King Saud bin Abdulaziz University for Health Sciences

College of Dentistry

Clinical Manual

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1. CLINICAL EDUCATION PROGRAM

The clinical education program is designed to fulfill competency-based criteria by providing each student with a broad background of clinical experience based on the philosophy of prevention and comprehensive care clinic (CCC). Although the need for the treatment of existing disease is of paramount importance, the clinical program stresses long-term complete dental care founded on preventing the occurrence or recurrence of disease. Each student provides patient care in a general practice in a manner similar to practitioners in the community. Clinical areas for predoctoral instruction are designated primarily for general practice teams. Clinical instruction is accomplished using dentist-managers, general dentists and specialists providing interdepartmental instruction for the student, and the highest level of dental care for the patient. The clinical program functions year round to provide continuity of patient care. (Figure 1)

1.1. Screening and Urgent Care Clinic

This clinic will screen the patient and provide him/her with a full examination and provisional diagnosis and determine its suitability for the dental students. In case that the patient is in an emergency condition, he/ she will be treated as an urgent care case. The Urgent Care Dental Clinic offers dental services for dental emergencies and urgent dental needs of adults and children.

The service that will be provided at this clinic may include the following:

- Oral examination and provisional diagnosis.
- Radiographic examinations, as needed.
- Extraction of teeth as an urgent case.
- Treatment of trauma (mild to moderate not requiring hospitalization).
- Endodontic emergencies.
- Other dental and oral emergencies as needed.

The patient will be then scheduled for appointments for comprehensive dental care. (Please refer to figure 3)

1.2. Adult Dental Care Clinic

The comprehensive care clinic offers adult with a dental care in the fields of Operative Dentistry, Prosthodontics, Endodontics, Periodontics, Oral surgery, Oral Pathology and Oral Medicine. Entire ranges of dental care are under the aforementioned specialty.

In the Student Clinics, dental students D3, D4 provide services under the close supervision of experienced faculty dentists. The students conduct a thorough evaluation to diagnose each patient's needs and develop a comprehensive treatment plan before beginning treatment. Faculty dentists frequently check the progress of procedures to ensure a high quality care.

Dental Student is required to complete the comprehensive cases depending on their level. **These cases are described as follows:**

1: Simple Restorative dentistry + simple Periodontics + no Endodontics + no Oral surgery + no Prosthodontics.

2: Simple or advanced Restorative dentistry +/or simple or advanced Periodontics +/or simple or advanced Endodontics +/or simple or advanced Oral surgery + no Prosthodontics (minimum 3 specialties).

3: Simple or advanced Restorative dentistry +/or simple or advanced Periodontics +/or simple or advanced Endodontics +/or simple or advanced Oral surgery + Fixed Prosthodontics less than 3 units (minimum 3 specialties).

4: Simple or advanced Restorative dentistry +/or simple or advanced Periodontics +/or simple or advanced Endodontics +/or simple or advanced Oral surgery + Fixed Prosthodontics 3 units or more (minimum 3 specialties).

5: Simple or advanced Restorative dentistry +/or simple or advanced Periodontics +/or simple or advanced Endodontics +/or simple or advanced Oral surgery + Removable partial Prosthodontics.

6: Complete upper or lower dentures with or without any other procedure.

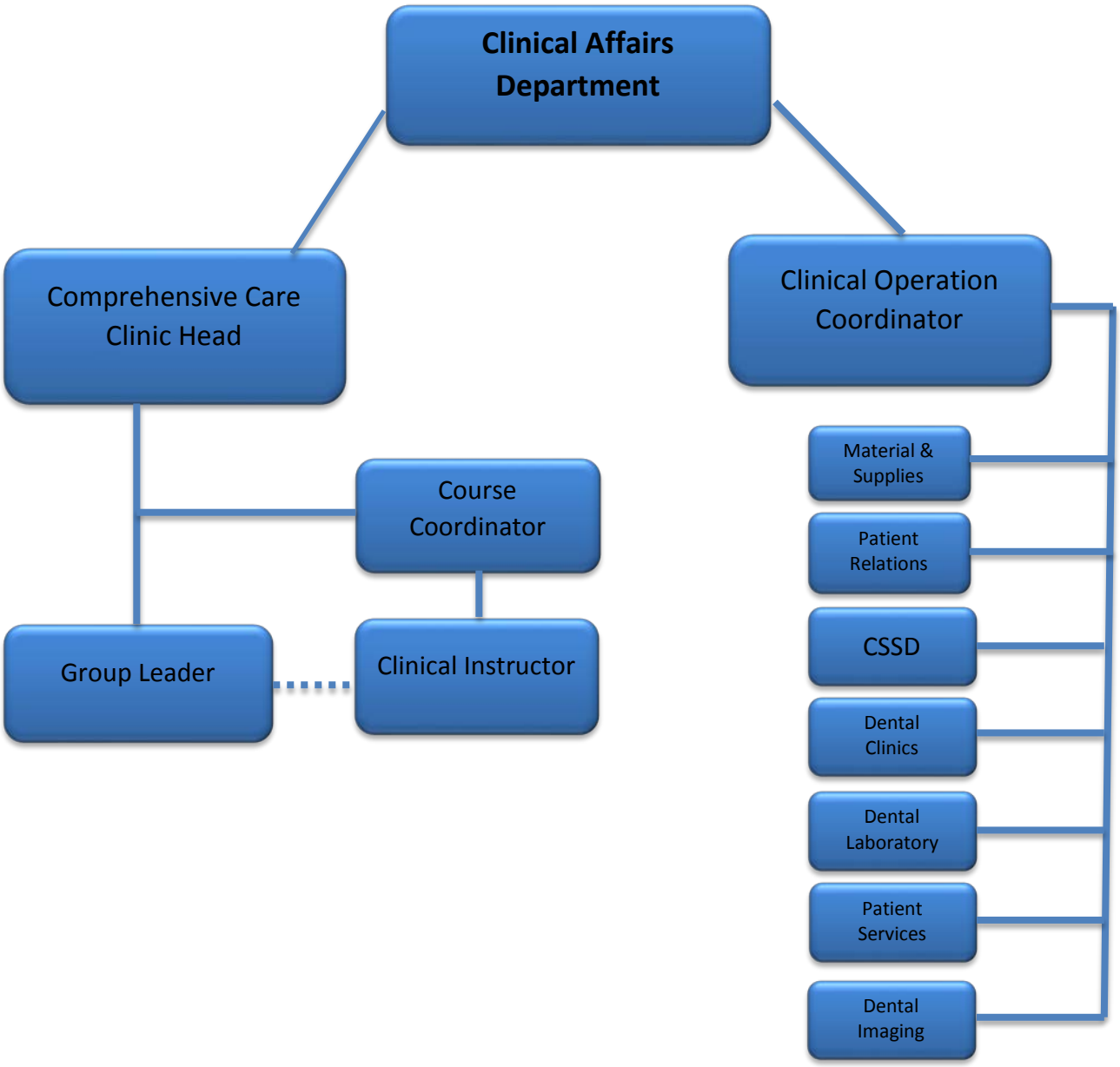
1.3. Child Dental Care Clinic

At the College of Dentistry, the Child Dental Care Clinic provides comprehensive dental services for children in order to improve overall oral health.
The Child Dental Clinic includes both Pre-Doctoral and Post-Doctoral services. Typically, services in the Child Dental Care Clinic are provided by fifth- and sixth-year dental students under the close supervision of experienced faculty dentists.

