Setting up a Mobile Dental Practice within Your Present Office Structure

• **James P. Morreale,** DDS, FASGD, FICD •
• **Susan Dimitry,** BA (Hon) •
• **Mark Morreale,** BA, MSc Epid •
• **Isabella Fattore,** BSc, RRDH •

Abstract

Different service models have emerged in Canada and the United States to address the issue of senior citizens' lack of access to comprehensive dental care. Over the past decade, one such model, the use of mobile dental service units, has emerged as a practical strategy. This article describes a mobile unit, operated as an adjunct to the general practitioner's office and relying mainly on existing office resources, both human and capital, to deliver services at long-term care institutions. The essential components of a profitable geriatric mobile unit are described, including education, equipment, marketing research and development, and human resource management. Issues related to patient consent and operating expenditures are also discussed. Data from one practitioner's mobile dental unit, in Hamilton, Ontario, are presented to demonstrate the feasibility and profitability of this approach.

MeSH Key Words: *dental care for aged/organization & administration; health services accessibility; nursing homes*

© J Can Dent Assoc 2005; 71(2):91
This article has been peer reviewed.

Many older people are unable to access dental care for reasons related to availability, affordability and other factors. Comprehensive, on-site dental services are not available in many institutional settings, which makes access to care difficult or unrealistic. The need for solutions to this problem is becoming more acute each year. The number of elderly clients who need service is growing, and their life spans are increasing. It is estimated that by 2011 the proportion of the population over 65 years of age will constitute 15% of the population.[1] In 1996, 10% of the elderly population in Canada (age ≥ 65 years) lived in collective households including hospitals, special care centres and related institutions.[2] As the aging population expands, the number of people living in such institutions will likely grow exponentially. In addition, people are retaining more of their own teeth into old age than was the case in the past.[3] The results of a U.S. national survey (1988–1991) demonstrated that 89% of the population was dentate at that time.[4]

In recent years, a variety of service models have emerged in Canada and the United States offering different levels of dental care to the elderly population. Over the past decade, one such model, the mobile care unit, has been implemented in numerous North American locations. The mobile unit is operated as an adjunct to the general practitioner's office and relies mainly on existing office resources, both human and capital, to deliver services at long-term care (LTC) institutions. This article describes the mobile approach to geriatric dentistry and shows, through a discussion of office management, marketing and other related issues, how such a practice can be profitable. Data from a mobile unit operated by a practitioner in Hamilton, Ontario, are presented to demonstrate the feasibility of this delivery model.

What is Mobile Dentistry?

According to the white paper titled "Dental care in nursing homes: guidelines for mobile and on-site care,"[5] mobile and on-site dental care delivery systems should not simply be traditional private dental practices located in nursing homes. Rather, they should reflect interdisciplinary efforts designed to systematically address oral health needs. The provision of dental care in this setting involves dental staff, nursing staff, primary care physicians, resident representatives and third-party payers, each of whom has an important role to play. In addition, the mobile dental team

(dentist, hygienist, office staff) must assist in establishing a preventive program, provide education for nursing staff and participate in the medical and dental management of medically compromised patients. "The goal of delivery system guidelines is to ensure that every nursing home resident is able to receive appropriate and necessary oral health services."[5]

Existing models of mobile dental service range from single practitioners providing basic services to clients at 1 or 2 nursing homes on an infrequent or emergency basis to dental teams regularly offering a variety of services to clients in multiple LTC institutions year-round. A single practitioner may have little equipment or may make special arrangements with the institution for an equipped dental room. A private mobile dental company that employs several dentists and works in numerous LTC institutions in a large catchment area may also offer good services. However, if the dentists are not local to the community being served, the travel costs are higher and more time is required, given that comprehensive oral health care may entail repeat visits until treatment is completed. Few data have been collected on the number or frequency of such services in Ontario or Canada as a whole. In 1996, a study of 2 regions in southern Ontario (Hamilton-Wentworth and Brant County) indicated that only 6 nursing homes offered periodic examination by a dentist and only 29 (one-third of those surveyed) offered treatment by a dental team.[6] In a more recent study of access to care in Ontario (in 2003), researchers found that the care provided to special needs groups by Ontario dentists was performed in an "irregular and ad hoc manner."[7] In his review of the history of dental programs for older adults, Leake concluded that "few Ontario institutions for seniors offer in-house dental care."[8] In some provinces, mobile dental services are available through university-supported geriatric dental outreach programs. For example, the University of British Columbia and the University of Manitoba have geriatric programs.

