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The need for and value of a maxillofacial prosthodontic service in the Witwatersrand-Vaal area: Part I: A survey of the disciplines requiring a maxillofacial prosthodontic service

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Keywords: Maxillofacial prosthodontic service, disciplines, multidisciplinary team approach.

SUMMARY

The number of patients in the Witwatersrand-Vaal area requiring maxillofacial prosthodontic treatment has increased rapidly in the past few years. In order to determine the future manpower needs a questionnaire was sent to 306 medical and dental specialists, and speech therapists who practised in the Witwatersrand-Vaal area. The results of this study showed that the projected increase in demand for a maxillofacial prosthodontic service will necessitate considerable expansion of the existing service. Attention will also have to be paid to the training of prosthodontists and dental technicians skilled in maxillofacial prosthodontics so that future manpower demands can be met.

OPSOMMING

Die aantal pasiënte in die Witwatersrand-Vaalgebied wat kaak- en gesigsprostodontiese behandeling benodig, het in die afgelope paar jaar vinnig toegeneem. Om die toekomstige mannekragbehoefte te bepaal, is 'n vraelys na 306 mediese en tandheelkundige spesialiste en spraakterapeute, wat in die Witwatersrand-Vaalgebied praktiseer, gestuur. Die resultate van hierdie studie toon aan dat die verwagte toename in die aanvraag na kaak- en gesigsprostodontiese dienste aansienlike uitbreiding in bestaande fasiliteite sal genoodsaak. Die opleiding van kundige prostodontiste en tandtegnici sal aandag moet geniet sodat die toekomstige aanvraag na kaak- en gesigsprostodontiese dienste bevredig kan word.

INTRODUCTION

Structures in the region of the head, face and neck may be missing or mutilated as a result of congenital or acquired defects. The most common congenital condition requiring treatment by the prosthodontist is the cleft lip and/or cleft palate which constitute nearly 25 per cent of all congenital malformations (Slavkin, 1984). More complex malformations are found in the first and second Branchial Arch Syndromes as well as in other genetic syndromes.

Acquired defects may be due to trauma, disease (particularly cancer), or surgery. Approximately 5-7 per cent of all cancers occur in the oral cavity, and to this may be added cancers of the nose, nasopharynx, paranasal sinuses and oropharynx, whose treatment frequently involves the oral cavity (Laney, 1979). The problems associated with these acquired head and neck defects are compounded by the use of radiotherapy and chemotherapy. Regarding the latter, approximately 20 per cent of all patients with cancer now receive chemotherapy, and in almost 40 per cent of those who do not have primary tumour involvement of the head and neck, oral complications develop (De Paola *et al*, 1983).

The surgical management of oro-facial cancer often gives rise to a paradoxical situation. The surgeon excises the neoplastic tissue so as to preserve the individual for society; however, the accompanying mutilation (despite the great advances in reconstructive surgery) may be such as to exclude the individual from the very society for which he has been preserved (Wolfaardt and Monteith, 1982).

Multidisciplinary team approach to patient rehabilitation

For a number of years patients with facial deformities have either been neglected or partially treated. Fortunately the trend is changing and it has been recognized that adequate diagnosis and treatment is dependent upon a team of medical and dental specialists working together towards a common goal of patient rehabilitation (Rahn and Boucher, 1970).

The interaction between the specialist team and the patient is highly complex and dynamic with each patient and each defect presenting a new and specific problem requiring individual management (Desjardins, 1979; Lauciello *et al*, 1980).

* With the exception of the group of speech therapists, where only those working at the Johannesburg Hospital were included in the survey.
** Johannesburg, Randburg, Sandton, Germiston, Alberton, Roodepoort
*** Vereeniging and Vanderbijlpark.
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The prosthodontist within the medical team must be familiar with the examination findings and treatment goals of other team members. His examination must also contribute to the total treatment plan as well as to the plan for prosthodontic treatment (Desjardins, 1979). Examination, diagnosis and early management of the patient with a potential acquired facial defect should ideally begin before the defect is created, since the success of maxillofacial prosthodontic rehabilitation can be greatly enhanced by careful pre-surgical evaluation and communication (Sella and Lowenthal, 1980). Unfortunately, it is all too common for patients to be referred to prosthodontists only after surgery, a situation which has given rise to the descriptive term 'consultation by crisis' (Fine, 1979).

It is necessary for the surgeon to know the possibilities, limitations and biomechanical principles of prostheses in order to synchronize surgical techniques and prosthodontic restoration to follow (Masuda, Kida and Ohtani, 1979). It is likewise essential that the maxillofacial prosthodontist has a sound understanding of the technique and principles of treatment used by other members of the multidisciplinary team.

