

Quality Assurance of Dental Health Services Provided at the Faculty of Dentistry, King Abdulaziz University

معايير الجودة للخدمات الصحية المقدمة في كلية طب الأسنان بجامعة الملك عبدالعزيز

Authors:

3. **Dr. Ali Habiballah Hassan** BDS, PhD

Assistant Professor, Orthodontic Division

Chairman, Preventive Dental Sciences Department

Chairman, Local Supervising Committee for Saudi Board in Orthodontics-Jeddah

Address:

P.O. Box: 122423

Jeddah, 21332

King Abdulaziz University, Faculty of Dentistry

Tel: 0503647336

Fax: 02 6403316

E-mail: aliresearch@gawab.com

2. Prof. Hala Amer BDS, PhD

Professor, Preventive Dental Sciences Department

Faculty of Dentistry, King Abdulaziz University, Jeddah, Saudi Arabia

3. Dr. Abdulhamid Maghrabi, BDS, DSc

Assistant Professor, Prosthodontic Division

Vice Dean, Clinical Affairs

Faculty of Dentistry, King Abdulaziz University, Jeddah, Saudi Arabia

الباحث الرئيسي: د. علي بن حبيب الله أكبر حسن

الباحث الثاني: أ.د. هاله عامر

الباحث الثالث: د. عبد الحميد مغربي

كلية طب الأسنان / جامعة الملك عبد العزيز بجده

Correspondence should be sent to the main author on the above mentioned address

Running Title:

Assessment of the quality of care of the dental health services provided at the Faculty of Dentistry, KAAU, using the method of Evaluating the Structure and Process of Care

Abstract

Quality in health care is concerned with performing the right procedures, to ensure the best possible clinical outcomes for patients, satisfaction for all customers, retention of the talented staff and sound financial performance. While quality assurance is the assessment of the quality of care and the implementation of any necessary changes to either maintain or improve the quality of care rendered. The most frequently used approach to quality assessment and quality assurance builds on the concepts of structure, process and outcome. The present evaluation report assessed the elements of quality of dental services provided at the Faculty of Dentistry, King Abdulaziz University in Jeddah, Saudi Arabia. It was based on the structure of these services, in the clinic buildings, waiting places, equipments, instruments and supplies, as well as the comfort and privacy. The method used was live photographs of the previous elements as well as official records from the faculty. Other structural elements in terms of the human resources of the system, adequate number, qualifications and training of the staff and the auxiliary personnel were described. The access and utilization of consumers to dental services was evaluated as well as the quality of infection control procedures. The process of care starting from registration, patient's files, and referral for treatment until completion, all indicated high quality of dental services delivered. Some recommendations were suggested to improve the quality of services provided.

Keywords:

Quality control, Quality Assessment, Health dental services, KAAU, Faculty of Dentistry

ملخص البحث

تعتبر كلية طب الأسنان بجامعة الملك عبدالعزيز من الكليات الحديثه والمبنيه على أسس علميه ومعايير عالميه حيث تقوم بتقديم خدمات علاجيه لسكان مدينة جدّه ومحولها الهدف من هذا البحث هو دراسة وتقييم الخدمات الصحيه المقدمه في كلية طب الأسنان ومقارنتها بمعايير الجوده العلميه . اعتمد البحث على صور فوتوغرافيه لمرافق الكليه العلاجيه المختلفه ومعلومات احصائيه من الشؤون العلاجيه في الكليه ومن ثم تقييمها حسب معايير علميه. تم تقييم الخدمات المقدمه عن طريق تقييم منشآت الكليه وتوافر الامكانيات الضروريه فيها مثل غرف انتظار المرضى و جودة وكفاية الأجهزه والأدوات والمواد المستخدمه، وتقييم عدد وكفاءة اعضاء هيئة التريس ومساعدى الأسنان في الكليه. كذلك تم تقييم عناصر تنظيميه أخرى مثل عملية دخول المرضى، ملفات المرضى، توافر العلاج بجميع أشكاله لجميع المرضى و طرق مكافحة العدوى والأسعافات الأوليه المتبعه. دلت نتائج الدراسه الحاليه على جودة الخدمات الصحيه المقدمه مع ضرورة ادخال بعض التعديلات المقترحه في هذا البحث

Keywords:

معايير الجوده- كلية طب الأسنان- الخدمات العلاجيه- خدمات العلاج السنيه

Introduction

Quality assessment is defined by the American Dental Association as the measurement of quality of care provided in a particular setting. Quality assurance, in turn, is defined as the assessment or measurement of the quality of care and the implementation of any necessary changes to either maintain or improve the quality of care rendered¹. The ultimate goal of quality assurance is to ensure cost effective, decent, equitable and acceptable health care. Thus quality assurance is considered as one of the principles of primary health care approach². The most frequently used approach to quality assessment and assurance builds on the concepts of structure, process and outcome³. Some dimensions address the quality of the structure of dental services such as the physical environment of the facility. This involves the appearance of the buildings, waiting areas, equipments, instruments and supplies. Moreover, the comfort and privacy of the clinics are important adjuncts to these physical characteristics⁴.