The Adjunct Mobile Practice Model

The model described here is based on the research and experience of a mobile practice in Hamilton, Ontario. This type of mobile practice can be organized in any small city or town, can be applied to an existing practice to create additional revenue and can be as small or as large a part of the practice as desired. Using the office practice as a base, the dentist can devote as little as one day a month to the mobile unit and expand services when necessary and feasible. Such an expansion of services may take 6 to 8 months. To expand the business, the dentist must market the service to local nursing homes, describing the advantages of regular, on-site dental services. Now that there is more awareness among the general public of dental care needs for elderly people and greater demand for services to meet those needs, marketing efforts will be less time-consuming than was the case when the Hamilton practice was established in 1991.

In this model, one large nursing home or chronic care hospital serves as the centre of operations. This situation is preferred because of the advantages of working mostly at a large centre relative to managing care in a number of smaller LTC facilities. A comprehensive treatment approach, whereby the dentist treats the patient to completion of necessary services, is the aim. In a typical mobile practice, the dentist might visit each nursing home once every month to see new patients, perform recall appointments or complete treatment undertaken previously. Prosthetic procedures might be done during the week after office hours or at some convenient time in the workday to shorten the delivery time for dentures or partial dentures. Eventually, after the practice has become established, the dentist might take on an associate, from his or her own office or another office, who would service 1 or 2 nursing homes, working one day a month or as required.

Before initiating such a program, it is essential to investigate the nursing homes and chronic care hospitals in the area and establish one as the centre of operations. The central LTC facility should have enough residents (e.g., 200–250 patients) to allow a half-day clinic every week. A large facility is preferred as the central site because it can supply a steady client base, which makes the coordination of patient services, staff education and marketing of services to families more manageable. This site will also serve as a base within the larger community. In time, the services offered might include care for patients eligible for outreach programs, as well as participants in community daycare programs and residents of retirement homes. One of the most challenging obstacles may be convincing the institution's director and director of care to recognize the value of an oral health care program within the institution and the value of having a centre for oral health care for outreach and homebound patients in the community. The attraction of such a service is the minimal input of resources required from the LTC facility: a room with electricity and water supply and a liaison staff person. An alternative to use of a central facility is for the dentist to use his or her own office, if it is conveniently located, has wheelchair access and is properly marketed as a part-time centre for community geriatric dentistry. However, it can be challenging to blend regular and geriatric practice. In this situation, it is best to set aside one full day a week for geriatric patients so staff can focus on these patients, who may need sedation and other forms of special care.

The mobile practice runs best when the morning is devoted to patients at the central facility and the afternoon to clients at other nursing homes. This was the scheduling

approach employed for the Hamilton mobile dental practice for which income data are presented below.

The Hamilton Experience

In 1991, one of the authors (JPM) began the process of establishing a mobile dental unit to provide services to frail elderly patients in Hamilton, Ontario. Initially, the mobile practice serviced St. Peter's Chronic Care Hospital, and it has since grown incrementally, branching out to 1 or 2 nursing homes at a time. The existing practice's administration and chairside assistant provided staff for the unit. The mobile practice provided a comprehensive dental program of examination, cleaning and scaling, fillings, extractions, prosthetics and root canal treatment. St. Peter's Hospital was the main centre for treatment of inpatients and patients from the community who could not obtain services elsewhere. By 1996, the mobile practice was operating a weekly morning clinic at St. Peter's Hospital and in the afternoon served 1 of 8 nursing homes, where 4 to 6 patients would be treated. About that time, a hygienist began working at the central clinic. In 1998, the mobile practice began offering 2 additional monthly full-day clinics run by an associate, who saw 10 to 13 patients at each clinic.

