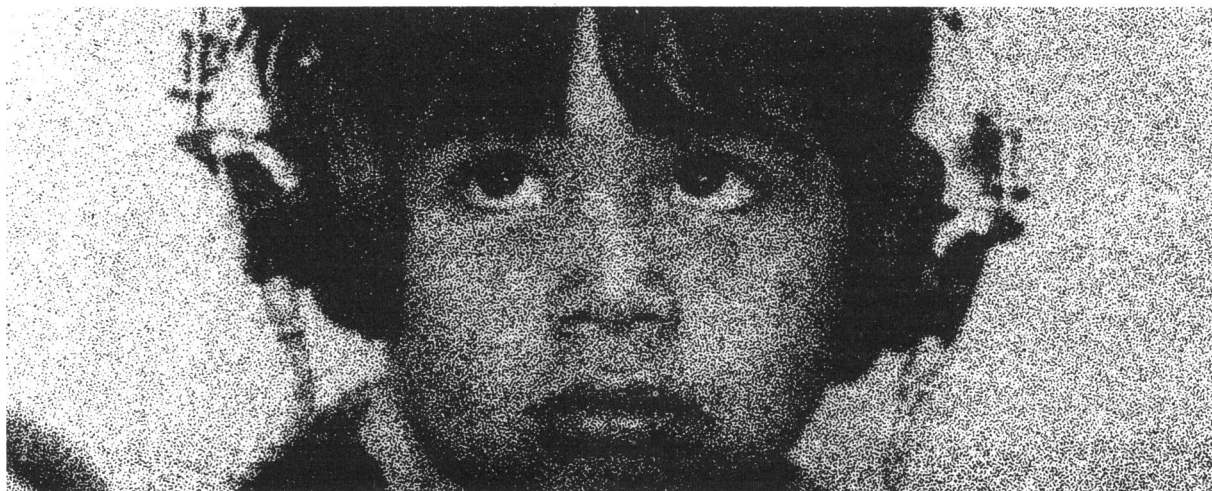

Aspects on Delivery of Ear, Nose, and Throat Care to Montana Indians

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OTITIS MEDIA is one of the most common diseases among Native Americans (Eskimos and Indians). Most of these populations live in areas that are remote from adequate ear, nose, and throat (ENT) services, and the many untreated cases of acute otitis media among them have resulted in a high frequency of chronic ear disease. Recently, however, various measures have been taken to improve ENT care for Eskimos and Indians. In this paper we report 5 years' experience (1970-74) in providing otological and audiological ENT services to Indians in Montana. We attempt to evaluate these services and to suggest improvements for the future. It is our hope that our experiences will benefit similar projects.

Background

The earliest ENT care for the Montana Indians was provided by private physicians in the State and by Public Health Service physicians and nurses in the Indian Health Service hospitals and clinics. The Blackfeet Reservation was somewhat more isolated by geography and weather from ENT care than the other reservations. The

nearest practicing ENT surgeon was approximately 250 miles from the reservation.

In 1969 the University of Washington's Department of Otolaryngology began to send senior residents to the Blackfeet Reservation to provide ENT services on an irregular basis. However, because the service was irregular, followup was difficult; sometimes postoperative patients were not seen for months, and all surgical patients had to be transported to the Seattle Public Health Service Hospital.

To improve this situation, the Department of Otolaryngology proposed to the Indian Health

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Service (IHS) that a mobile ENT clinic be used. The unit would be staffed with an audiologist and a Flexner (a physician's assistant who is trained in otolaryngology). In 1971 the IHS received a special Congressional appropriation to provide the initial resources for the mobile unit project, and the IHS then provided a contract to the Department of Otolaryngology for the project. The contract has been renewed annually. After an initial investment in the mobile van and equipment, the yearly contract has amounted to approximately \$110,000 for salaries, supplies, transportation, and all other costs directly concerned with the ENT services in Montana.

Thus, the department has been providing otological and audiological services on a regular basis to the people on the reservations in Montana and Wyoming since 1971. Recently, another audiologist, a secretary, and a part-time ENT physician who supervises the project were added to the mobile team. The team has been described in detail in a previous publication (1).