1.4. Special Care Services Clinic

The Special Care Services Clinic provides a full range of comprehensive dental service for individuals with special needs that may be developmental or physical. The dental treatment in the Special Care Services Clinic will be delivered by post-doctoral dentist, the pre-doctoral dental student will be attending this clinic as four handed dentistry with the post-doctoral dentist as part of their clinical training, and some procedures may be assigned to the student to perform under a close supervision.

Figure (1)


Clinical Affairs Department
Comprehensive Care Clinic Head
Clinical Operation Coordinator
Course Coordinator
Group Leader
Clinical Instructor
Material & Supplies
Patient Relations
CSSD
Dental Clinics
Dental Laboratory
Patient Services
Dental Imaging

2. PROFESSIONAL CONDUCT IN THE CLINIC

The following operational policies for professional conduct are based on the common international code of ethics, established standards of ethical behavior and common courtesy. The goal is to promote a culture of professionalism and personal responsibility, and it is expected that all students will support and adhere to these policies.

Sanctions for noncompliance will depend on the frequency and severity of the infraction. Possible sanctions include a verbal warning, a written warning, loss of procedure credit, a reduced grade in Patient Management, or referral to disciplinary committee.

2.1. General Rules

1. All patient interactions must be conducted in designated patient care areas during posted clinic hours (8-4:30) under faculty supervision. Patient interactions refer to any clinical activities other than what would be considered secretarial in nature. **Treatment of patients is restricted to the assigned clinical sessions**. There will be no treatment of patients during non-clinic hours or without faculty coverage. Violation of this policy will result in disciplinary measures as determined by the Clinical affairs and according to the policy of the college.

2. It is imperative that any clinical procedures will be documented in the patient's record progress notes. Treatment plan **MUST ALWAYS** be completed by the student and authorized by the clinical instructor on the day in which the treatment was rendered. Forgeries of signatures, fraudulent entries, alterations of a dental record or any other clinic documents are considered as serious offenses. Treatment plans will be conducted by the student and the clinical instructor should authorize it **BEFORE** a treatment begins.

3. Professional behavior is expected all the times. This includes treating patients, classmates, faculty, and staff with courtesy and respect regarding language, actions, and choice of topic. Professional behavior also includes leaving clinical cubicle and clean laboratory stations ready for use by the next person.

4. Appropriate clinic attire must be worn during patient care activities. Clean, well-maintained College of Dentistry scrub shirts and pants, closed shoes with socks or stockings, and a clean gown are the only acceptable attire. In addition, appropriate footwear (no open-toed shoes) must be worn in the laboratories. Eye protection must be worn when using grinding or lathing tools.

5. All appointments for patient care must be scheduled by the clinic receptionists using the established appointments system.

6. Students are responsible for providing a timely and an appropriate dental care for assigned patients, including emergency services and student must be readily available to patients and the clinic staff .In addition, students must provide patients with phone numbers and instructions needed to obtain an emergency care after hours and on weekends.

7. The Group leader is responsible for all patient assignments, transfers, and discharges. It is not acceptable to trade or barter patients among students in an effort to obtain needed procedures.

8. Advertisements or flyers for the purpose of soliciting patients must be approved by the COD administration. This review is to ensure that no false or misleading advertisements are distributed and that the process of patient recruitment is fair to all students.

9. The posted cubicle cleanliness protocol must be followed at all times and compliance will be monitored. Failure to comply will result in a warning for the first offense, and referral to comprehensive head for the second offense. All lab safety protocol must be complied.

10. It is student's responsibility to attend and meet all requirements of assigned clinical sessions.

12. English shall be the spoken language in the clinical environment between students, faculty, and staff, but the Arabic language should be spoken as a courtesy to our patients.

2.2. Treatment Services accomplishment:

1. Life, Health and Well-Being: The primary concern is the life, general health and wellbeing of the patient. It is the responsibility of the student to provide patients with the highest quality of care in a timely manner, acknowledging the constraints presented by the patient and the resources of the faculty.

2. Appropriate and Pain-free Oral Function: It is the responsibility of the student to plan treatments that deal with the specific nature of dental health for each individual patient with regards to variables such as the patient's age, general health, underlying anatomy, and compliance with oral hygiene. This responsibility is dependent on the patient's cooperation, interest and commitment to the receipt of treatment.

3. Patient Autonomy: The patient has the right to choose, on the basis of adequate information, from alternative treatment plans that meet professional standards of care. The treatment plan may or may not be the preference of the student or the supervising faculty. The student's role is to provide information in an effort to help the patient choose a treatment plan.

4. Dignity: Dental students value and advocate the dignity and self-respect of patients. Students relate to all patients receiving care, as person's worthy of respect and endeavor in all their actions to preserve and demonstrate respect for each individual. Student must respects diversity, including but not limited to, race, gender, religion, cultural background, disability and socioeconomic status.

5. Fairness: A dental student shall not exclude, as patients, members of society on the basis of discrimination with respect to factors such as race, ethnicity, culture, spiritual beliefs, social or marital status, gender, age, health status, lifestyle or the physical attributes of the patient.

6. Accountability: Dental students conduct themselves with honesty and integrity. Students practice within their own level of competence. They seek additional

information or knowledge, seek the help, and/or supervision and help, of an instructor when aspects of the care required are beyond their level of competence.

7. Competency: Students must keep knowledge current and strive for new knowledge.

8. Confidentiality: Patient information acquired in the practice of dentistry shall be kept in strict confidence, except as required by law.

2.3. Dress Code and Personal Hygiene

Personal attire and cleanliness reflects the desired professional image and the high standard of care expected by students and employees of the COD. Therefore, it is important to comply with universal standards of personal hygiene including control of body odors, using non-offensive perfumes, maintaining groomed appearance and wearing attire that is not wrinkled and free from visible contamination.

COD dress code will be based on K.A.M.C. dress code policies and protocols presented in APP (1431-12).

The official attire approved for dental students at COD is medical scrubs covered with a long sleeve white coat and with close-top shows. The white coat may be removed at clinical area if it interferes with procedures, safety, or cross infection protocols. In that case surgical gowns must be worn over the scrubs. The table below explains the color code of the scrubs for dental students and auxiliary staff.