Essentials of a Mobile Practice

Education

Before embarking on a geriatric dentistry practice, the practitioner must develop an understanding of the aging process and how to interact with elderly patients. It is useful to complete a university-level gerontology course or a geriatric dentistry course such as the one offered by the University of British Columbia. Workshops are also periodically available at academic conferences or other venues, and instructive primers[9,10] can be used for self-study. At present, the University of Seattle offers a 2- to 3-week course, as well as a 3-month course, in nursing home care, the University of Minnesota has a 1-week course annually, and the University of Texas has a detailed written (distance) course. The Special Care Dentistry organization, in conjunction with the American Society for Geriatric Dentistry, also offers educational conferences twice annually. Once the practitioner has been educated, he or she can then train clinic staff, providing them with the relevant knowledge and tools to work effectively with this special population. The learning curve in treating geriatric patients comes with the challenge of working around any debilitation, illness or special need, whether it be stroke, Parkinson's disease, dementia, palliative care or high blood pressure. Many LTC patients are in wheelchairs and will require transfer to a regular dental chair. Some patients have behavioural problems because of Alzheimer's disease and may need sedation. There certainly is an extra degree of difficulty in treating these patients and it may take longer to perform many procedures, but after some experience, practitioners can become proficient in providing the care required. Some patients may need to receive services in a hospital setting, as when multiple extractions are necessary. As with any new skill, such as placement of implants, laser surgery or cosmetic procedures, there is a learning curve and the practitioner must practice in order to become proficient.

Equipment

Elderly patients who still have most of their own teeth have the same treatment needs as patients attending a regular practice, so most of the equipment needed for a geriatric mobile dental practice will be the same as that used in the existing office-based clinic. The specialized equipment that may be needed for physical positioning is relatively minor, such as the headrest shown in **Fig. 1**.

Major purchases typically include a mobile dental unit, a dental chair, an x-ray machine and a self-contained Piezon scaler (EMS, Dallas, Texas) (**Fig. 2**). The use of radiography units in mobile facilities varies by province. In Ontario, the machine must be calibrated and tested, and the practitioner can take no more than 5 radiographs in the facility on a single day. Because of these restrictions, radiographs should be obtained only when needed for extractions or to confirm details of the examination.

The sundries required are the same as in any clinic. The hand instruments, amalgam mixer, curing light and sundries can be stored in a large container such as a fishing tackle box. Instruments that need sterilization can be placed in sterile bags. If sterilization on site is necessary, a fast-acting sterilizer such as the Statim sterilizer (SciCan, Toronto, Ont.) can be used. As in a regular office clinic, individual kits can be prearranged for each scheduled procedure: endodontic, surgical or restorative. A full complement of surgical instruments can be kept on hand to be used only if necessary. Three separate boxes may be used: one for equipment used for examinations, prophylaxis and surgery, a second for restorative and endodontic equipment and a third for prosthetic supplies and equipment. The disposable materials (bibs, liquids, wipes, towels, etc.) can be carried in a large canvas bag. A camera may also be important if the dentist wishes to take pictures of interesting cases.

