The value of an ENT specialist outreach service in a Family Medicine Unit for the urban poor in India

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Abstract

Objectives: To assess the function of an otolaryngology (ENT) specialist outreach service in a Family Medicine (FM) Unit for the urban poor attached to a Tertiary Teaching Hospital in India. Materials and Methods: The study investigated the pattern of ENT diseases in patients who came to the FM Unit and the proportion of these patients who were referred to the ENT specialist clinic at the unit. The study also analyzed the ENT problems that were managed by the ENT specialist at the unit and the conditions, which needed referral to the Tertiary Hospital. Data was collected by chart review. Setting: Weekly ENT specialist outreach service in an FM Unit for the urban poor in India attached to a Tertiary Teaching Hospital. Results: Among the outpatients who attended the unit in 12 months, 12.89% had ENT-related problems, of which 23.9% were referred to the visiting ENT specialist, 88.30% of these patients were managed in the FM Unit with basic ENT facilities. Conclusion: This study demonstrated that majority of the patients with ENT-related problems who presented to an FM Unit could be managed by the FM specialists. Of those patients who required the expertise of a specialist in ENT, the majority could be managed in the FM Unit, with basic ENT examination and treatment facilities. Triage and management by the family physician and the visiting ENT surgeon in the FM Unit is a prudent use of resources and will improve the quality of care people receive for their ENT problems.

Keywords: ENT specialist outreach clinic, Family Medicine Unit, urban poor

Introduction

The rising cost of health care is an issue that both the developed and the developing worlds grapple with constantly. Access to health services in general, and specialists in particular, is limited by the availability of specialists and the cost involved in equipment, infrastructure, and consultation fees.

ENT outreach clinics in primary care settings are designed to improve the access and quality of specialist care for patients, but the set-up costs can outweigh the benefits of these clinics in developed countries. Most of the studies on the effectiveness of the specialist outreach clinic are from developed countries with a structured healthcare system. In developing countries, such as India, the health delivery pattern is different from developed countries and to the author’s knowledge, there is no study describing the value of specialist clinic in primary care settings. Hence, this study evaluated the value of an ENT specialist clinic in a Family Medicine (FM) Unit. The FM Unit was a department in a Tertiary Teaching Hospital, and the visiting ENT specialist was from the ENT Department of the same institution. The FM Unit for the urban poor was started to provide service to the local poor of the town. Over 30 years, it has evolved from a ward in the main hospital to a 46-bedded peripheral unit located 1.5 km away. The ENT specialist clinic at the FM Unit had been functioning for 2 years at the time of the study. The service was started in collaboration with the ENT Department of the main hospital to increase the access of the poor people around the town to specialist ENT services. The clinic was held in the unit 1 day of the week, when an ENT consultant usually accompanied by a registrar saw patients who were referred by the family physician (FP) at the clinic. Our study evaluated the
benefit of this clinic to patients in the FM Unit. We determined the morbidity pattern of outpatients presenting to the unit with ENT problems; the morbidity pattern of those patients seen in the ENT outreach clinic; and the pattern of referral of these patients to the main hospital.

**Materials and Methods**

FM Unit outpatient records and ENT specialist records were reviewed for 13 consecutive months. One month during the study period was eliminated because the ENT clinic did not function that month. All records contained hospital number, age, sex, and diagnosis by date for each patient seen. ENT specialist records along with demographic data, also contained details on procedures, surgeries, consults, and referrals to the main hospital, noted by the specialist at the time of consultation. For outpatient FM records, 1 week of every month was reviewed as a representative sample. Samples of the 1st, 2nd, 3rd, or 4th week of the month were equally distributed throughout the year. Figures for the total number of outpatients by month were collected for the entire year. All the ENT specialist records for the period that were chosen were reviewed. One month was omitted [except in Figure 1] for all calculations, and 13 consecutive months data were analyzed to give a 12 months sample. A sample week for outpatient records was chosen to include a clinic holiday to account for the 5 holidays, the FM Unit is closed each year.

The data collected from FM Unit records was used to calculate the percent of outpatients presenting with ENT problems. Further, the percentage of patients with ENT problems who were seen by an ENT specialist at the clinic, and the percentage of patients referred from this clinic to the ENT Department of Tertiary Hospital were also estimated. Distributions of disease pattern and the reasons for referral were also identified at each level of care.

**Results**

The total outpatients contacts in FM Unit during the 1-year of study, of which the number of patients referred to the ENT specialist clinic, and the patients referred to the Tertiary Hospital by ENT consultant are given in Table 1. In 12 months, 23.9% of the patients who presented to the FM Unit with ENT problems were referred to the ENT specialist clinic. The ENT clinics were conducted once every week, and the number of clinics conducted in a month is given in brackets [Table 1]. Among the patients who visited the ENT clinic, 88.30% of patients were managed in the clinic itself, and the rest were referred to the main hospital for further investigation or treatment.