The manpower and resources of the system are important structural elements, assessed in terms of number, qualification, training of the dental staff and auxiliary personnel in a team approach strategy, and accessibility to continuing educational courses for each staff type, for adequate professional development⁵. The access and utilization of health services available to consumers also add to the dimensions of structural quality that can be assessed⁶. The presence of infection control protocols or guidelines as well as basic life support procedures are also important elements of the structure of dental services.

The process of care starts from the patient's registration, patient's files, diagnosis and treatment planning,⁴ utilizing well structured records and good quality radiographs, which can provide a vehicle for both examining and carrying out evaluation of the process of care⁷. Meanwhile, the infusion of information technology into dentistry is providing the potential for an invaluable source of information, comprehensive clinical data base, which would provide opportunities to assess clinical information, conduct researches, and address quality concerns⁸. The process of care and the technical quality are usually assessed by on-site evaluation of a dental practice, by a trained auditor or a principal dentist who visits the facility and evaluates structure, process and outcome of care. This method is expensive and time consuming⁴, while the audit of dental records is considered as the most developed and widely used approach for institutions and hospital dental departments⁹, since record audits fit well with hospital quality assurance and accreditation¹⁰.

Objectives

General Objectives:

Evaluation of the structure and process of dental services provided at the clinics of the Faculty of Dentistry, King Abdulaziz University in Jeddah

Specific Objectives:

I. Structure of Care

- Evaluation of the physical structure of buildings, equipments, instruments and supplies
- On site evaluation of comfort and privacy
- Evaluation of the number of working dental staff
- Evaluation of the staff's qualifications
- Evaluation of the number of auxiliaries
- Evaluation of the continuing educational courses provided for dentists and auxiliaries
- Evaluation of the access to services
- Availability of immediate access (emergency services)
- Availability of access of the high risk
 1. Geriatric Services
 2. Medically compromised children and adults

II. Process of Care

- Monitoring the administrative procedures of patient's registration, filing and referral system.
- Evaluation of samples of dental records (the audit of dental records)
- Assessing the performance of pediatric dental services, including orthodontic treatment.

Materials and Methods

Live photographs were used to image the reception areas, the various clinics' structures and the equipments available (Figure.1,2&3)

Official records on the various types of services administered at the faculty facilities, taken from the department of Clinical Affairs were the main source of information used. Statistics of one or two months, as convenient, were used as representing samples in the present study.

Results:

The Faculty of Dentistry has adequate and appropriately maintained clinical facilities. It consists of more than two hundreds and seventy seven dental units, divided into male and female educational clinics (undergraduate, postgraduate, and interns), specialty and outpatient clinics, oral surgery, orthodontics, radiology, emergency and screening clinics (Table1). Comfortable waiting areas are available for both male and female patients in each floor (Figure.1, 2&3). Clinical building is equipped with all safety measures, including fire extinguishers, emergency exits, and proper ventilation system. The Faculty of Dentistry is located in the Medical Health Center of KAAU, for which medical services, including emergency services are convenient and at a walking distance from the dental facilities.

The school provides all the necessary materials, free of charge, for both the student and faculty's patients. Advanced dental equipments such as Lazer, microsurgical armamentarium, CAD/CAM restorative devices such as CEREC[®] 3 (Sirona Dental Systems, USA) and many others are available at the faculty clinics.

There are more than 70 dentists (faculty members, lecturers and general dentists) in various dental specialties. The faculty members are all assistant, associate professors and professors who are doctorate degree holders from various honorable Arab and foreign universities, while the lecturers are master degree holders (Table 2). Regarding the auxiliary staff, forty five dental assistants are available in the different clinical areas. All the dental assistants are Bachelor of Dental surgery degree holders and properly trained to assist in any dental procedures. There are 11 receptionists, who are distributed among six reception areas, in addition to two more employees, responsible for the records and files.

The clinical work preformed by the students is closely supervised by faculty members. The patients are assigned to the different students according to the severity of the problem and the educational level of the student. For example, simple restorative and periodontal procedures are assigned to the junior students in the 4th year. More advanced procedures are assigned to the students in the 5th year. In the final year (6th year), students are exposed to an advanced course called Comprehensive Care Clinic (CCC), which represents the main core course. The objective of the CCC course is to develop accurate clinical judgment and adequate skills to ensure high quality comprehensive dental care, which include proper diagnosis, comprehensive prioritized treatment planning, proper referral and recall.

Continuing Educational Courses:

Different types of lectures are held along the academic year to enforce the clinical policy and procedures, to improve clinical skills of the staff and to update them with recent advances in dentistry. At the beginning of each academic year, a staff orientation week is held, where lectures on clinical policy and procedures, infection control, basic life support and common medical emergencies are given. In addition, a monthly meeting is usually held where one of the faculty staff gives a lecture on recent advances in dentistry, followed by a scientific discussion on new developments in that field. A conference is held every two years, organized by the Faculty of Dentistry about the recent advances in dentistry, for which distinguished speakers are invited.

The postgraduate committee of the Faculty of Dentistry has arranged many accredited clinical workshops in dental implantology, laser treatment, endodontics, advanced pediatric dentistry, and dental radiology.