It is crucial to have staff input on equipment needs and to be well organized, taking the time to consider all the necessities of the practice, including equipment care and maintenance. It is best to keep the resources designated for the mobile practice separate from supplies for the main practice, to avoid any confusion and to keep the practice efficient. It is recommended that equipment be purchased only when it is needed. A compressor and handpieces will be necessary from the beginning, and other items can be

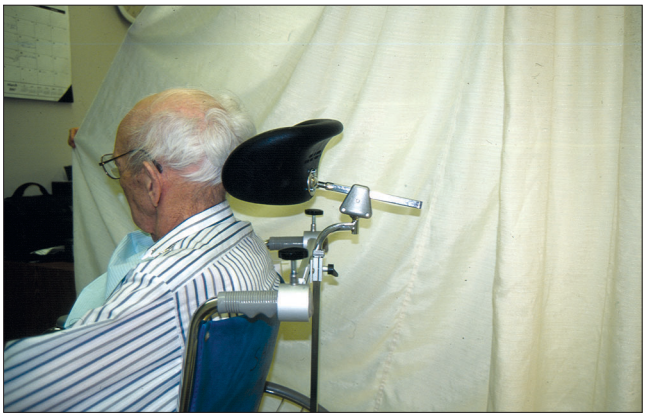

Figure 1: *Dentist uses headrest to better position the patient.*

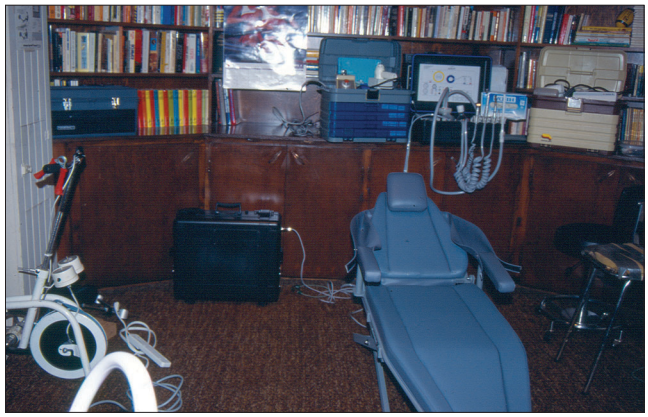

Figure 2: *Set up of equipment in mobile unit.*

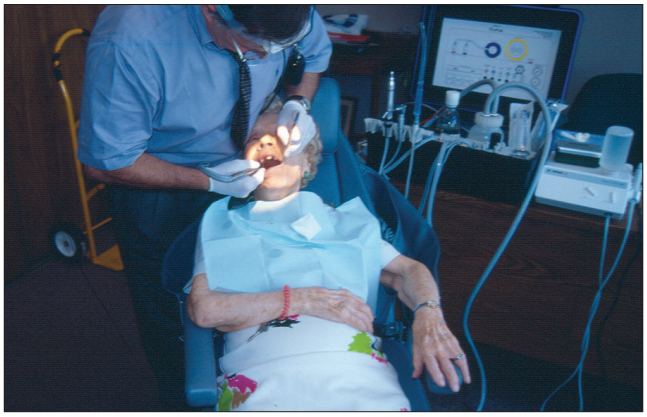

Figure 3: *Patient receiving treatment in mobile unit.*

added over time as required. The basic equipment set-up is shown in **Fig. 3**. The cost of equiment needed is listed in **Table 1** and suppliers are listed in **Table 2**.

Marketing Research and Development

Market research is essential to developing a good business strategy. The first step is to research the particular market where the mobile practice will operate, finding out how many LTC facilities are located in the area and their patient populations. Communication with other allied health professionals who visit nursing homes, such as podiatrists, physiotherapists and optometrists, is helpful. Other professionals can provide information about approaches they have used to establish their own practices and may be able to offer advice on dealing with particular facilities. In Ontario, the Victorian Order of Nurses and the Community Care Access Centres are good sources of information on nursing homes.

After a list of potential clients has been developed, it is critical to market the dental services appropriately. A letter of introduction to directors of care at targeted LTC facilities is a valuable tool in establishing contact. The director of care may need to be convinced of the necessity and the value to the home of having a complete dental care program for residents. Although the Ontario government has set standards for the oral health care of patients,[11] these standards are not always met for a number of reasons, such as insufficient staffing, poor staff education and low levels of government funding. Nonetheless, the system is slowly changing as a result of action taken by all those involved — dentists, the government and the LTC community.