COD Personnel	**Scrubs color**	**Lab coat**
Male Dental Students	Blue	White
Female dental Students	Blue	White

3. COMPREHENSIVE CARE CLINIC

Comprehensive Care Clinic (CCC) is defined as a clinic where care is planned to address all oral and dental needs based on thorough diagnosis and treatment planning. An initial screening appointment provides patients with an overview of their treatment needs as well as a description of the CCC philosophy in the Dental Clinics of the College of Dentistry - KSAU-HS. The program trains dental students in providing CCC so prospective patients who wish partial or limited treatment may not be accepted as clinic patients except for emergency care or when this limited treatment is not considered as substandard in relation to the principles of comprehensive care.

For those accepted as comprehensive patients following preliminary diagnosis and listing of treatment needs are used to determine patient assignment to an appropriate provider or clinic. Accordingly, a thorough diagnosis and treatment plan is subsequently developed by the assigned dental student under the guidance of related clinical instructor. After approval of a sequential treatment plan, dental treatment begins under the supervision of clinical instructors. During the course of treatment annual periodic exams are performed as well as dental prophylaxis at recommended intervals. Patients who complete all recommended treatment are placed on a recall system and discharged from active care.

3.1. Patient's Rights

A successful treatment outcome depends on mutual trust and respect in all interactions between the patient and the dental student. The patient treated in the CCC has the following rights:

1. Be treated with courtesy, respect, and confidentiality.
2. Be treated without discrimination based on race, color, religion, national origin, gender, age, or disability.
3. Be given complete and current information about dental condition and future treatment.
4. Be informed about recommended treatments.
5. Be informed about treatment alternatives with their advantages, disadvantages and their risks.
6. Be treated up to the international standard of dental care and application of standards of infection controls guidelines.
7. Be able to know the education and training of each dental team member, and the professional laws and ethics apply to them.
8. Be able to know the policies applied to the CCC.
9. Has access to the patient relation office.
10. Sign consent form before diagnosis and treatment initiated.

3.2. Patient Responsibilities

The patient is responsible for the following actions:

1. Give at least 24 hours' notice for appointment cancellations.
2. Comply with recommendations for improving patient's oral health.
3. Arrive on time for scheduled appointments.
4. Answer with honesty the health questions asked by dental student and/or clinical instructor.

5. Demonstrate respect towards dental student, clinical instructor and staff of the clinic.
6. Comply with policies and procedures that govern the dental clinic with appropriate behavior.
7. Park their vehicle only in patient allocated parking lots and abides by the driving instructions of the university.

3.3. Dental student responsibilities toward patient

The dental students should consider the following when they communicate with the patients:

1. Use common language; avoid dental terminology.
2. Use active listening skills with appropriate eye contact.
3. Encourage and answer patient questions.
4. Give full details about methods of communications with the clinic through phones, e-mails, messages, etc.
5. Schedule and keep regular appointments.
6. Plan chair time efficiently; respect patients' time.
7. Ensure patients' understanding of treatment plan and signed consents of their treatment.
8. Ensure patients' understanding of their rights as well as their responsibilities.
9. Be honest about patient care, even when something goes wrong.
10. Recognize self-limitations; patient expectations must be consistent with dental student's ability to meet them.
11. Be humble enough to refer patient.

3.4. Dental student Patient Communication

A strong positive dental student/ patient relationship must be expressed through an accurate and an active communication. This will help to avoid any misunderstanding or any conflict between the dental student and the patients.

3.5. Resolution of Patient Complaints

Patient complaints should be handled by the dental student as well as an appropriate support from staff and faculty. In the event that dental student cannot resolve a patient complaint, dental student can consult group leader, clinical instructor or patient relation officer.

3.6. Discontinue of patients care

In some instances, it is necessary or desirable to terminate the dental student/patient relationship. Such an assessment should be made as early as possible to minimize treatment that can increase additional responsibility and risk. However, it is the dental professional's obligation not to “abandon” patients or place any patient of record in jeopardy through non-treatment. Abandonment is the withdrawal of the dentist without the consent or knowledge of the patient, leaving the patient in a vulnerable position, e.g., when treatment is in progress.

The group leaders are responsible for discontinue of handling patient care by certain student in the CCC according to the following guidelines:

1. The patient should be informed of the intent to terminate care in writing, using a return receipt requested letter.
2. The reason of this should be stated, if desired by the patient, without subjectivity such as hostile behavior, incompatible personality, etc.

3. Referral sources suitable for the patient, if applicable, should be provided.

4. Instructions for requesting copies of the patient's chart and radiographs should be provided.

5. Advise the patient of the need for any specific urgent care and the consequences of failure to obtain such care.

3.7. Confidentiality of Patient Records:

The patient right to confidentiality is integral part of the health care system. It allows health care providers to gain the trust of the patient in order to provide professional and beneficial service to the patient. Therefore, all parts of patient record are confidential and must be treated as personal medical records used for and in the context of patient care and treatment. **Publishing, exposing, transferring, publicly discussing or copying any patient related information without an explicit consent of the patient and approval of the COD administration is considered a punishable misconduct and is strictly prohibited.**

3.8. Dental student clinical path

Each dental student is linked to a group leader who will be responsible for monitoring dental student's progress toward competencies in different disciplines of dentistry. The dental students are responsible for delivering the comprehensive care management to their patients under supervision of clinical instructors. The process of distributing patients, follow-up of their treatment plans, and patients' appointments with dental students is closely monitored by group leaders. In an event that the dental procedures recommended to the patients requires higher level of dental training, the group leader is responsible to refer patient for the required dental procedure and back to the same dental student for completion of comprehensive care as required (Figure 2).

On regular bases, electronic dental records of all assigned patients will be reviewed and discussed with the CCC team. **Criteria used to assess dental student competency include:**

- Timelines of treatment and responsiveness to patient needs.
- Documenting treatment plan.
- Following appropriate sequencing of treatment.
- Entering data in patients' file in Salud and obtaining appropriate authorizations prior preceding treatment.
- Management of patients' appointment and recall patients as needed.
- Reviewing dental students' clinical performance report.

Each course has specific clinical competencies that should be fulfilled in order to pass the related course. These competencies are listed in the course books provided to the students at the beginning of each semester. Accordingly, dental students are also responsible for obtaining current and specific information with regards to competencies related to each and every clinical course.

3.9. Patient Assignment

Patients are assigned to dental students by the group leaders. Each dental student is individually responsible to deliver comprehensive care for their patients. It is imperative for all dental students to work cooperatively under supervision of the clinical instructor to provide continuous and timely professional care. Any questions or inquiries from the patient about the treatment will be answered and clarified by the dental student and the clinical instructor.