**Disease and patient referral pattern**

In Table 2, a sample week was taken from each month during the 1-year study period from the total outpatients presenting to the FM Unit, to estimate the percentage of patients with ENT problems, and the further flow of these patients. On an average, 12.89% of patient contacts presented to FM Unit had ENT-related diagnosis [Figure 2].

The percentage of patients presented with upper respiratory infection (URI) to the FM Unit during the sample weeks is shown in Figure 3. The total number of patient contacts to FM Unit for sample weeks for 1 year was 11,801, and 1,167 (75.88% of the ENT diagnosis) of these patients presented with URI. The smallest percentage of patients with URI was noted in March and April months with 5.18% and 6.59%, and the largest was noted in September and October months with 13.87% and 12.82%, respectively.

The pattern of ENT diseases excluding the URI in FM Unit is shown in Figure 4. The most common ENT problem was tonsillitis, followed by sinusitis, accounting for 5.14% and 2.99% of the total 1538 patient contacts during the sample weeks, respectively.

The disease pattern in the patients referred to ENT specialist clinic by FP was categorized in Figure 1. Chronic otitis media for further management was the most common cause for referral to the ENT clinic (20.17%) followed by impacted wax.

**Procedures in Family Medicine Unit by ENT specialist**

The distribution of the ENT procedures done in ENT clinic is shown in Figure 5 excluding ear suction clearance, which was the most common procedure. Epley’s maneuver was the second most common procedure done in ENT specialist clinic. Ear suction clearance accounted for 370 (92.73%) of procedures.

The total procedures and surgeries done by ENT at FM Unit per month are shown in Table 3. Over the 12 months, 399 minor procedures and 30 surgeries were performed. The distribution of the surgeries performed in FM Unit is shown in Figure 6. The most common surgery was tympanoplasty, followed by tonsillectomy, accounting for 33.33% (10) and 26.67% (8) of surgeries, respectively.

| Table 1: Total outpatient contacts in FM Unit, patient contacts with ENT specialist, and patient referrals to tertiary care hospital by ENT specialist |
|-----------------------------|-----------------------------|-----------------------------|
| **Month**                   | **Outpatient contacts at FM Unit** | **Patient contacts with ENT specialist (number of ENT clinics)** | **Patient referrals to tertiary hospital by ENT specialist** |
| April                       | 3595                         | 100 (5)                     | 15                           |
| May                         | 4099                         | 97 (4)                      | 10                           |
| June                        | 3604                         | 75 (3)                      | 6                            |
| August                      | 4121                         | 83 (4)                      | 11                           |
| September                   | 3950                         | 129 (4)                     | 18                           |
| October                     | 4447                         | 131 (5)                     | 7                            |
| November                    | 4363                         | 110 (4)                     | 16                           |
| December                    | 3933                         | 80 (3)                      | 10                           |
| January                     | 4469                         | 102 (4)                     | 7                            |
| February                    | 4560                         | 89 (4)                      | 16                           |
| March                       | 4523                         | 102 (4)                     | 13                           |
| April                       | 4797                         | 107 (5)                     | 12                           |
| Total                       | 50,461                       | 1205 (49)                   | 141                          |

FM: Family medicine
Referrals to main hospital

The percentage of patients seen by the ENT specialist who needed referral to the Tertiary Hospital was only 11.70%. For those referred, Figure 7 describes the reasons for referral. In about half of the patients (51.07%), the reason for referral was hearing and middle ear assessment (29.08%) and imaging (21.99%). 19.15% were referred for management at the main hospital as they had ENT problems that could not be managed at the FM Unit.

Figure 1: The percent of outpatients presenting to FM unit with ENT diagnosis during the weeks sampled from outpatient records. Among the total 50461 outpatients contacts in one year, the patient contacts with ENT problems was estimated to be 6490

Figure 2: The bar diagram demonstrates the pattern of patient contacts presenting to FM unit with Upper Respiratory Infection (URI) per month during the sample weeks over a calendar year

Figure 3: The morbidity pattern of patients presenting to the FM unit with ENT problems other than URI. *Acute suppurative otitis media; †Gastroesophageal reflux disease; ‡Chronic suppurative otitis media; § Benign paroxysmal positional vertigo; II Deviated nasal septum