As described above, it is central to the success of the mobile practice venture that the practitioner focus on developing a relationship with an appropriate centre to serve as the base of operations. Thus, the practitioner should attempt to secure work in a large facility with a community outreach component. Promotion of the service within the larger community may be accomplished through newspaper articles and letters describing the mobile practice. Marketing pamphlets can be created and sent to the residents of nearby nursing homes. It is wise to include a registration form in such marketing pamphlets so that the patient or caregiver can complete it before arriving at the mobile clinic.

A contract must be signed with the director of each home in which the practitioner will offer his or her services. The contract must detail the practitioner's responsibilities and the responsibilities of the LTC facility in providing dental care for residents. The practitioner or facility director should distribute a letter introducing the oral health care program to residents and describing in detail the services and fee schedule. It is best to describe the initial service such as a package for examination scaling and cleaning with a separate fee for those with dentures. Some significant and compelling reasons for dental care and its advantages should be communicated to encourage patients to come for treatment. For example, much has been written about the interface between oral health and the general health of the geriatric patient, such as the relationship between periodontal disease and aspiration pneumonia.[12–14]

Table 1 **Cost of equipment needed to set up a mobile dental unit**

Equipment	Cost ($)
Mobile dental unit (including compressor and controls)	2,500–6,000
Digital radiography unit (optional)	6,000
Insta-Developer portable darkroom	400
Portable chair	2,000
Stools	200
Examination lights	700
Head lights	300–1,500
Piezon scaler	2,500
Electric laboratory motor	300 and up
Instrument and carrying cases	100–300
Hand instruments	1,500
High- and low-speed handpieces	400 each and up
Curing light	700–1,800
Amalgamator	650
Kits (restorative, periodontic, surgical, prosthetic and endodontic)	3,500
Statim sterilizer (optional)	5,000
Other items as desired	
Total	25,000–30,000

Human Resources Management

The selection and management of staff is central to a successful mobile practice. Not everyone is able to cope with the problems and disabilities of elderly patients, so the support staff chosen to work in the mobile clinic must have a demonstrated ability to treat frail and elderly patients with compassion and care. Clinic staff must also be able to communicate effectively with nursing home staff to facilitate access and efficient delivery of dental care during clinic hours. All of the staff must be adaptable and self-motivated for the practice to run smoothly.

Good clinical support, in the person of the dental assistant, is invaluable in a mobile practice. Like the dentist, the assistant must be able to work in unfamiliar surroundings and a less than ideal environment. The position of assistant involves many responsibilities including overseeing charts and supplies, replenishing supplies, sterilizing instruments, developing radiographs and staying informed about patients' medications. After each patient completes treatment, he or she must contact the appropriate person to take the patient back to his or her room. For patients who have undergone extractions, the assistant ensures that instructions are sent to staff on the floor and that the bleeding has been controlled before they are returned to the floor. The dental assistant also checks that charting is complete and that appropriate information is placed in the chart so that care providers in the nursing home understand the treatment and can follow any postoperative instructions, such as specific oral hygiene procedures.

Table 2 **Suppliers of dental equipment**

ASI MEDICAL, INC 14550 E. Easter Avenue #1000, Englewood, CO, USA, 80112
ASEPTICO PO Box 3209, Kirkland, WA, USA, 98083 (www.asceptico.com)
Dental Equipment Obtura Spartan USA, 1727 Larin Williams Road, Fenton, MO, USA, 63026 (www.obtru.com)
DNTLworks Equipment Corporation 15504 East Hinsdale Circle, Unit B, Englewood, CO, USA, 80112 (www.DNTLworks.com)
Safari Dental Inc. 94D Enterprise Blvd., Boisbriand, QC, Canada, J7G 2T3 (www.dental-safari.com)