The Mobile Ear-Nose-Throat Unit

Services and equipment. The services provided in the mobile unit include excellent facilities for ENT and audiological examinations. The equipment can be transported over long distances and in adverse weather conditions and still operate effectively and reliably. Initially, we feared that the sensitive electronic and optical equipment might be damaged and exposed to a great deal of wear and tear. This fear proved to be unfounded.

The mobile clinic provides a convenient and pleasant work environment. In addition to the usual ENT armamentarium, the van includes an otomicroscope, hot and cold running water, an autoclave, and an electrically adjustable examination chair. The patients can be given complete audiological evaluation including pure tone, Békésy, and impedance testing, as well as hearing aid evaluations, in a controlled-sound field environment. The equipment in the van is ready for immediate use; we do not have to pack and unpack equipment and set it up in makeshift quarters.

Originally, the project was intended for case-finding for referral and treatment of patients in outlying areas who had less-serious disorders. Patients who required more advanced medical treatment or surgical intervention were referred

either to the Indian Health Service hospitals or to contract physicians. Although an effort was made to provide every patient with immediate and appropriate treatment, the magnitude of surgical need was greater than the funds available for treatment. A plan was therefore devised to have the ENT team physician or a contract ENT physician perform surgery at the Blackfeet and Crow Service Units. Both hospitals have operating rooms that are well suited for ENT surgery. Services were offered in the summertime for the Blackfeet Reservation because of the severe winters in that area; for the Crow Reservation, services were offered primarily in the wintertime.

Currently, the activities of the mobile unit are coordinated with the surgery program. One month before a surgery program is scheduled, the mobile unit visits nearby service units for screening of school children and casefinding. The mobile team assists with preoperative workups and immediate postoperative care and performs field followups.

The number of private ENT physicians in Montana has grown from 2 when the program began to 11. The Indian Health Service has also made increasing amounts of money available for contract surgical care, thus allowing more referrals to private ENT surgeons. These physicians are also performing surgery more frequently at the service units, and contracts are being negotiated for them to provide both clinical and surgical treatment in the IHS facilities.

In short, the majority of surgical candidates have now been offered treatment. Surgery is being carried out in locations close to or on the individual reservations, making the service convenient and far more attractive. Long, discouraging waits for treatment have been eliminated. Excellent facilities and equipment, as well as highly trained personnel, are available for the patients. Prophylactic measures, early treatment, immediate referrals, and arrangements concerning transportation and finances are arranged at the first visit.

Project personnel. The project has been definitely advantageous for the team members. All have enriched their professional experience from the unusual, frequent, and severe ENT diseases in the Indian population. The close cooperation of the team members has provided excellent opportunities for comparison of physical findings with audiological measurements benefit-

ing the patient. Another definite advantage for the project has been the continuance of the same mobile team members for 3 years. Consequently, they are well aware of the difficulties involved in the project. The regular visits by the same team members to the reservations seem to have increased the patients' confidence in the project.

As expected, there have been difficulties in finding a full-time ENT physician to supervise the mobile ENT project in Montana. So far, the situation has been eased by two part-time ENT physicians from Sweden. However, they have had to divide their time between the Montana project and their research work at the University of Washington in Seattle; this has necessitated considerable travel—an unsatisfactory situation for both the patients and the physicians. The problem of recruiting an ENT physician will probably continue in the immediate future, because

most ENT physicians in the Montana area apparently prefer private practice.

The project also necessitates considerable travel each year for the team members living in Billings. One round trip to the various reservations is 2,200 miles. The extensive time spent in traveling is considered by the team members to be a pronounced and increasingly negative experience.

Another disadvantage is the project's vulnerability in having only one person in the Flexner position, because the entire project becomes too dependent upon the health and physical presence of this person. The audiological services, on the other hand, are much less vulnerable, because there are two persons to provide them.