The establishment of a multidisciplinary team approach is essential to the successful rehabilitation of patients with defects of the head and neck (Rahn and Boucher, 1970; Desjardins, 1979; Gillis, 1979; Sella and Lowenthal, 1980; Parr, Goldman and Rahn, 1981). The multidisciplinary approach permits multiple evaluations which provide more complete assessment, thereby instituting control of treatment objectives. In many localities, especially in large medical centres, this approach of sharing knowledge is becoming less of a problem. The maxillofacial prosthodontist has a valuable role to play in this regard because, as an active member of oncologic, trauma and cleft palate teams, he is able to provide a useful route of communication between the surgical and other disciplines involved. One example of the role in communication played by the prosthodontist is that in any successful team effort it is necessary that one member of the team should assume responsibility for continuity of treatment of the patient. This role is being taken increasingly by the maxillofacial prosthodontist (Drane, 1978).

In the Department of Prosthetic Dentistry of the Oral and Dental Teaching Hospital of the Witwatersrand, Johannesburg, an attempt has been made over the past 5 years to integrate the maxillofacial prosthodontic service with the activities of other medical services providing treatment for patients with diseases and deformities of the head and neck. During this period the staff of the Department of Prosthetic Dentistry have been responsible for providing the maxillofacial prosthetic service. The numbers of staff and the hours devoted to this service have been variable depending upon other commitments within the department. The staff have for the most part consisted of 2 clinicians providing 16 hours of chairside time per week. One dental technician has been involved on a part-time basis. Multidisciplinary consultation is carried out with the Head & Neck Cancer Clinic and the Cleft Palate Clinic of the Johannesburg Hospital. The cost of equipping and running the service has been borne by the Department of Prosthetic Dentistry.

The maxillofacial prosthetic service has existed as a service offered within the Department of Prosthetic Dentistry and does not enjoy any hospital, University or other status. The maxillofacial prosthetic service has been welcomed by the surgeons, radiotherapists, orthodontists and speech therapists and has led to a rapid escalation in demand for access to an organized maxillofacial prosthodontic service. For some time the demand for such services has exceeded that which the Department of Prosthetic Dentistry has been able to provide in terms of facilities, manpower and financial resources.

In order to plan for the future, an investigation to determine the existing maxillofacial prosthodontic services and projected needs of certain medical and paramedical disciplines was carried out.

MATERIALS AND METHODS

Method of survey of disciplines

A questionnaire (copy obtainable from author) was sent to 306 members of the various medical and paramedical disciplines which traditionally utilize a maxillofacial prosthodontic service. The names and addresses were obtained from the Register of the South African Medical and Dental Council*, and were restricted to those living in the greater Witwatersrand** and Vaal*** areas. Questionnaires were sent by post and were accompanied by a covering letter explaining the nature of the investigation. A copy of the article 'Maxillofacial Prosthetic Rehabilitation of the Oral Cancer Patient' (Wolfaardt and Monteith, 1982) was included. A self-addressed envelope was also included to facilitate replies, which were to be anonymous.

Statistical analysis

The replies received were transferred to computer punch cards and statistical analysis, restricted to descriptive statistics, was carried out using SAS**** (Statistical Analysis System) Version 79,5 on an IBM 370/158 Computer.

RESULTS

Of the 306 questionnaires sent out, 149 (48,7 per cent) were returned. This would appear to be a satisfactory response to a survey of this nature, but the results obtained are representative only of those practitioners who returned the questionnaire, and not of the whole group surveyed. Certain questions were not answered by one or more of the practitioners and therefore the total frequency, which excludes missing data, will not always total 149 in the tables which follow.

Disciplines surveyed

The frequencies of questionnaires returned by members of different disciplines have been tabulated in Table 1.

Table 1 — **Frequency of replies of members of different disciplines**

	Frequency	Percentage
Ear, nose and throat surgeons (otorhinolaryngologists)	18	12,1
Plastic and reconstructive surgeons	16	10,7
General surgeons	44	29,5
Ophthalmic surgeons	18	12,1
Radiotherapists	4	2,7
Maxillofacial and oral surgeons	11	7,4
Prosthodontists	14	9,4
Orthodontists	18	12,1
Speech therapists	6	4,0
Total	149	100,0

The majority of replies (67,1 per cent) was received from medical practitioners, of whom the largest group was general surgeons. Over 70 per cent of those replied were attached to University teaching units. Despite the high proportion of those practitioners aware of the existence of a service (80,5 per cent), far fewer (37,6 per cent) had actually referred patients in the past. The frequency of familiarity with the nature and extent of a maxillofacial prosthodontic service was 70 per cent.