The administrator's role includes communicating with patients and their families, maintaining charts and records, and acting as a liaison with the nursing homes. He or she must direct the patient consent process by sending out forms and estimates for dental diagnosis and treatment to the patient or caregivers (e.g., a family member or the public trustee). This function is important because patients and care providers must have adequate information to make informed decisions about treatment. The administrator should also manage the mobile practice records, using a computerized database to track each nursing home and patient, so that the practitioner can conveniently follow and record data. The administrator is also the main liaison with the nursing homes. One week before the appointed date for the mobile clinic, new and returning patients must be scheduled and charts of patients previously seen must be accessed. Scheduling is critical for the smooth operation of a mobile practice. Assistance with mailing marketing tools and with correspondence might also be included in the administrator's duties.

A Word about Consent

Informed consent is especially important when dealing with patients who have either a health advocate (legal guardian) or a financial guardian, as is often the case for residents of nursing homes. Informed consent is based on trust, confidence and responsibility. Patients and their families have the legal right to decide what treatment is appropriate. All information must be provided in writing and must be supported by some explanation, including any contraindications of the treatment or medication prescribed. Sometimes the same person performs both guardianship functions, but they may be split among 2 or more persons. No matter how many people are involved, they must all be contacted for financial consent and consent to treat. It is important to review the law and keep good written records. Personal contact with patients and

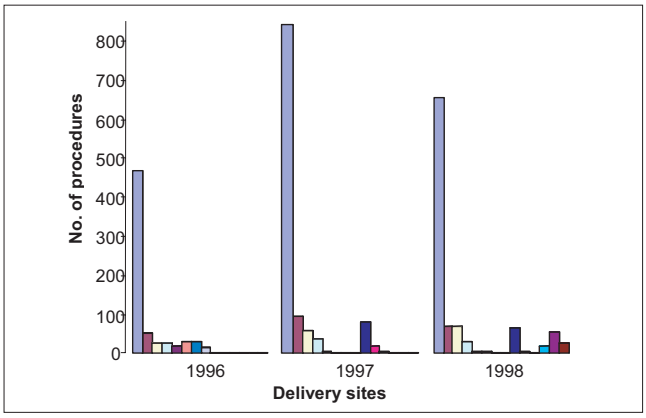

Figure 4: *Number of procedures performed through a Hamilton mobile dental unit at 14 sites, 1996–1998. The delivery sites are colour-coded. The violet bar represents the central delivery site. In some years, no procedures were performed at certain sites.*

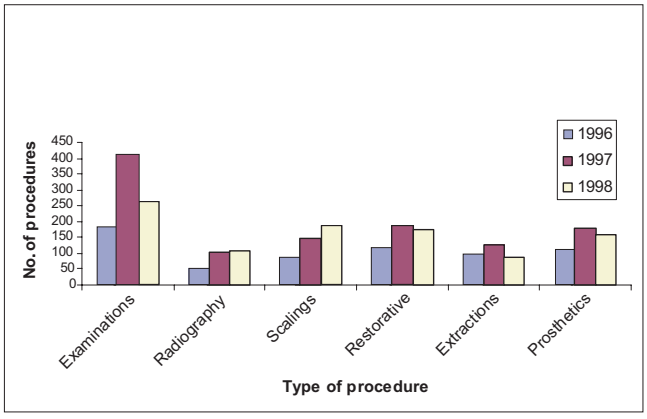

Figure 5: *Types of procedures performed by the Hamilton mobile unit, 1996–1998.*