Evaluation of Patient's Registration, Filing and Referral System:

New patients, regular patients or those referred from other health facilities are registered by their names, identification and phone numbers. They are then referred to the screening clinic for initial history taking, examination, and a proper referral. A comprehensive chart is filled and a panoramic radiograph is taken as a routine procedure for each patient seen at the screening clinic. The patient is then referred to one of the categories listed in chart-1, according to his or her needs and given regular appointments to complete the treatment. All types of primary care and specialty services are available for both Saudis and Non-Saudis and are free of charge, including the high costly specialized services, such as orthodontic, Pedodontic and endodontic treatment.

Evaluation of the Access to Dental Service:

1. Immediate Access or the Presence of Emergency Care

The emergency clinics are present in the ground floor near the main reception area and the radiology department. Working hours extend from 8:00 AM until 5:00 PM during the weekdays. The treatment is provided in full by the interns and there is no permanent general dentist assigned to the emergency clinics. However, there is an assigned faculty member or a general dentist to supervise the assigned interns every day. Table 3 and Graph I (male interns) and table 4 and graph II (female interns) show the descriptive statistics of emergency clinical activities of male and female interns in December 2003

and January 2004. The table and graphs show the various types of emergency procedures, which primarily aim to relieve pain of oral origin, such as extractions (11.6% by males & 6.1% by females), pulp extirpation (15.5% by males & 14.6% by females), temporary fillings (19.9% by males & 18.7% by females) and others.

2. Economic Access

It is guaranteed since all types of emergency and specialty services are available for free for both Saudis and Non-Saudis, without discrimination.

3. Access of the High Risk Group

Provided through services for specific groups of the population, such as the geriatric population (aged sixty years and over), medically compromised patients, and patients with orofacial clefting

The geriatric population gained access to various types of dental treatments in dental clinics of KAAU, including removable dentures, oral surgery and extraction, scaling and prophylaxis as well as referrals for various treatments (Table 5).

Medically compromised patients are seen at the outpatient clinics of KAAU Hospital, by a team of oral and maxillofacial surgeons, maxillofacial prosthodontists and pediatric dentists. Different types of treatment are provided to those patients, ranging from simple fillings to maxillofacial prosthesis. Unfortunately there are no available clear data for this specific group and their records are still in the phase of organization.

Cleft lip and palate patients are seen by a team of orthodontists, maxillofacial surgeons and pediatric dentists. There is an assigned orthodontic clinic for the cleft patients, where the main coordination is performed with the rest of the team and with the plastic surgeons and other medical staff at KAAU Hospital. There are more than 45 active patients with cleft lip and/or palate seen regularly in the orthodontic clinic. Different treatment procedures are provided for this group of patients, which include palatal expansion, comprehensive fixed orthodontic treatment, alveolar grafting, lip and nose revision, and orthognathic surgeries, in addition to simple fillings and periodontal treatment.

Evaluation of Pedodontic and Orthodontic Treatment:

All types of health educational, preventive, conservative and interceptive orthodontic treatments are offered to children treated at KAAU clinics (Table 6 and Graph III). The ratio of preventive (oral hygiene instructions, dietary analysis sealant and fluoride), to conservative treatment (amalgam and tooth colored fillings) performed is more than one, while the ratio of fillings performed to extraction is about 3:1.

Orthodontic treatment is provided to all pediatric and adult patients, who are classified as moderate and comprehensive orthodontic cases. All patients seeking orthodontic treatment should go through a specific screening clinic to determine the type and severity of malocclusion and the treatment needs of the each patient using the Index of Orthodontic Treatment Needs (IOTN). Patients who require comprehensive orthodontic treatment are usually referred to a faculty member or a resident in the Saudi Board of Orthodontics (SBO), while moderate and simple cases are assigned to 6th year students. During 2004, the number of active patients seen at the faculty orthodontic clinics was about 450, at the SBO clinics was about 200, and at the 6th year clinic was about 50 patients.

Availability of Infection Control Guidelines, Basic Life Support Protocols and Others::

The Faculty of Dentistry has established an Infection Control Committee, which in turn, has established a specific mechanism to enforce infection control regulations and rules in the dental clinic. An infection control manual is available to all dental health care workers (DHCWs) at KAAU, including the students. The guidelines were derived from those of the Center of Disease Control (CDC) and the Organization Occupational Safety and Health Administration (OSHA). The assurance of applicability, competence and compliance to these guidelines by all DHCWs is the responsibility of the Infection Control Committee. All DHCWs receive a copy of the manual which must be read carefully. Then they go through a training course for application, and also a special training for each specialty in the clinics. As for the students, after reading the manual they attend lectures, watch videotapes and then attend a demonstration about the application of infection control procedures in the clinic. Report forms, emergency and investigations for accidental exposure to infection are available to all faculty members, DHCWs and students with strict confidentiality. All DHCWs, including students should receive all the necessary vaccines before working in the dental clinics. Unfortunately, Infection Control Committee members are assigned faculty members, demonstrators, and general dentists, who are not certified infection control officers. There is no assigned office and facilities specific for infection control.

All faculty, students and dental assistants are familiar with basic life support (BLS) and the management of common medical emergencies. It is mandatory for each DHCW to attend BLS course at the beginning of each academic year. Emergency carts, which are well equipped with the necessary emergency items are available in the oral surgery units and are ready to be used for any incidence.