3.9.1. Patients types:

Active Patients: those who are accepted in the comprehensive clinic following their agreement about the treatment plan and are presented under active treatment in the dental clinic.

Recall Patients: those who have completed recommended treatment as indicated in treatment plan but require regular visit thereafter in order to monitor and insure the success of treatment provided. Dental students are responsible for coordinating regular visits with annual Periodic Exams as required.

Discharged Patients: refers to completion of comprehensive care and in this case, the patient will be registered in the recall system. However, the patient can be discharged permanently for a variety of reasons. These patients may not be accepted for any further treatment without an approval from Comprehensive clinic head.

Dental students are encouraged to recruit patients by themselves; however, all patients must be registered, screened and distributed to students through the admission office and group leader as well as are accepted by our policy of CCC. Specifically, they cannot be seen for any limited services, but must be willing and can afford to follow through with dental treatment as diagnosed and recommended treatment plan.

Dental students may request patients through their Group Leader who will assign the suitable patient depending on the dental student's level. For more clarification refer to (Figure 2, 3).

3.10. Treatment Sequencing In Comprehensive Care Clinic

The patient's first contact with the receptionist of the dental clinic is usually made through a phone call or in person. This is to receive information and to schedule an Appointment in the Screening Clinic. Patients will receive a brochure at his/her attendance about the KSAU-HS College of Dentistry Clinic, which contain the policy of at the Dental Clinic.

A. Registration - Everyone receiving treatment of any type at the College of Dentistry Clinic of KSAU-HS must be a registered patient. The process involves documenting patient's personal data, health history, and related consent form.

B. Screening Examination - The screening appointment takes place in the assigned dental clinic. If initially accepted, patients will be placed in the treatment need waiting list in order to be assigned to dental student.

C. Comprehensive Care Clinic - *Please refer to the attached Figure 3*

C.1. Emergency treatment:

Patients can start in the emergency clinic in case his/her dental condition is judged by the screening dentist as emergency. Accordingly, patient will be treated in the emergency clinic before initiating comprehensive oral diagnosis and treatment planning.

C.2. Comprehensive Oral Diagnosis & Treatment planning:

Patients will have appropriate radiographs taken depending on patent's needs by dental students which will be followed by writing a radiographic report. This step will be followed by comprehensive oral examination which include but not limited to appropriate medical and dental history taking, physical assessment and dental charting. Then, dental students will analyze the collected data and write appropriate initial treatment plan that need to be discussed first with the related clinical instructor before the patient. If the clinical instructor agrees to the suitability of the clinical case for the assigned dental student and the patient agree to the treatment plan, the patient's treatment can be started as planned and the patient is considered fully accepted in the dental clinic for comprehensive management. However, If not accepted, patients may be referred to other dentist depending on his private and/or governmental insurance policy.

C.3. Dental treatment:

Patients will be treated according to the designated treatment plan. However, during the course of treatment, the treatment plan may need to be changed; so any changes to the approved sequential treatment plan must be documented after a thorough discussion with the patient and authorized by clinical instructor. This discussion must include the specific procedure changes, risks versus, benefit, and prognosis. Patients can be referred to other student as appropriate after authorization and approval of clinical instructor.

3.11. Consent of Patients for Receiving Treatment

Each patient must sign a consent form at the time a new file is opened for her/him. The consent form explicitly explains that the patient will receive treatment in an educational facility by dental students under supervision of qualified dentists.

Figure (2)