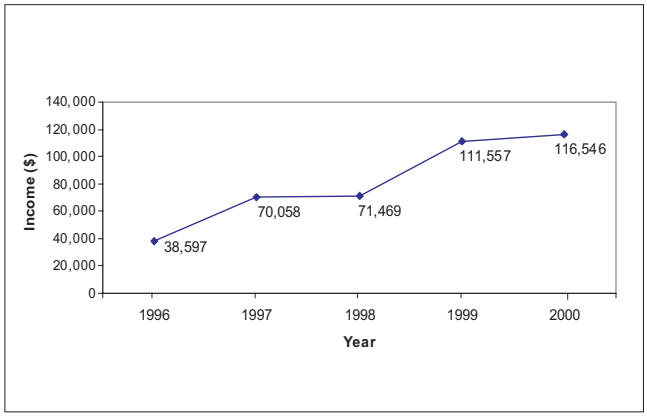

Figure 6: *Total practice income from the Hamilton mobile unit, 1996–2000.*

their families is appreciated and is a good marketing tool. The consideration and care shown by the practitioner will be projected in the community where the patient resides, and facility staff will appreciate this approach.

Procedures and Profitability

In the Hamilton practice, the number of patient visits grew from 200 visits in the period from 1991 to 1993 to 1,332 visits in the year 2000. Detailed information was recorded from 1996 through 2000. Income grew substantially: $38,515 in 1996, $70,058 in 1997, $71,469 in 1998, $111,557 in 1999 and over $116,000 in 2000. From 1996 to 2000, a total of 20 institutions were serviced by the mobile unit.

The net revenue, as indicated by this example, may be less than regular office income for the same number of patients, but no additional furnishings are required, and there are no rental fees or bills for the phone and other utilities. Also, a hygienist can continue to work in the practitioner's office, treating patients while the dentist is operating the mobile unit, so long as proper order requirements have been prepared in accordance with provincial legislation (the Dental Hygiene Act in Ontario).

In the year 2000, 587 dental procedures were performed on 192 patients at the main centre at St. Peter's Hospital (125 inpatients [65.1%] and 67 outpatients [34.9%]). These totals included 71 new inpatients and 21 new outpatients. Fifty-two inpatients and 31 outpatients came only once during the year for cleaning and examination; 73 inpatients and 36 outpatients came for multiple visits. In this type of practice, recall patients do not accumulate because of the age and health of the resident population. The total number of procedures performed in the whole practice in 2000 was 1,351, and the average fee was $86.27 per patient. The average time per appointment was estimated at 45 minutes.

Figure 4 shows the number of procedures performed at each facility for the years 1996 to 1998. Most patients were seen at the main centre (St. Peter's Hospital), because it was the site of a weekly clinic and had a larger resident population than the other sites. Two institutions had a one-day clinic every month; more procedures were performed at these institutions than at the other nursing homes.

Contrary to popular belief, elderly patients have a variety of clinical needs. **Figure 5** shows the procedures performed from 1996 to 1998 at the various facilities. As might be expected, examinations were performed most frequently, and there was an even split among prosthetics, cleaning, restorative procedures and extractions. Most of the patients had their own teeth, so prosthetic services were not required as often.

Total practice income from the nursing homes and the main centre (1996–2000) is shown in **Fig. 6**. This figure illustrates how income grew as patient load increased, along with number of procedures performed. In more recent years, more dentures and crowns have been prepared, so gross income has increased.

Once the practice has grown to 8 to 10 patients per nursing home, a monthly one-day clinic will be required. Over time, the presence of the unit will motivate other families with elderly relatives to take advantage of the service. Initially, other dentists may be employed one day a month. The concept is to "grow" each of the clinics and to have them serviced one day a month, but this requires time and effective marketing. The income of the practice is determined by the number of days in practice and the procedures performed. If more prosthetic procedures are performed, earnings will be higher than is the case if most procedures involve cleaning and scaling or fillings. There will not be much call for endodontics or crown and bridge work in this setting. One advantage of the mobile practice is control of bookings and hence growth.