Table 2: Proportion of outpatient contacts with ENT problems and proportion of patient contacts with ENT problems referred to visiting ENT specialist

| Sample week            | Total outpatient contacts in FM Unit | Total outpatient contacts with ENT diagnosis | Total outpatient contacts referred to ENT specialist | Percentage of outpatient contacts with ENT diagnosis | Percentage of outpatient contacts with ENT diagnosis referred to ENT specialist at FM Unit |
|------------------------|-------------------------------------|---------------------------------------------|----------------------------------------------------|---------------------------------------------------|-----------------------------------------------------------------------------------|
| April 3-6, 9*          | 835                                 | 86                                          | 24                                                 | 10.30                                             | 27.91                                                                             |
| May 14-18              | 943                                 | 120                                         | 19                                                 | 12.73                                             | 15.83                                                                             |
| June 18-22             | 832                                 | 105                                         | 37                                                 | 12.62                                             | 35.24                                                                             |
| August 6-10            | 929                                 | 133                                         | 25                                                 | 14.32                                             | 18.80                                                                             |
| September 10-14        | 959                                 | 166                                         | 29                                                 | 17.31                                             | 17.47                                                                             |
| October 15-19          | 983                                 | 151                                         | 22                                                 | 15.36                                             | 14.57                                                                             |
| November 26-30         | 1042                                | 151                                         | 30                                                 | 14.49                                             | 19.87                                                                             |
| December 3-7           | 1007                                | 132                                         | 19                                                 | 13.11                                             | 14.39                                                                             |
| January 14-18          | 851                                 | 114                                         | 24                                                 | 13.40                                             | 21.05                                                                             |
| February 18-22         | 1120                                | 125                                         | 16                                                 | 11.16                                             | 12.80                                                                             |
| March 24-28            | 1178                                | 101                                         | 26                                                 | 8.57                                              | 25.74                                                                             |
| April 7-11             | 1122                                | 127                                         | 27                                                 | 11.32                                             | 21.26                                                                             |

*Five consecutive working days were taken as a sample week since there was a holiday in between. FM: Family Medicine
Specialist outreach clinics are a model of health delivery system that is set up to increase accessibility and effectiveness of specialist services, and to allow their integration with primary care services. A Cochrane review of studies of such specialist clinics supported the hypothesis that specialist clinics can improve access, outcomes, and services use. The outcomes were objectively measured in terms of access, quality, health outcomes, cost, satisfaction, and services use. The specialist services which provided multifaceted interventions including collaboration with primary care and education impacted the health outcomes, whereas a simple shifted outpatients style service improved only access to the service.

However, most of the studies came from urban, nondisadvantaged patient group in developed countries.

There are various specialist models that were tried in a primary care setting. Among the psychiatrists from Britain, four models of specialist services were identified to work with primary care physician, namely, “shifted outpatients” model, “replacement” model, “consultation” model, and “liaison attachment” model.

This study attempts to understand the value of ENT specialist services provided at an FM unit, which cater to an urban, disadvantaged population in a developing country. The FM Unit is attached to a Tertiary Hospital with the aim to provide subsidized, low cost, and effective care to the local low socioeconomic group of patients. A number of specialty units from the Tertiary Hospital conduct weekly clinics and consultation services in this unit, with the provision to refer them to the main hospital when required at a cost, that is, affordable to the patients. The weekly ENT services provided in this FM Unit are outpatient services, consultation for inpatients, minor procedures, and selected ENT operations. To provide such services, the ENT set-up was equipped with ENT instruments, ENT microscope, and basic theater instruments sets for different surgeries. In the Cochrane review, the authors state that the specialist outreach clinics have to be tailor made and should provide optimum use of the specialist time. In this study, one ENT consultant spent 1 day a week in the FM Unit providing a multifaceted service, which included discussions with the FP. Sustaining the service is also a factor, which predicts the quality of specialist clinics. In this model, the specialist clinics were started and supported financially by the institution to provide service to the local poor disadvantaged population in a developing country. The FM Unit is located < 2 km from the main hospital, which made it accessible for the local people.

A study on evaluation of outreach clinics held by specialists in general practice in England concluded that the process of care was of higher quality in outreach clinics than in outpatients clinic of the hospitals, with improved access to specialists and convenience for patients. The patients visiting the FM Unit often preferred treatment in the FM Unit even when were referred to the main hospital, mainly because the massive volume of the hospital structure, and the patient crowd in the Tertiary Hospital. However, in a specialist primary care model providing service between the primary and secondary level of care in managing diabetics, the FP and the patients concluded that the service was valuable.

At the FM Unit, on average 12.89% of patients presented with ENT problems, and 2.39% (1205) of the total 50461 patients were selected for the study. This bar chart demonstrates the pattern of ENT diagnosis in outpatients presenting to ENT specialist clinic referred by FM unit.

