been most successful. The program is a demonstration of the service a university ophthalmology department can perform in the conservation of vision for populations previously isolated from such care.

Summary

Iowa State Services for Crippled Children (SSCC) operates each year about 60 multispecialty clinics for diagnoses and consultation. These general, cardiac, and ear, nose, and throat clinics are staffed by the University of Iowa colleges of medicine and dentistry and full-time SSCC personnel.

All Iowa children under 21 years of age are eligible for diagnostic services and are seen free of charge. SSCC specialists serve only as consultants, and no treatment is provided at the clinics. Children are cared for by their family physician or dentist unless he and the parents agree to treatment by specialists elsewhere.

Direct referral routes to the university center for specialized or emergency care are available. Public health nurses and medical social consultants counsel the families and provide detailed followup.

Eight hundred eighty-six children made 1,080 visits for eye evaluation to 61 field clinics during the period 1959–66. Eye abnormalities were found in 676, or 76 percent, of the children. Most of the remaining 210, or 24 percent, of the children had signs and symptoms suggestive of eye disease, various syndromes, or other systemic health problems in which eye disorders may be present.

Two-thirds of the 886 patients were seen by at least one specialist in addition to the ophthalmologist. One-third were referred for evaluation of their eyes only.

The field clinics, serving areas with few specialists, are also a source of referrals to the university clinic staff. In addition to enabling further examination and treatment for the patients, these referrals provide opportunities for a wide range of professional services by the ophthalmology department.