Diseases. The spectrum and frequency of ENT diseases in the Indian population differ in some respects from those in corresponding non-Indian populations. The ENT disease pattern among the

Table 1. Diagnoses of diseases or conditions by mobile ENT team at clinics or during screening of school children, fiscal year 1973-74

Diagnoses	Patients	
	Number (N = 3,043)	Percent
External otitis.....	94	3.1
Cerumen (wax).....	191	6.3
Acute otitis media (serous or purulent).....	157	5.2
Chronic suppurating otitis media.....	140	4.6
Chronic dry otitis media.....	368	12.1
Chronic or recurrent serous otitis media.....	325	10.7
Sensorineural hearing loss.....	310	10.2
Conductive hearing loss, other causes.....	125	4.1
Dizziness, vertigo, Meniere's disease, and others.....	3	0.1
Total.....	1,713	56.4
Acute rhinitis, common cold.....	164	5.4
Chronic atrophic or dry crusted rhinitis.....	62	2.0
Allergic or vasomotor rhinitis.....	24	0.8
Nasal fracture, acute or sequelae.....	33	1.1
Nasal septal deviation.....	49	1.6
Sinusitis.....	10	0.3
Total.....	342	11.2
Adenoids.....	81	2.7
Acute pharyngitis, tonsillitis, sore throat.....	45	1.5
Chronic or recurrent pharyngitis, tonsillitis.....	34	1.1
Total.....	160	5.3
Acute or chronic laryngitis, hoarseness.....	6	0.2
Acute or chronic bronchitis, cough.....	11	0.4
Total.....	17	0.6
All other diagnoses.....	154	5.1
No symptoms, checkup, normal ENT.....	657	21.6
Total.....	811	26.6

¹ Total includes 427 school children.

Montana Indians is evident from statistics compiled for fiscal year 1973-74. The number of persons seen by the mobile team in that year and the types of diseases or conditions diagnosed by the team are shown in table 1. Otitis media, both acute and chronic, was the most commonly diagnosed disease, and an unexpectedly high number of relatively young people were found to have sensorineural hearing loss. Acute head trauma and its sequelae, as well as the sequelae of nasal fractures with deviation of the entire nose or of the septum only, were also commonly diagnosed.

The types of surgery and the number of times they were performed from July 1973 through March 1974 by the mobile team's supervisor or by contract surgeons in Indian Health Service hospitals were as follows:

<i>Types of surgery</i>	<i>Number of times performed</i>
Myringotomy	6
Cauterization and paper patching of tympanic membrane perforation	5
Mastoidectomy	2
Cleansing of ear, mastoid	2
Myringotomy and insertion of polyethylene tubes ..	50
Myringoplasty	13
Tympanoplasty	11
Stapedectomy	5
Exploratory tympanotomy	1
Ossicle transpositioning	1
Adenoidectomy	38
Septoplasty	7
Septorhinoplasty	5
Rhinoplasty	2
Sinus wash	3
Removal of foreign body from nose	1
Removal of cyst or polypectomy	2
Tonsillectomy and adenoidectomy	10
Tonsillectomy	4
Vocal cord polypectomy	1
Total performances	169

During the past 5 years, primary emphasis has been on the diagnosis and treatment of chronic otitis media. The number of "new" cases of chronic otitis media has decreased markedly since

the project was initiated, and we have reliable information that this decrease is real. Instead, there is now a predominance of children with serous otitis media, which can be interpreted as evidence that chronic middle ear disease is identified in an earlier stage. All children with serous otitis media are offered close followup and necessary treatment, for example, polyethylene tubes or adenoidectomy.

Patients' attitudes toward the project. Although the ENT facilities are readily available, it is regrettable that some patients decline to use them. From our experience, many Indians have a poor medical understanding of the hearing organ, its function, and such general aspects as maintaining hygiene, keeping appointments, and taking prescribed medicine.

The previous system in which Public Health Service physicians served in the Indian hospitals as an alternative to military service and the frequent and complete turnover of these physicians every second year created negative attitudes toward PHS physicians among the Indians. The Indians believed that the physicians were not concerned with Indian health care. Many physicians also felt "deported" to remote reservations. Although these arrangements were terminated recently, there is still some lack of confidence in the medical care provided in many of the Indian hospitals.

In addition, some older Indians who still believe in Indian ritual medical care may discourage their relatives from seeking medical and particularly surgical advice in the hospitals. To emphasize their viewpoints, rumors about poor care or unsuccessful results are circulated on the reservations. In the Montana-Wyoming area, there is a noted rivalry between tribes, which makes

Table 2. Patient caseload during mobile ENT unit's clinic and surgery program at Browning Hospital on Blackfeet Reservation, June 25-August 19, 1974

Month	Number of patients			
	Came with appointment	Came without appointment	Failed to come	Canceled
June	41	15	25	1
July	207	66	151	11
2-15 ¹	(79)	(30)	(76)	(3)
August	114	22	56	2
Total	362	103	232	14

¹ Included in this period were Fourth of July and Indian Days.

the treatment of a person from one tribe difficult if it must be carried out in what is felt to be a rival tribe's hospital. Even within the same tribe, local and regional rivalries have a negative effect on the attendance of persons from outlying areas at medical clinics held outside their own area.