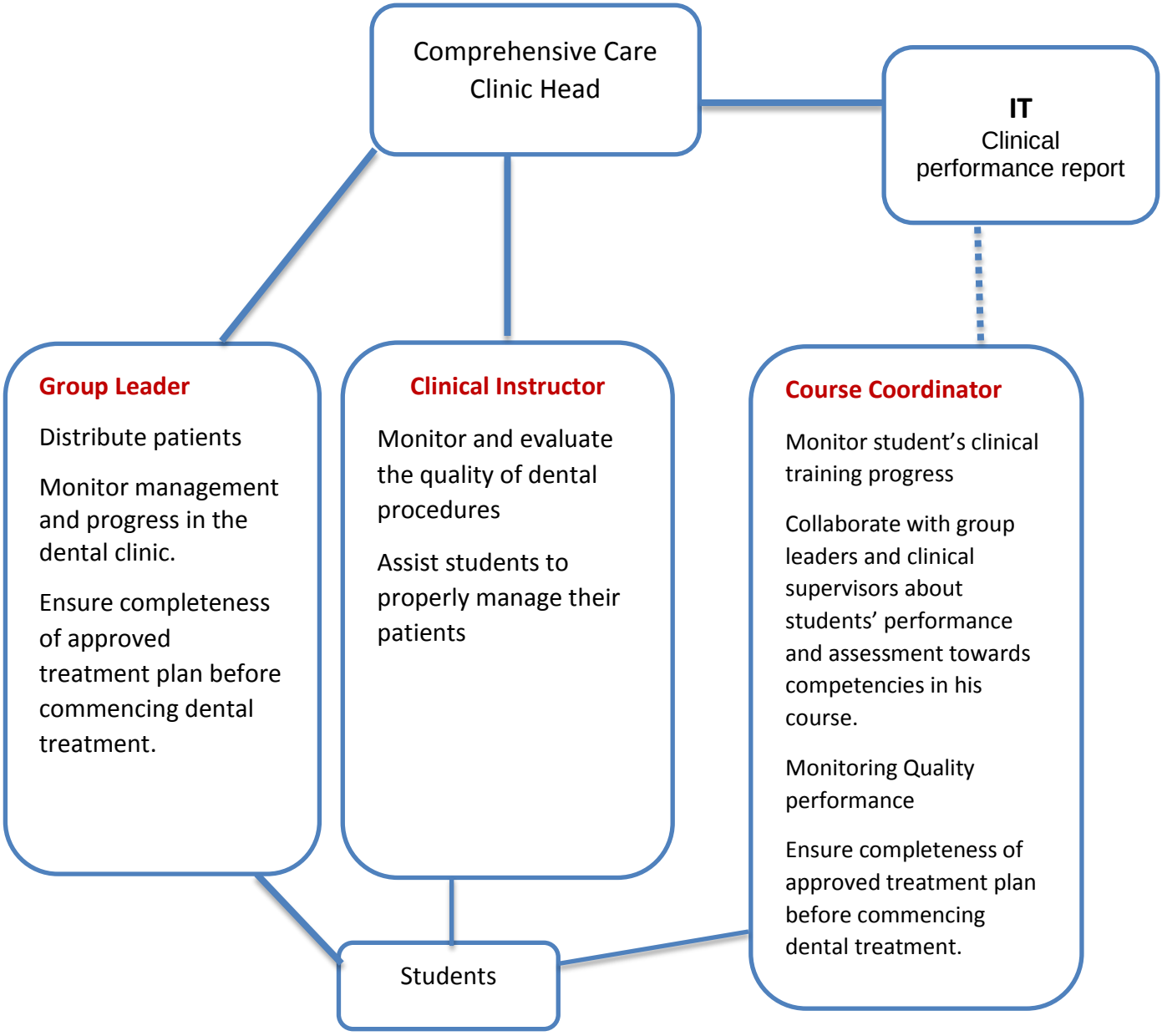
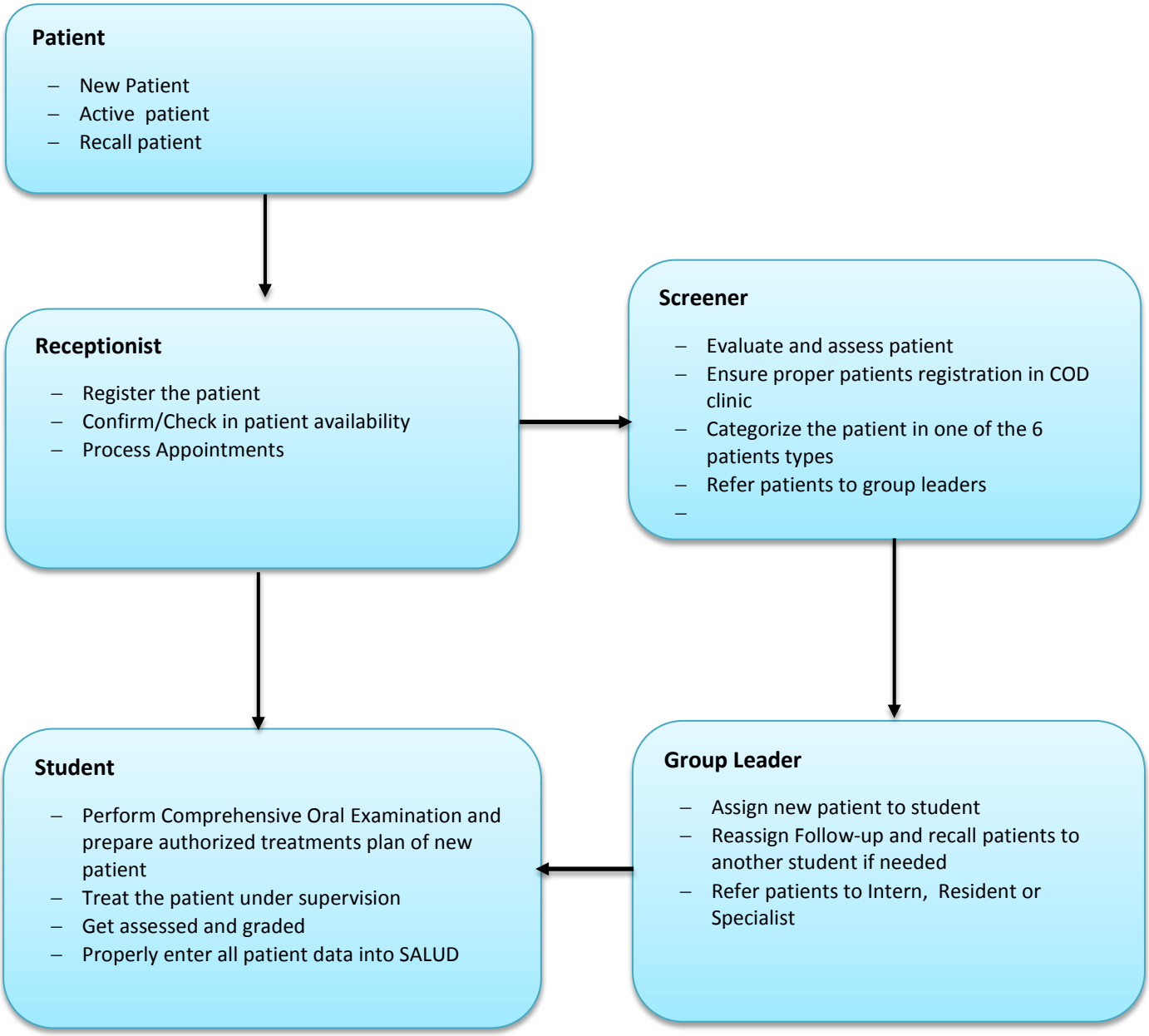

Comprehensive Care Clinic Head
IT
Clinical performance report
Group Leader
Distribute patients
Monitor management and progress in the dental clinic.
Ensure completeness of approved treatment plan before commencing dental treatment.
Clinical Instructor
Monitor and evaluate the quality of dental procedures
Assist students to properly manage their patients
Course Coordinator
Monitor student's clinical training progress
Collaborate with group leaders and clinical supervisors about students' performance and assessment towards competencies in his course.
Monitoring Quality performance
Ensure completeness of approved treatment plan before commencing dental treatment.
Students

Figure (3)


Patient
– New Patient
– Active patient
– Recall patient
Receptionist
– Register the patient
– Confirm/Check in patient availability
– Process Appointments
Screener
– Evaluate and assess patient
– Ensure proper patients registration in COD clinic
– Categorize the patient in one of the 6 patients types
– Refer patients to group leaders
–
Student
– Perform Comprehensive Oral Examination and prepare authorized treatments plan of new patient
– Treat the patient under supervision
– Get assessed and graded
– Properly enter all patient data into SALUD
Group Leader
– Assign new patient to student
– Reassign Follow-up and recall patients to another student if needed
– Refer patients to Intern, Resident or Specialist