Radiology department is located in the ground floor in a separate and completely isolated unit. In addition, there is another minor unit located in the first floor. Policy and procedures are written and accessible in the radiology department regarding the handling of ionizing radiation and the frequency of patient's exposure to radiographs and retaking radiographs.

The administration of the Faculty of Dentistry has established the Ethical Committee, which deals with all the associated ethical clinical issues such as patient's complaints and human researches.

Discussion

The present evaluation report provides a preliminary assessment of the quality of dental services rendered at KAAU clinics. The assessment focused on elements of the structure and process of care. This was based on the concept that if the structure of practice is of acceptable quality, then the quality of care is more likely to be acceptable¹¹. A good outcome is also more likely if the process of care, such as, diagnostic methods, treatment planning, referral and record keeping follow a systematic approach. On the other hand, if a less than satisfactory outcome is detected, then the search for the cause is likely to be within the process of care and the structures which support it⁴.

The photographs of the reception and registration areas illustrate structural elements of high quality. Well organized patient's files are available in the statistical department showing base line data of the cases presented for treatment and the procedures performed. These well structured records and good quality radiographs provide a vehicle for both examining and carrying out the evaluation of the process of care⁷. Unfortunately, Computer network services are still in the phase of establishment, which could improve the performance and reduce the manpower required. The lapse of time between registration and appointments was found to be of a long duration. Therefore to achieve a better quality of services, efforts should be made to reduce this time through increasing the work capacity.

Regarding the sterilization procedure and besides the protocol adhered to by all dental care workers, the photographs of the central sterilization supply department indicate the availability of adequate resources for infection control adding to the structural quality characteristics. For maximum efficiency regarding infection control, it is important to have full time certified infection control officers beside faculty members and others in order to closely supervise the DHCWs and to update the procedures. In addition, assigned infection control office and facilities should be available.

Cleanliness, comfort and privacy of the clinical areas are well illustrated. Moreover separate closed units are available for treating female patients to suit the characteristic religious culture of Saudi Arabia. Finally the pictures of the specialty clinic show the high technology equipment present. The number and qualifications of the faculty staff and continuing educational activities conform to the high structural quality but the lengthy wait between appointments indicates the need for increasing the clinical staff involved in patient's treatment. With regards to the access to dental service, the results of the present evaluation revealed the availability of immediate access and emergency treatment, economic access and access of uninsured various non Saudi ethnic groups which are eligible for all types of treatment. This was recognized by social service providers in the USA as a major community issue⁶. Similarly access of children to pediatric oral health care, was considered a critical issue in public programs as well as utilization of service data essential for monitoring and improvement of plan and program performance. These two parameters are assessed quantitatively by the percentage of children who have had a dental visit in the last year, then further refined by the use of dental services by children derived from administrative data¹² and this was shown in the results of this study in the records of pedodontic services and treatment types (Table 6 & Graph III) providing the evaluation for the process of care. Moreover evaluating pediatric performance revealed access to a wide range of preventive and curative services which were recommended for children by an expert committee panel¹³. The recommended measures for evaluating the quality of pedodontic services, such as, the ratio of preventive to curative services (more than 1 in Table 7) and the ratio of fillings to extractions (3:1) indicate the effectiveness of care and use of services¹⁰. However these ratios and measures are usually monitored for a twelve month period i.e. yearly records which were available in the statistical department of the faculty, but needed more details describing the type of treatment provided for each specialty separately. Hence in the present study, samples of recent monthly records were audited.

The presence of the Ethical Committee ensures the protection of patient's rights and confidentiality. Unfortunately, this committee is a recent one and needs more time and effort to establish strict rules and

regulations to protect patient's rights. Mission statement and patient's rights should be written and posted in all clinical areas.

The audit and revision of records of the high risk groups, such as, the medically compromised, were found to be in a phase of organization, since these services were shared between the university hospital and the pedodontic and orthodontic departments of the Faculty of Dentistry. In addition, more effort should be put to establish teams for cleft lip and palate and medically compromised patients, which should include medical staff.

For the geriatric population services, samples of their records illustrated the various treatments provided. However, dentures usually take a long time for production, so the number shown in table IV appeared to be small.

On the way to achieving better quality characteristics, profiling of dental providers through electronic patient's records¹⁵ is specifically advised for dental schools as a more appropriate environment¹⁶. Including clinical data and using computer assisted decision making, provided by software modules and hardware components for each clinical work situation is advised¹⁷, and will help address any inappropriate patterns of care and hence take the necessary corrective actions.

Conclusions & Recommendations

A very good quality of services is provided in the dental clinics of KAAU, assessed through the good structure of buildings, equipments, instruments and supplies, adequate number and qualification of the clinical staff and auxiliaries, the presence of continuing educational course, as well as infection control guidelines and protocols and the availability of immediate, economic access and access of high risk groups. Good process of care was monitored in the registration system and patient's files, records for various services also indicated good quality.