Number of patients referred

The number of patients who had been referred by each of the practitioners who indicated that they had referred patients, is shown in Table 2.

Table 2 — **Number of patients referred**

	Frequency	Percentage
0	92	61,7
1-5	35	23,5
6-10	12	8,1
11-30	9	6,0
31-50	1	0,7
more than 50	0	0
Total	149	100,0

Ninety per cent of those who replied had referred 10 patients or fewer, and 61 per cent had never referred any.

Value of a maxillofacial prosthodontic service

The response to the question "How valuable would maxillofacial prosthodontic service be to your discipline?" is summarized in Table 3.

Table 3 — **Value of a maxillofacial prosthodontic service**

	Frequency	Percentage
Essential	63	42,3
Useful	53	35,6
Of little use	21	14,1
Not sure	12	8,0
Total	149	100,0

Seventy-eight per cent believed a maxillofacial prosthetic service to be of value to their discipline. However, a further question relating to the adequacy of the existing service revealed that only 36,6 per cent felt that the existing service had proved adequate in the past.

Anticipated future referrals

Practitioners indicated that, given an effective service, they would refer patients in the frequencies per annum shown in Table 4.

Table 4 — **Anticipated future referrals**

	Frequency	Percentage
0	27	18,9
1-5	88	61,5
6-10	12	8,4
11-30	13	9,1
31-50	22	1,4
More than 50	1	0,7
	143	100,0

Services required

A list of 9 services which are available was presented and the practitioners were asked to note which they would require. The frequency of different services required is listed in Table 5.

Table 5 — **Services required**

	Frequency
Obturators (pre-surgical)	93
Obturators (post-surgical)	103
Speech appliances	101
Pre-prosthetic surgical appliances	77
Radiation appliances	68
Facial prostheses	94
Orthognathic surgical appliances	78
Custom implants	72
Surgical appliances	75
Total	761

Most practitioners required more than one type of service and many required several.

Fifty-six per cent of practitioners were unaware of the extent of services available as shown in Table 5, but now that they had become aware, through the questionnaire, 88 per cent indicated that they would refer patients in future.

Psychological Assessment

The results of the present study showed that less than one in four practitioners carried out a psychological assessment of their patients prior to referring them to the existing service.

DISCUSSION

A review of the literature did not show evidence of any previous survey of disciplines involved in the provision of a maxillofacial prosthodontic service, thus no comparison to other workers is possible.

The results obtained from this survey were not unexpected. Rather, they highlighted the disparity between the service required by the various disciplines and the service being provided at the present time. The reasons for this disparity are inadequate resources including trained manpower, equipment and materials, as well as the room to accommodate those chronically ill patients requiring rehabilitation.

An area for concern is the lack of psychological assessment prior to commencement of treatment by various disciplines. There are references in the literature (Ross, 1979; Bossert and Freeman, 1979) which witness to the need for managing both the physical and psychological components of the trauma suffered by patients with defects of the head and neck. Were this carried out, the unrealistic expectations of patients regarding post-operative rehabilitation (Beder and Weinstein, 1980) would be minimized, and the low percentage of patients whose self-image was improved by the provision of a prosthesis would be increased.

CONCLUSIONS

Due to the nature of the practice of maxillofacial prosthodontics very little treatment is undertaken in private practice. The patient suffering from mutilation of the head and neck region may therefore be obliged to seek help from an institution providing such a service. In the Witwatersrand-Vaal area which has a population group in excess of 5 million the only institution providing such a service is the Oral and Dental Teaching Hospital of the Witwatersrand, Johannesburg. The projected increase in patient referrals as determined by this study indicated that:

(a) the maxillofacial prosthodontic service be placed on a more formal footing (so that it has designated status which in turn will allow for adequate manpower, facilities and financial resources);
(b) that with the establishment of a structured service adequate attention be paid to training, at a formal level, of prosthodontists and technicians to meet future manpower demands;
(c) that the maxillofacial prosthodontic service be designed as an integral part of the medical centre which it serves. This is essential for the development of an efficient service based on the multidisciplinary approach now accepted as being basic to the management of patients with head and neck defects.

Since the projected increase in demand for treatment is not limited to the Witwatersrand-Vaal area, it is suggested that similar surveys be undertaken in other regional centres in South Africa.

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