### Table 3: Minor ENT procedures and surgeries performed at FM Unit by visiting ENT specialist

| Month   | Minor procedures | Surgeries |
|---------|------------------|-----------|
| April   | 26               | 2         |
| May     | 21               | 3         |
| June    | 18               | 4         |
| August  | 24               | 3         |
| September | 32              | 1         |
| October | 36               | 4         |
| November| 39               | 3         |
| December| 31               | 0         |
| January | 31               | 4         |
| February| 33               | 2         |
| March   | 72               | 1         |
| April   | 36               | 3         |

FM: Family medicine

### Discussion

This study attempts to understand the value of ENT specialist services provided at an FM unit, which cater to an urban, disadvantaged population in a developing country. The outcomes of specialist services improved only access, whereas a simple shifted outpatients style service improved access, outcomes, and services use. The specialist services which provided multifaceted interventions including collaboration with primary care and education impacted the health outcomes, whereas a simple shifted outpatients style service improved only access to the service.

The patients visiting the FM Unit often preferred treatment in the FM Unit even when were referred to the main hospital, mainly because the massive volume of the hospital structure, and the patient crowd in the Tertiary Hospital. However, in a specialist primary care model providing service between the primary and secondary level of care in managing diabetics, the FP and the patients concluded that the service was valuable.

At the FM Unit, on average 12.89% of patients presented with ENT problems, and 2.39% (1205) of the total 50461 patients were selected for the study.
The majority of patients with ENT manifestations suffered from URI, which showed seasonal variation. Variation of viral respiratory infection over the year was shown in other studies also with influenza B virus associated with rainfall and respiratory syncytial virus associated with higher environmental temperature and lower relative humidity.[12]

In the ENT specialist clinic, the common disease was chronic otitis media which needed further investigations and specialist input for further management. It was noted that impacted wax was another common reason for referral. The reason for this was the utilization of the suction apparatus in the unit by the specialist who was trained to handle it. Most of the patients were those in whom syringing had failed and were symptomatic requiring the removal of the wax. The specialist also performed minor procedures using ENT instruments that were made available in the unit’s minor procedure room.

The major factor determining the efficiency of an ENT outreach clinic is the percentage of patients who still must be referred to a Tertiary Care Center from the outreach clinic. Past researchers in the United Kingdom claimed ENT outreach clinics were inefficient because 76% of patients needed referral for investigations and procedures, not available in the primary care clinic.[14] The study recommended that limited resources should be spent on the ENT outpatient departments rather than on the outreach clinics, despite the convenience to patients and GPs. However, in this study, only 11.70% of patients seen by ENT at the FM Unit needed referral to the ENT Department at the Tertiary Hospital. This was possible because of the cost-effective way of setting up of ENT clinic in FM Unit. The main reasons patients were referred to the Tertiary Hospital were for further management of unsafe chronic suppurative otitis media or for further evaluation including radiology. Since such a small percentage of patients actually needed these services, the physicians at the unit were able to cost effectively serve the majority of patients presenting to the outreach unit with a basic ENT set-up, while sending the few patients in need of more expensive services to the main hospital. This ENT specialist outreach clinic in an FM Unit is a good model for clinics among the urban poor in a developing country such as India. It is also commendable to note that the waiting period for the expert ENT opinion was a maximum of 1-week.

In the same way, the presence of a good theater with availability of the anesthetist enabled the ENT consultant to perform surgeries by procuring few sets of instruments and an ENT microscope. Surgeries were carefully considered considering the limitations of the place, and the level of postoperative care needed after surgery.

On the other hand, hearing testing using audiometry requires a set-up with a relatively sound-proof room. It was more cost-effective to refer patients to the main hospital for hearing testing rather than setting up audiological service in this unit. Similarly, endoscopies (nasal and flexible laryngeal scopes) were also done in the main hospitals due to the cost of initial investments and maintenance of the equipment.

Minor procedures performed in the unit included: Biopsy from throat, foreign body removal, ear lobe repair, Epley maneuver, incision and drainage of abscess, and rhinolith removal. Surgeries included tympanoplasty, septoplasty, tonsillectomy, adenotonsillectomy, nasolabial cyst excision, and aural polyp excision.

An added advantage from the training point of view was the exposure of ENT trainees to a different level of ENT problems in a different set-up and the training they received to approach problems with an emphasis on clinical diagnosis and management with limited resources.
Conclusion

This study presents a unique and effective model of ENT outreach services in an FM Unit for the urban poor provided by collaborative involvement of a Tertiary Teaching Hospital. Though this data favors the advantage of this model of specialist outreach clinic, it is important to have a systematic analysis covering every aspect including a longitudinal study with resource-based costing model and self-administered questioners to assess the patient satisfaction.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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