From a critical point of view, reducing the waiting time between file opening and appointments, as well as more organization of records of long term treatments such as the geriatrics and recently implemented services as for the medically compromised children and cleft patients, are recommended. A team approach strategy is also indicated for the treatment of these complex cases with appointed surgeons, internal medicine specialist, psychiatrists and speech therapists, working hand in hand with the treating dental surgeon and orthodontist. As regards the audit of dental records, establishment of the electronic

database infrastructure is urged which has already started. Furthermore inclusion of clinical data and computer assisted decision making is recommended.

References

1. American Dental Association, council on dental benefit programs. Current dental terminology CDT-2. 2nd ed 1995-2000 Chicago; ADA, 1994
2. Abdulatif A: Promotion of quality assurance of health care within the context of primary health care, health for all. 1995. World Health Organization Regional Committee for the Eastern Mediterranean. Forty second session. Cairo, Egypt 1-4 October.
3. Donabedian A. The definition of quality and approaches to its assessment. 1980 Vol 1 Ann Arbor: Hospital Administration Press.
4. Burt BA, Ekund SA. The structure of dental practice. In dentistry, dental practice and the community 1999, 5th ed. WB Saudners.
5. Bultutis L, Morgan M. The changing role of dental auxiliaries a literature review. Aust Dent J 1998; Oct. 43(5):345-8.
6. Higgs ZR, Bayane T, Murphy D. Health care access: a consumer perspective. J Pub H Nursing. 2001 Jan Feb; 18(1):3-12.
7. Marshall KF. Evaluating quality through records and radiographs. A rational for general dental practice. Br Dent J 1995 Sep;23:179(6):234-5.
8. Hayden WJ. Dental health services research utilizing comprehensive clinical databases and information technology. J Dent Educ. 1997;61:(1)47-55.
9. Bailit HL, Gotowkat. Guidelines for the development of a quality assurance audit system for hospital dental programs Chicago. American Dental Association, Office of Quality Assurance, 1983

10. American Dental Association. Directory of dental quality assessment and quality assurance programs in the USA, 1989 Chicago, Office of Quality Assurance, ADA, 1990.
11. Marcus M & Spolsky V. Concept of quality and the provision of periodontal care. A Survey J Perio. 1998;69(2):228-40.
12. Connecticut children' health project: utilization of dental services by children enrolled in Medicaid managed care. 1999. Hartford, Ct. Connecticut Children's Health Project.
13. Crall JJ, Szlyk Ci, Shneider DA. Pediatric oral health performance measurement current capabilities and future directions. Pub H D. 1999;59(3):136-141.
14. Bader JD, Sugars DA. Development of effectiveness of care and use of services measures for dental care plans. J Public Health Dent. 1999;59(3):142-49.
15. Torchia M. Using data to improve quality business and health. 1991 March;23-7.
16. Moas WR. Demands and opportunities for development of self reported assessments of oral health outcomes. J Dent Educ. 1996;60(60):508-13.
17. Koch S, Wagner IV, Shneidera W, Hana F. New concepts of an integrated IT and t-based dental workstation for quality assurance in oral health care. Med Info. 1998;97:107-11.