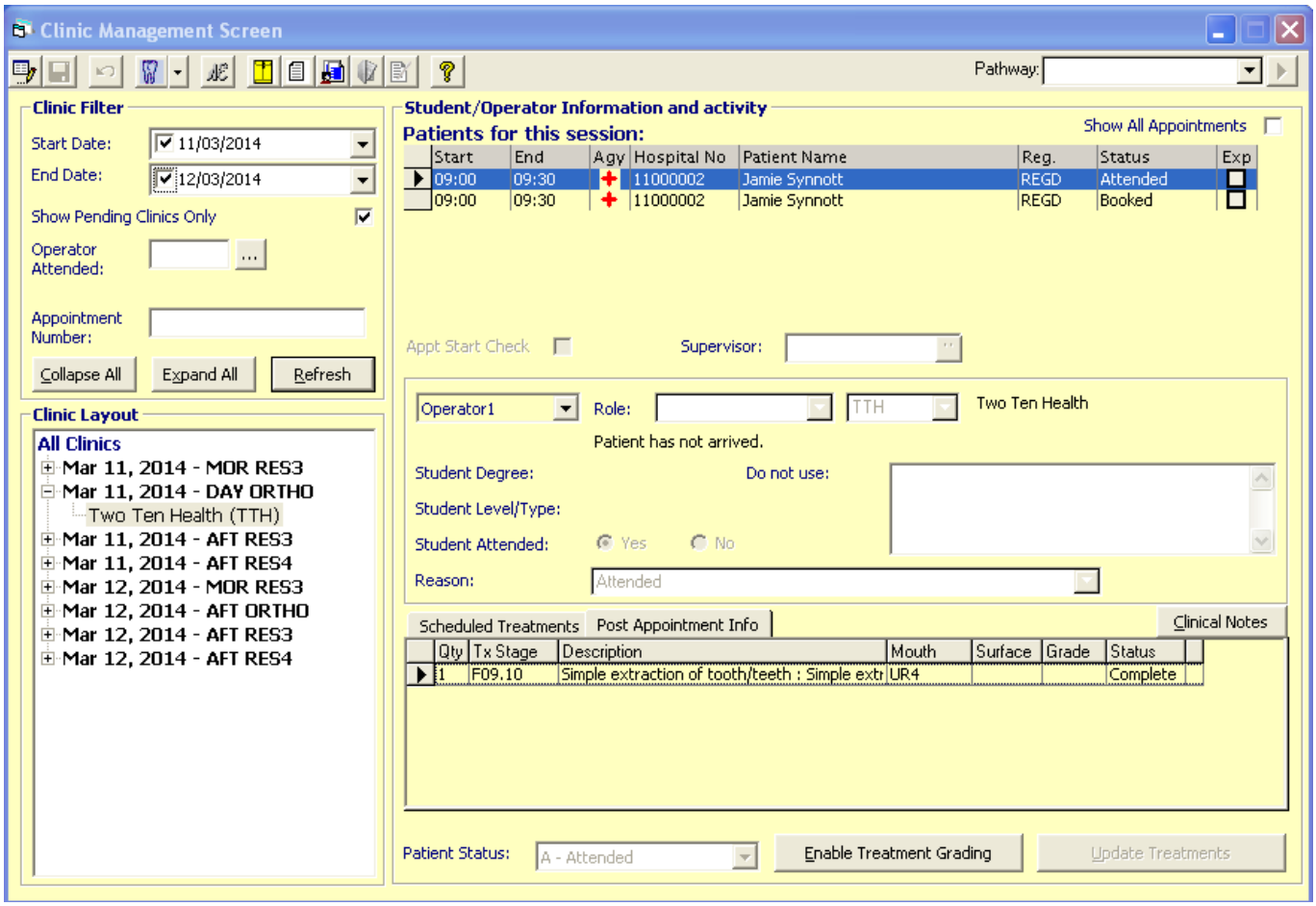
3.12. SALUD Clinical Screens and Notes

3.12.1. Clinic Management screen

Summary:

The Clinical management screen is used to find a list of appointments for a clinic and to add the appointment. The progress notes and treatment grading are accessed from the CMS screen.

This screen is accessed from the Tooth Icon. - *"When in doubt – click on the tooth"*



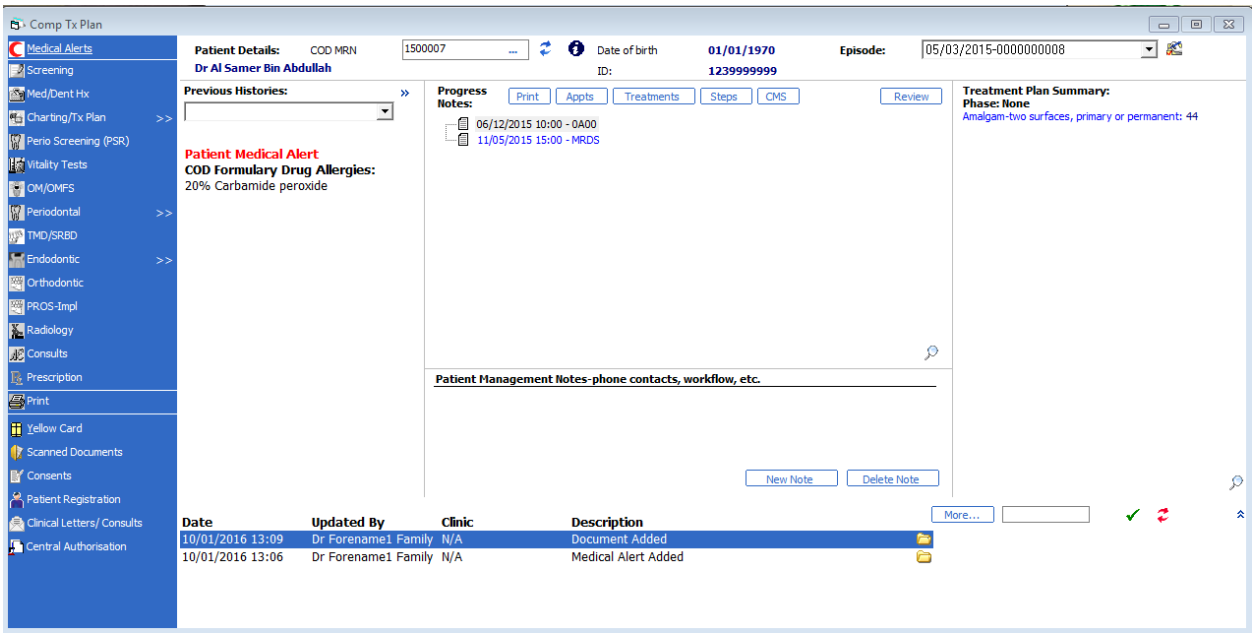
Where: 
Notes:

3.12.2. Comprehensive Treatment Plan (Comp Tx Plan):

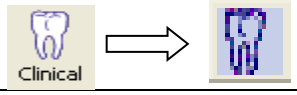
Summary:

The Comprehensive treatment plan screen is to read only the screen that summarizes the main clinical information that is required by a dentist. This includes: Appointment summary, Diagnosis and Treatment plan, Questionnaire summary and a full newsfeed of all clinical information recorded against the patient in chronological order.

The Comprehensive treatment plan screen also provides a link to all the specialty screens.