Fee Schedule

The normal fee guide of the Ontario Dental Association[15] has been used by the Hamilton mobile practice. For a few patients, an additional $10.00 fee was charged to cover transportation and set-up, if the nursing home had only a small number of patients to be seen. In 2004, the Ontario Dental Association distributed a fee guide specifically for LTC patients, and the British Columbia Dental Association has had such a fee guide for 3 years. In the authors' experience, the proportion of patients in a nursing home who have come to the mobile clinic has been the same as the proportion of the general public who visit a dentist (about 40%). The proportion of clients with some type of insurance coverage is also similar to that in the normal population. The family or caregiver is always provided with an estimate and a payment plan. Follow-up on outstanding accounts has required less time than in the office practice because of the detailed estimates provided and a requirement that the patient or caregiver provide written agreement before work is started.

Operating Costs

In setting up a mobile practice, it is advisable to develop a business plan and seek the advice of an accountant for matters related to operating costs. The following information is intended as general guidance only.

This model functions as an adjunct to an existing practice. Therefore, as long as there is an office practice on which to build, the mobile unit causes little increase in staff overhead. However, as the mobile practice grows, additional staff may be required. Any new staff members can be given work in the office practice. Conversely, office-based staff can be hired with expansion of the mobile unit in mind. Once all staff have an understanding of the services offered by the mobile unit, dedicated employees will see the benefits to the community and will support the endeavour.

If the practice already uses a computer for scheduling and billing, the work of the mobile practice can be readily integrated into the office routine. It is best to contact all patients before each visit to arrange appointments and provide written estimates of the work to be performed. Extra time will be required when dealing with third-party caregivers; however, once their confidence has been gained, the time required for such communication (and the associated costs) will decline. The increase in staff costs to maintain and clean equipment can be minimized by hiring students interested in dentistry as a career.

According to a report prepared for the British Columbia Society of Dental Surgeons in 2000 by R.K. House & Associates, "certain costs are incurred because of the operation of the dentist's office and will not be affected by a decision to provide institutional care: the dentist will make a direct investment of $20,000 to $30,000 in mobile equipment, which will be amortized over 10 years and with an effective discount rate of 10%".[16] However, the mobile practice entails no increase in rent and other office expenses, and the cost of supplies will be within the range quoted in the Ontario Dental Association Best Business Methodologies[17] (December 1999), at 6% to 8% of total operating expenditures. There may be an increase is the marketing budget, which will benefit the office-based practice and be balanced by increased patient income.

The time spent marketing the mobile practice and conducting initial examinations of patients in their homes should always be monitored with the bottom line in mind.

Conclusions

There is no argument that frail and elderly people need appropriate dental care to improve their health and overall quality of life, but the oral health needs of this group are largely ignored. Abundant evidence shows the connection between medical health and dental health.[4,18] For example, recent studies using the latest diagnostic technologies confirm the potentially positive effect of reducing periodontal inflammation on diseases such as diabetes mellitus, pneumonia and heart disease. Sepsis of the mouth and periodontal diseases have a common set of diagnostic criteria (e.g., smoking, infection).

A general dentist with an interest in frail and elderly patients who wants to expand his or her practice can establish a profitable mobile dental service. The advantages to the dentist are expansion of practice into an area that is usually free from competition, suitable use of available time and existing resources, provision of services to a needy population and enhanced exposure in the community. The dentist can develop a niche market and add an associate to his or her practice to increase overall profits and to keep staff busy and interested. Data from a mobile practice in Hamilton show that with some motivation and careful planning, a mobile dental unit can be a profitable adjunct to an office-based practice. Elderly patients and their

families will be grateful to dentists who have the business acumen to implement mobile dental care.

Acknowledgement: *The authors extend their special thanks to the Dentistry Canada Fund for its support.*

Dr. Morreale *is director of dental services, St. Peter's Hospital, Hamilton, Ontario.*

Ms. Dimitry *is a senior research coordinator, department of clinical epidemiology and biostatistics, McMaster University.*

Mr. Morreale *is assistant professor, department of clinical epidemiology and biostatistics, McMaster University.*

Ms. Fattore *is a dental hygienist.*

Correspondence to: *Dr. James P. Morreale, 206 Main St. W., Hamilton, ON L8P 1J3. E-mail: jmorreale2@cogeco.ca.*

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