It has been difficult to plan clinics and surgeries because of the comparative lack of patients' reliability in keeping appointments. Sometimes all patients scheduled showed up, and sometimes only 25 percent did so. Often the volume of surgical patients has been less than optimal. Table 2 shows our experience during the summer surgery program at the Browning Hospital on the Blackfeet Reservation. Patients must be admitted at least 1 day before surgery so that the ENT team can determine the surgical caseload. It is also exceedingly difficult to call patients from a waiting list on short notice, because most patients do not have telephones and have to be contacted

through community health representatives. In sum, although the majority of Indian patients keep appointments, follow prescriptions, and are well acquainted with the common principles of hygiene, a substantial number still appear to show a lack of concern in these matters. Consequently, the efficiency and results of the ENT project are reduced.

Discussion

The emphasis of the ENT program is provision of medical care for patients with otitis media. We have found that the disease is seldom seen in its acute stage by the ENT team, possibly because patients do not seek advice or treatment at this stage or because they are treated with antibiotics and nasal or oral decongestants at the Indian Health Service hospitals.

Suppurating ears in children often do not alarm the parents sufficiently to seek medical advice. The

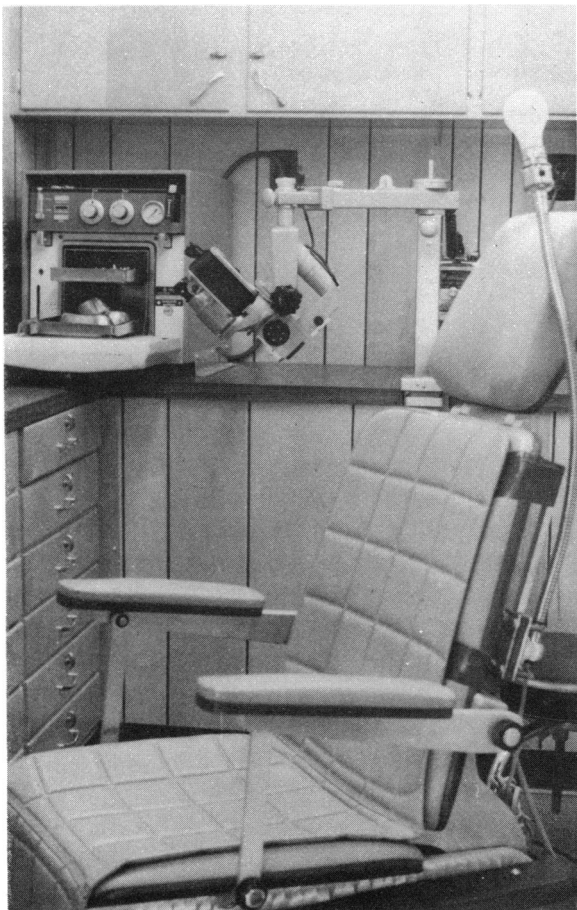
Otologic services are provided on Indian reservations in Montana in this specially built van which includes an ENT examination room, an audiological compartment, and a waiting room



incidence of acutely suppurating ears is so high that the condition may almost be considered "normal." If the child does not appear to be in pain and his general health seems to be normal, medical care is not sought. From our experience, it seems that the ENT care provided by the Public Health Service physicians often lacks diagnostic security. Followup and hearing testing also seem to be deficient, and comparatively few patients are referred by the PHS physicians to the available ENT facilities. The consequence of these conditions has been a high frequency of otitis media in its chronic form either in the infectious stage or in its end result, a dry tympanic perforation.