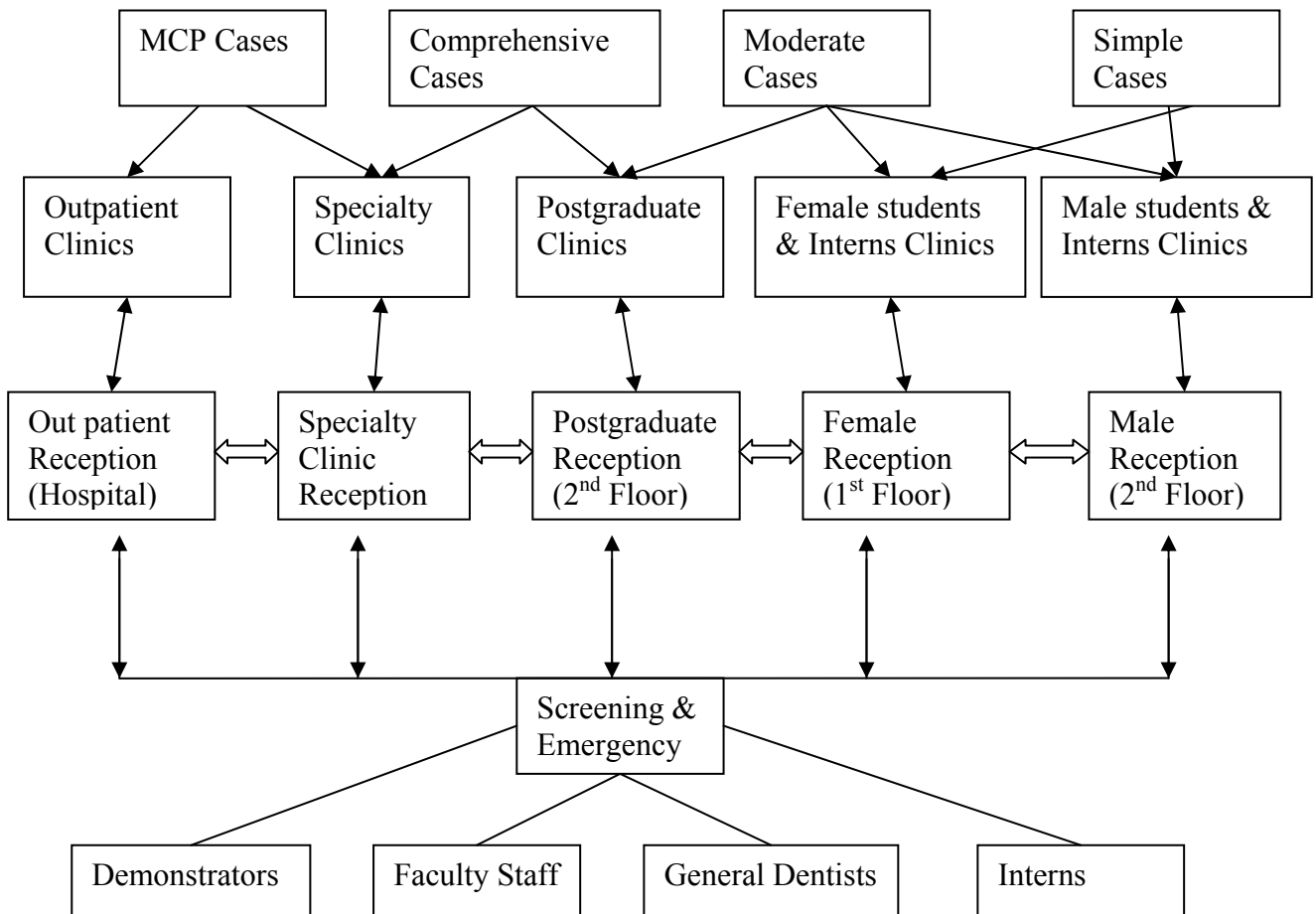


Chart 1: Flow chart showing the categories of the patients seen, their distribution among the different clinical areas and referral system used in the Faculty of Dentistry



Figure.1: Photographs showing the: a. The main reception and registration area, b. Student's patients reception area, c. Records and files in the statistical department, d. The waiting area at the specialty Clinics



Figure.2: Photographs showing the: a. A CSSD Window for handling instruments to students, b. The main CSSD



Figure.3: Photographs showing: a. A dental unit at the Emergency and Screening Department, b. Specialty dental clinic, c. Educational clinics (old), d. Educational Clinics (new)

Table1: The different Clinical Areas, the number of dental units and the weekly clinical sessions assigned to each area for the academic year2002-2002

Clinical Area	No. of Dental Units	No. of Weekly Clinical Sessions
Diagnosis & Emergency Clinics	6	60
Educational Clinics (Male)	64	505
Educational Clinics (Female)	74	640
Consultation Clinics	4	40
Specialty, Orthodontic & Pedodontic Clinics	14	140
Oral Surgery Clinics	1	10
Out Patient Clinics (Hospital Clinics)	6	60
Radiology Clinics	13	150
New Educational Clinics (Male)	49	490
New Educational Clinics (Female)	51	510
Infectious Diseases Clinics	1	10
Total	283	2615

Table 2: The number and specialties of the faculty members (2003-2004)

Male	Female	Total	Specialty
4	0	4	Oral Surgery
4	2	6	Removable Prosthodontics
5	1	6	Fixed Prosthodontics
4	2	6	Conservative Dentistry
2	3	5	Endodontics
1	1	2	Dental Materials
2	6	8	Pedodontics
4	3	7	Orthodontics
2	1	3	Community Dentistry
1	2	3	Oral Biology
1	2	3	Oral Pathology
3	3	6	Periodontics
1	2	3	Oral Medicine
1	1	2	Radiology
35	29	64	Total

Table 3: Descriptive statistics of emergency services and referrals provided by male interns for the period of December 2003 and January 2004

Month	Extraction		Extripate Debrid. Pulp		Canal Preparation/ Obturation		Temporary Filling		Repair of Br/Cement of Bridge		Dry Socket/ Abscess Management		Referrals		Lab Investigation		Other		Total		Saudi		Non-Saudi		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Jan.	42	11.6	56	15.5	4	1.1	72	19.9	3	0.8	5	1.4	49	13.5	0	0	131	36.2	362	100	102	34.8	191	65.2	293	100
Dec.	38	7.2	74	14	4	0.8	69	13	1	0.2	4	0.8	116	21.9	1	0.2	222	42	529	100.1	205	44.5	256	55.5	461	100

Graph 1: Percentage of emergency clinical treatment procedures and referrals by male interns

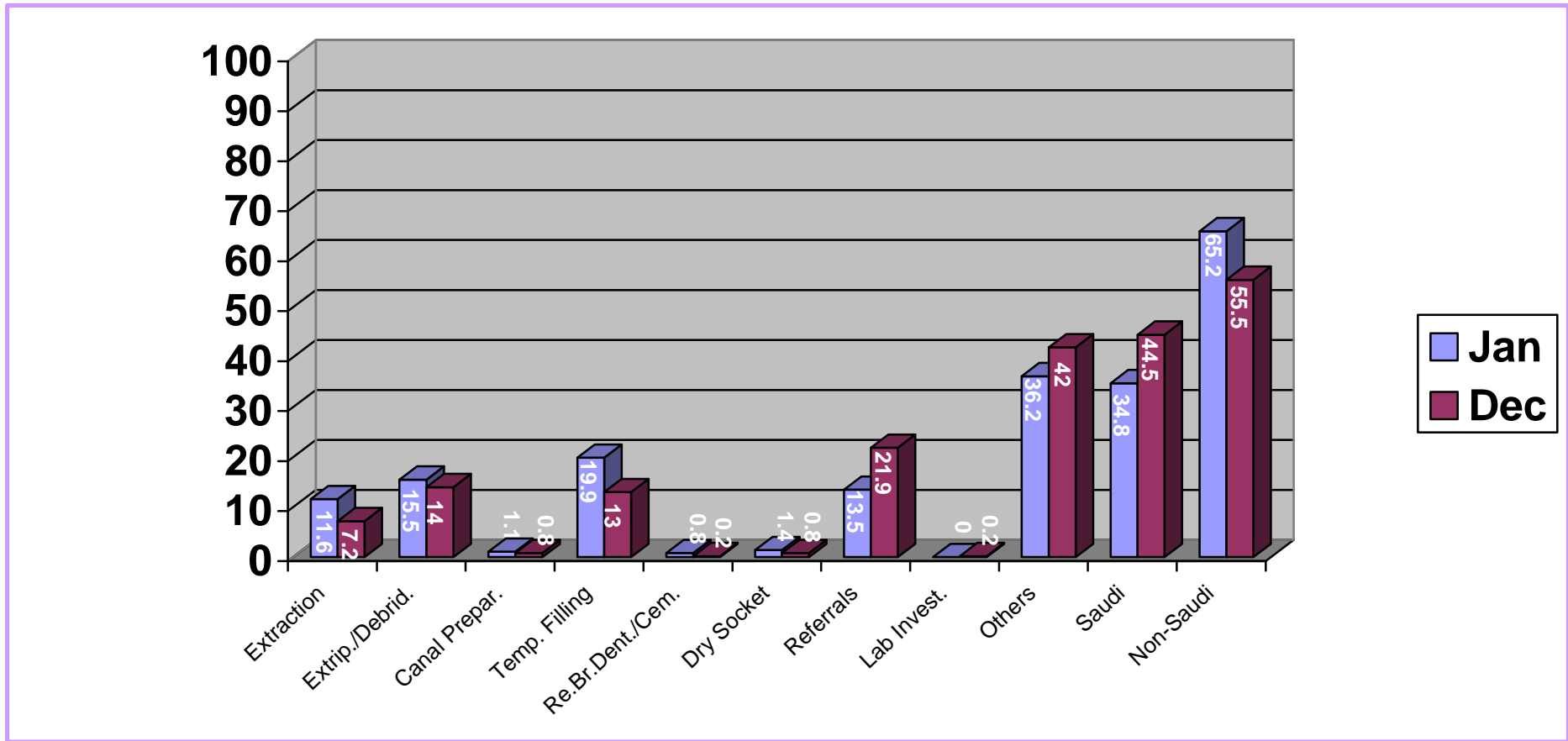


Table 4: Descriptive statistics of emergency services and referrals provided by female interns for the period of December 2003 and January 2004

Month	Extraction		Extripate Debride Pulp		Canal Preparation/Obturation		Temporary Filling		Repair of Br/Cement of Bridge		Dry Socket/ Abscess Management		Referrals		Lab Investigation		Other		Total		Saudi		Non-Saudi		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Jan.	33	6.1	79	14.6	0	0	101	18.7	30	0.6	1	0.2	130	24	0	0	194	35.9	541	100.1	112	25.4	329	74.6	441	100
Dec.	59	6.1	121	12.5	0	0	170	17.5	2	0.2	3	0.3	240	24.8	1	0.1	373	38.5	969	100	242	29.8	571	70.2	813	100

Graph II: Percentage of emergency clinical treatment procedures and referral by female interns