Another disease that engenders similar problems is serous otitis media in children. The most obvious symptom is hearing loss itself, and the impairment is often confused with lack of attention of the child rather than inability to hear. Persons with recurrent serous otitis media con-

Part of the ENT examination room showing the electrically adjustable examination chair, the otomicroscope and the autoclave



A young Indian patient is examined in the soundproof room in the van

sequently have to be followed up more closely and measures taken to prevent further recurrences—adenoidectomy, insertion of polyethylene tubes, and allergy assessment—in order to prevent the unfavorable end result of adhesive or chronic otitis media. Furthermore, measurements of the middle-ear pressure that reveal a pronounced and longstanding negative pressure clearly indicate that the child has an increased risk of serous otitis media and should be followed closely.

The ENT team believes that the high incidences of dry, crusted noses and of longstanding purulent rhinitis (due to climatic conditions?) may contribute to the high frequency of middle-ear disease. The installation of humidifiers to increase the moisture content of the air may improve the indoor climate in such cases.

The aim of most medical care today is early treatment or, if possible, prophylactic measures. Treatment of patients in the chronic stage of a disease or its end result is generally more time consuming, more difficult, less successful, more uncomfortable, and more expensive. There appears to be a lack of understanding of this fact and of the importance of seeking treatment early in the course of the disease among many Indians on the reservations.

This lack of understanding is clearly evident with regard to otitis media; in its acute state only two clinic visits may be required, whereas in its chronic stage there is a marked risk of complications that often require time-consuming preoperative evaluation, expensive microsurgical measures in a hospital, and long-term followup. The inconvenience and cost are far greater for the patient with chronic otitis media than for the patient with acute otitis media.

At present, the ENT team gives all patients with acute or chronic otitis media printed information concerning the disease and its treatment and follows up patients with recurrent cases. We also believe that if in the initial stage of the disease the patients get proper and detailed information, encouragement, and treatment, they tend to gain confidence and to return to the mobile clinic when they have subsequent episodes of the disease. Furthermore, to increase the frequency of return visits, we believe that it is of major importance for the patients to see the same mobile ear team on each return visit.

Future Aspects

Future ENT care must therefore emphasize prophylactic measures and early treatment. This goal can be accomplished by intensive and continuous education. Such education should be included in the duties of the mobile ENT team. More information about otitis media, including the hearing organ, its function, and the disease, is needed by both the patients and the Public Health Service physicians.

A most important aspect for the future is to have a full-time otolaryngologist on the ENT project to allow performance of necessary ENT surgery, supervision and education of the Flexner, time for organization and planning of the visits to the reservations, education of the Public Health Service physicians, and elaboration of instruction sheets for the patients. With an increasing number of ENT physicians, it may soon be possible to find an interested physician for this position. If, however, no such physician is found, the Indian Health Service is considering a change to contracting for these services through private ENT physicians in Montana. In addition to the economic disadvantages of such a change, other present advantages are also lost: evaluation of treatment, the professional interaction and discussion of interesting cases among team members,

consistency in the supervision of the Flexner, education and consultations for the Public Health Service physicians, and coordination and survey of the ENT care in Montana. Consequently, it is our firm belief that it is of great importance for the Indians' ENT care to have a full-time specialist on the project.

As outlined before, the composition of the ENT team with only one Flexner creates problems of vulnerability. We suggest that the Flexner should also be educated in audiology and, vice versa, the audiologist educated in routine ENT examination, the use of the otomicroscope, and simple therapeutic measures. Such training would not only make the team less vulnerable when someone is sick or leaves the team but would also give the advantage of a more complex and interesting job.

A main disadvantage of the present ENT project is the amount of travel over long distances. The preceding outlined system of doubly educated audiologist-Flexner would permit a division of teams, and each could cover half of the present area. In this way, travel could be reduced considerably. We would also suggest that the addition of some secretaries would permit a further division into three or four teams consisting of an audiologist-Flexner and a secretary. These teams could probably cover such ENT care in Montana as screening of school children, holding clinics for patients with ENT disease, and casefinding more efficiently than at present.

Emphasis would be placed on establishing ENT facilities in Public Health Service clinics on the reservations so that the teams would be more permanent. Screening could be carried out through the use of portable equipment, and persons found to be in need of treatment could be sent to clinic personnel. With such facilities, the expensive mobile van could be eliminated and travel time greatly reduced. Also, patients would gain more confidence in the team members and, in turn, the staff would have more opportunity to provide health care and followup. Finally, and most importantly, such measures would eventually reduce the number of patients needing ENT surgery because their otitis media has reached the chronic stage.

REFERENCE

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