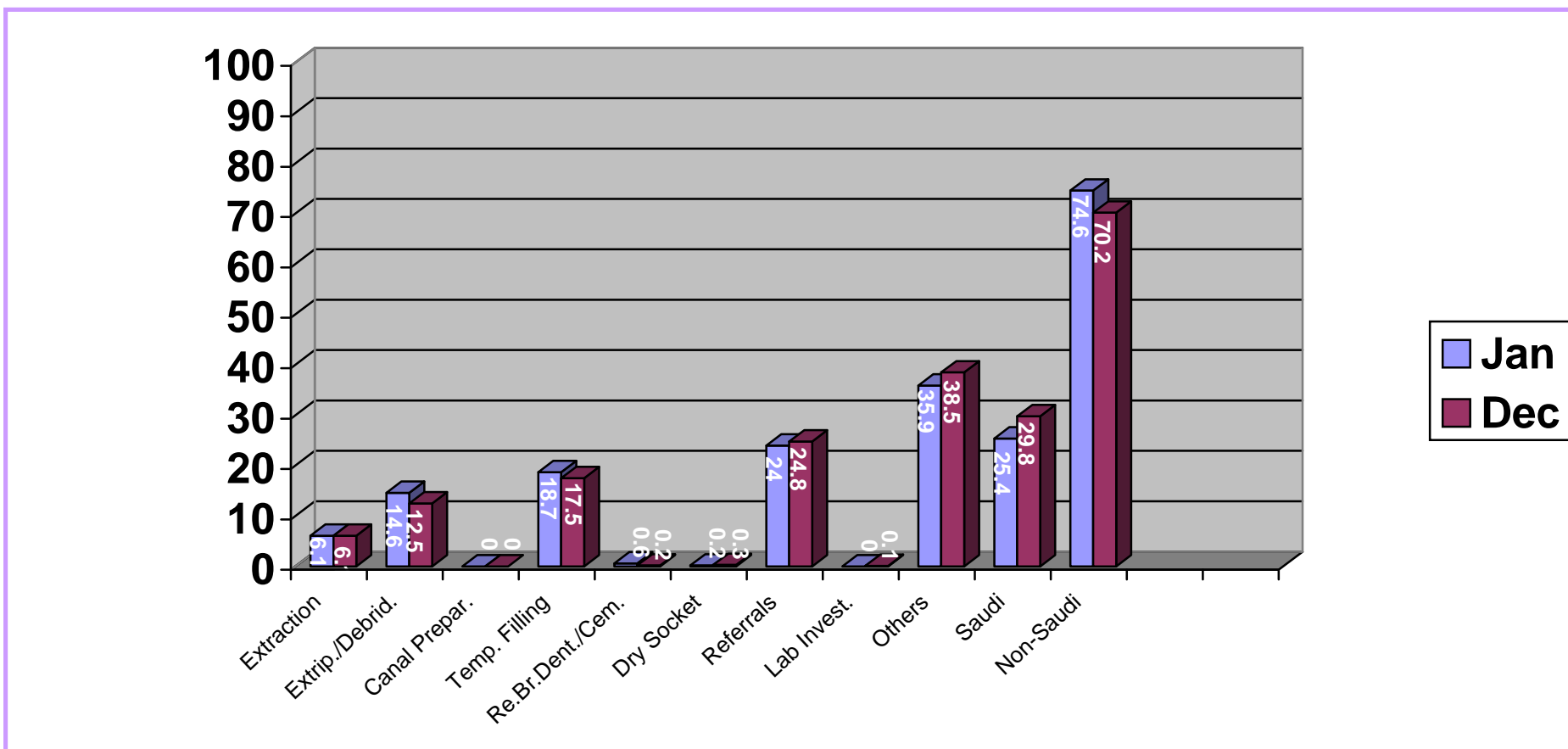


Table 5: Descriptive statistics of geriatric services for October and December 2003

Month	Complete* U & L	Partial	Referral	OS**	Endo	Scaling & Prophy	Saudi	Non Saudi	Total
October	4		10 RPD. 4 Perio 5 O.S. 7 Complete	1	1	3	17	12	29
December	2		5 RPD 2 Perio 2 O.S. 3 Endo 2 Oper	10	1	3	11	13	24

*C.P: Complete denture upper & lower

**O.S: Oral Surgery

- RPD Removable partial denture

Table IV shows the utilization of services offered for the geriatric population (above 60 years of age), during the months of October and December 2003.

Table 6: Descriptive statistics of pedodontic services for February 2004

Treatments	5 th Year		6 th Year		Intern		Demonstrator	Specialty Clinic	Post-graduate Clinics	Hospital Clinic	Total
	M	F	M	F	M	F					
1. Exam/Tx Plan/Investigation Records	11	21	15	4	3	2	1	65	29	0	151
2. Op/OHI/Diet Analysis/Sealant/Fl. Tx	14	26	14	17	9	16	0	186	29	3	314
3. Temporary Filing	3	8	0	8	2	0	0	9	2	1	33
4. Amalgam Filing	5	19	2	5	0	9	0	0	1	0	41
5. Tooth Colored Filing	31	30	23	44	8	29	1	72	17	3	258
6. Pulpotomy/Pulpectomy	18	13	14	14	1	2	0	7	11	0	80
7. SS Cr./Strip Crown/SC Restoration	20	21	24	25	3	1	0	8	15	0	117
8. Construction/Install. Space Maintainer	8	0	9	11	0	2	0	6	3	0	39
9. Sedation Procedures	0	0	0	0	0	0	0	0	1	0	1
10. Extraction	9	20	4	34	9	2	1	21	4	2	106
11. Recall/Maintenance Phase	0	0	0	0	0	0	0	2	3	0	5
12. Others	0	25	5	7	4	4	0	12	23	0	80
Total Treatments	119	183	110	169	39	67	3	388	138	9	1225
Scheduled Patients	72	94	57	80	30	70	6	157	56	11	633
Extra Patients	0	0	0	0	0	0	1	3	1	0	5
Not Shown Patients	0	0	0	0	0	29	5	35	4	3	76
Total	72	94	57	80	30	41	2	125	53	8	562
Saudis	29	18	15	24	17	11	2	102	38	4	260
Non-Saudis	43	76	42	56	13	30	0	23	15	4	302

* Scheduled Patients + Extra – Not Shown = Total = Saudi + Non-Saudi

Graph III: Statistical report for the pedodontic clinic treatment procedure-February 2004