Comp Tx Plan
Medical Alerts
Screening
Med/Dent Hx
Charting/Tx Plan
Perio Screening (PSR)
Vitality Tests
OM/OMFS
Periodontal
TMD/SRBD
Endodontic
Orthodontic
PROS-Impl
Radiology
Consults
Prescription
Print
Yellow Card
Scanned Documents
Consents
Patient Registration
Clinical Letters/ Consults
Central Authorisation
Patient Details: COD MRN 1500007
Dr Al Samer Bin Abdullah
Date of birth 01/01/1970
ID: 1239999999
Episode: 05/03/2015-0000000008
Previous Histories:
Patient Medical Alert
COD Formulary Drug Allergies:
20% Carbamide peroxide
Progress Notes:
Print
Appts
Treatments
Steps
CMS
Review
06/12/2015 10:00 - 0A00
11/05/2015 15:00 - MRDS
Treatment Plan Summary:
Phase: None
Amalgam-two surfaces, primary or permanent: 44
Patient Management Notes-phone contacts, workflow, etc.
New Note
Delete Note
More...
Date
Updated By
Clinic
Description
10/01/2016 13:09 Dr Forename1 Family N/A Document Added
10/01/2016 13:06 Dr Forename1 Family N/A Medical Alert Added

Where:

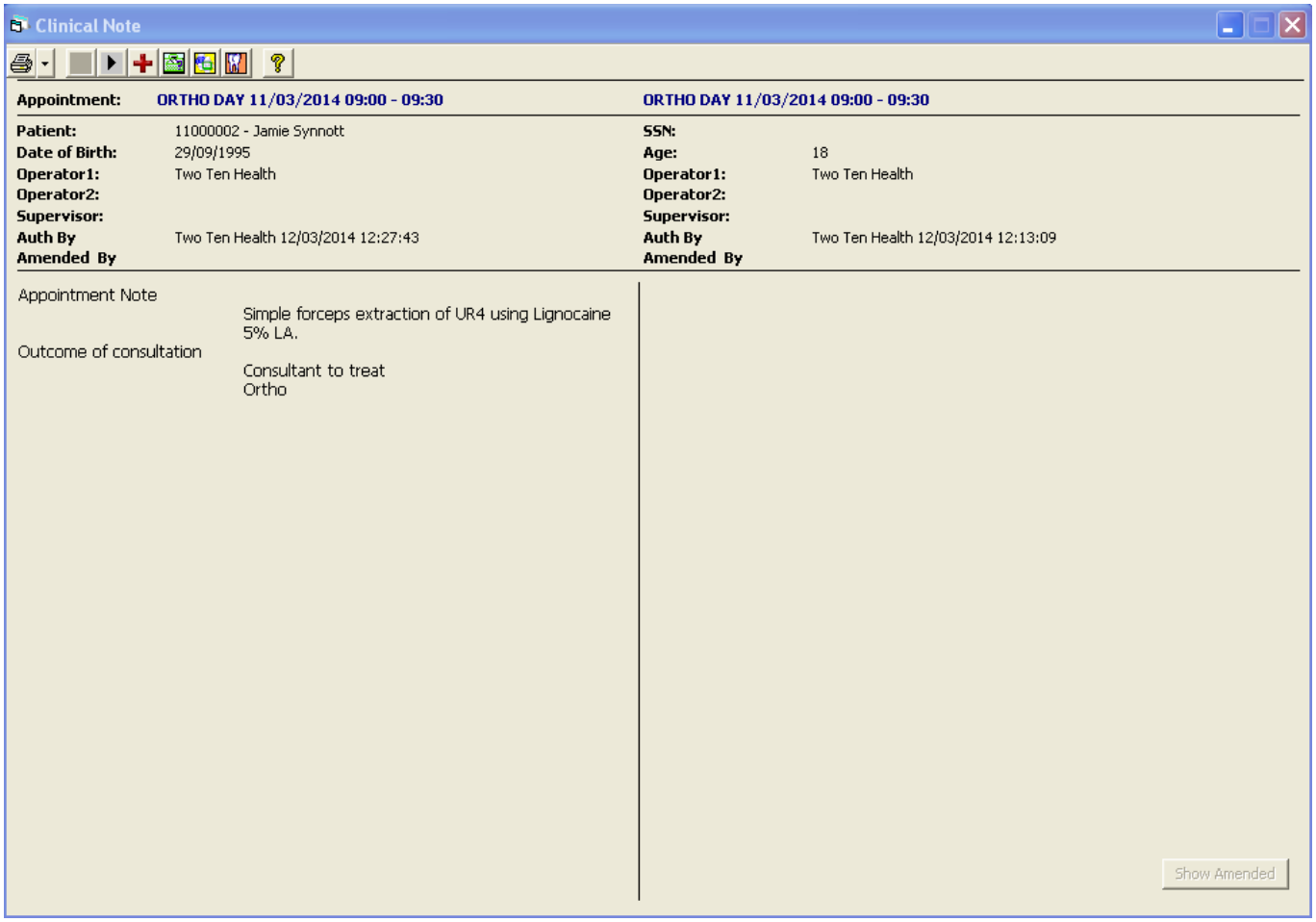

Clinical

Notes:

3.12.3. Progress note Review screen

Summary:

This screen allows the user to review all Progress notes that have been recorded to date per appointment. Notes from two appointments can be seen side by side.



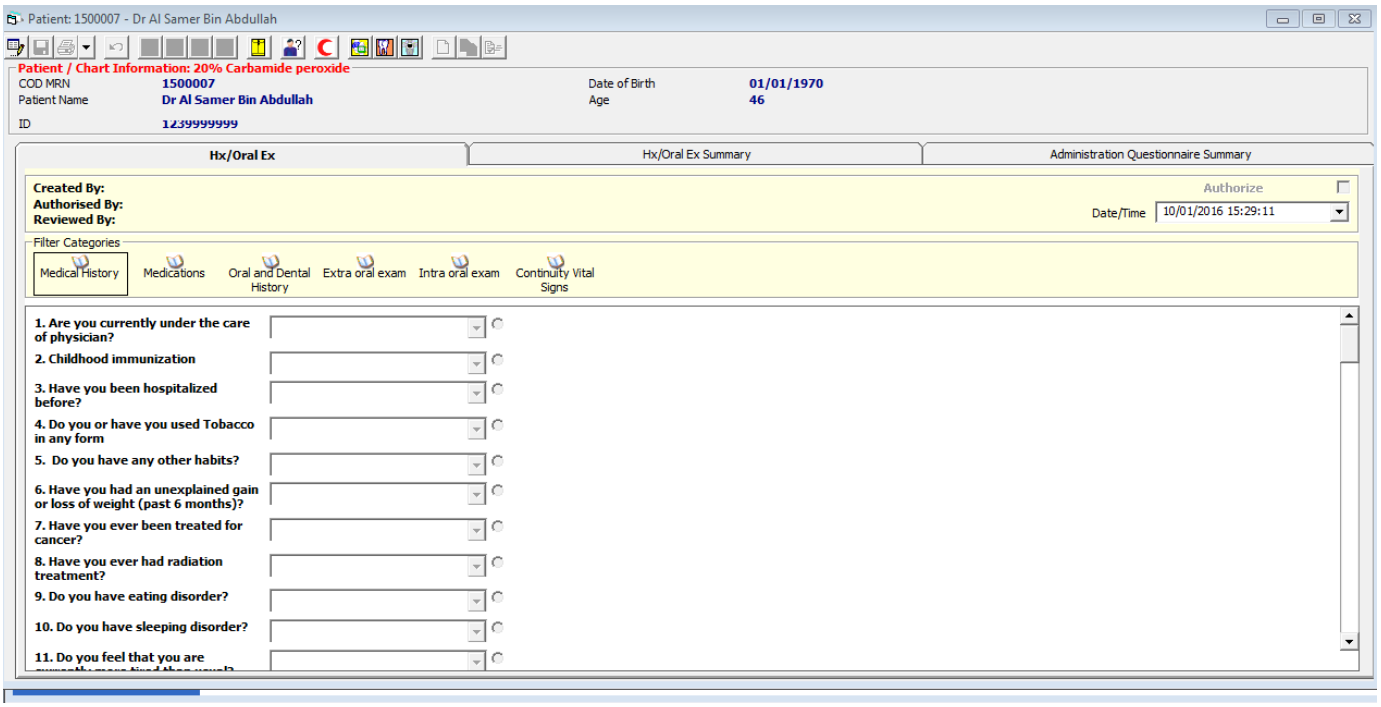
Where:

Notes:

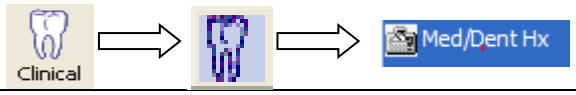
3.12.4. Comprehensive Oral Diagnosis Screen

Summary:

The Questionnaire screen is where the clinician can record information on the patient's Medical History.


Patient: 1500007 - Dr Al Samer Bin Abdullah
Patient / Chart Information: 20% Carbamide peroxide
COD MRN 1500007
Patient Name Dr Al Samer Bin Abdullah
ID 1239999999
Date of Birth 01/01/1970
Age 46
Hx/Oral Ex
Hx/Oral Ex Summary
Administration Questionnaire Summary
Created By:
Authorised By:
Reviewed By:
Authorize
Date/Time 10/01/2016 15:29:11
Filter Categories
Medical History
Medications
Oral and Dental History
Extra oral exam
Intra oral exam
Continuity Vital Signs
1. Are you currently under the care of physician?
2. Childhood immunization
3. Have you been hospitalized before?
4. Do you or have you used Tobacco in any form
5. Do you have any other habits?
6. Have you had an unexplained gain or loss of weight (past 6 months)?
7. Have you ever been treated for cancer?
8. Have you ever had radiation treatment?
9. Do you have eating disorder?
10. Do you have sleeping disorder?
11. Do you feel that you are

Where:


Clinical
Med/Dent Hx

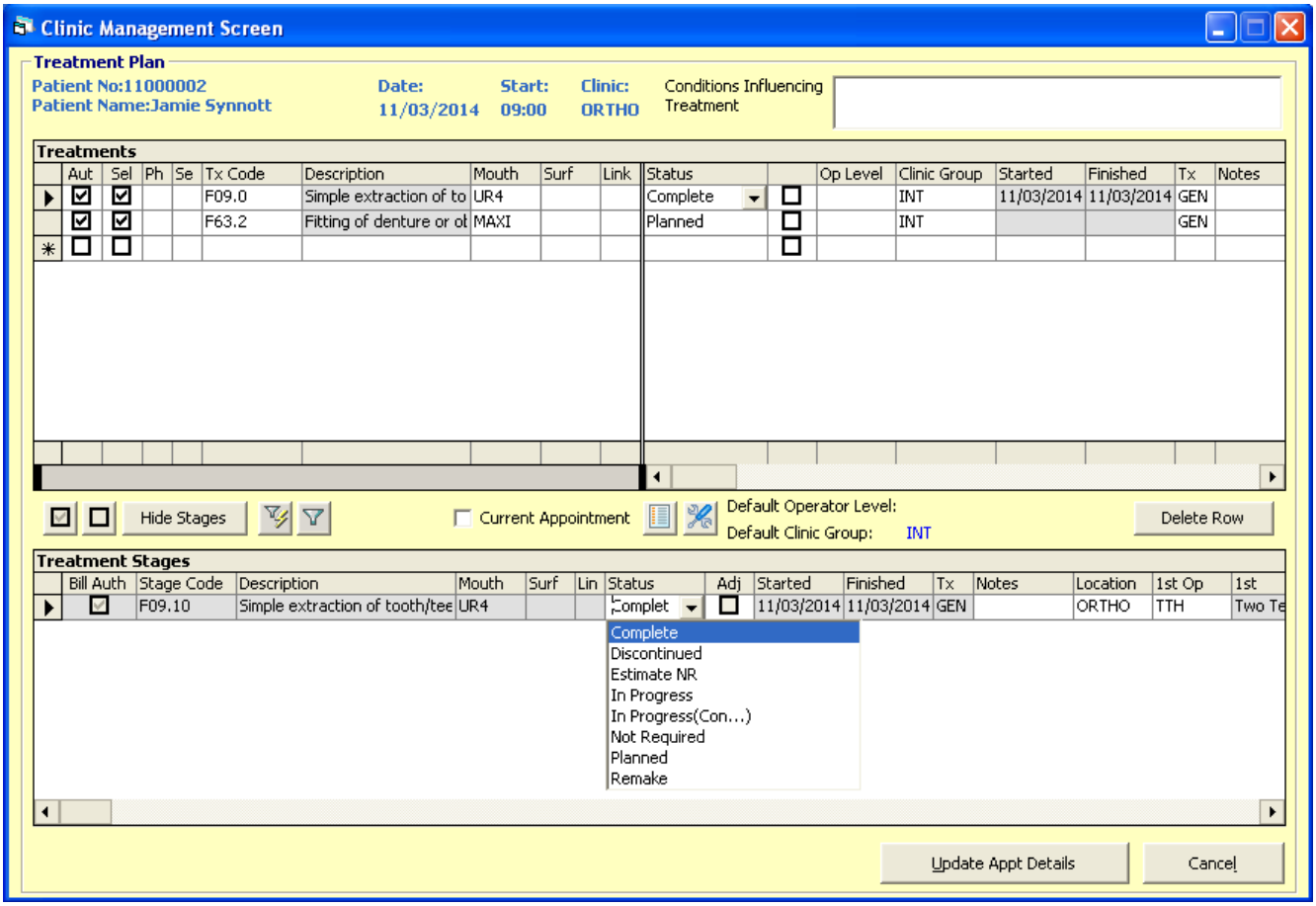
Notes:

3.12.5. Clinic Management screen (CMS)

Summary:

This is the treatment update section of the CMS screen and is used to update the status of treatments completed during the appointment.

“Choose at the top – Change at the bottom”

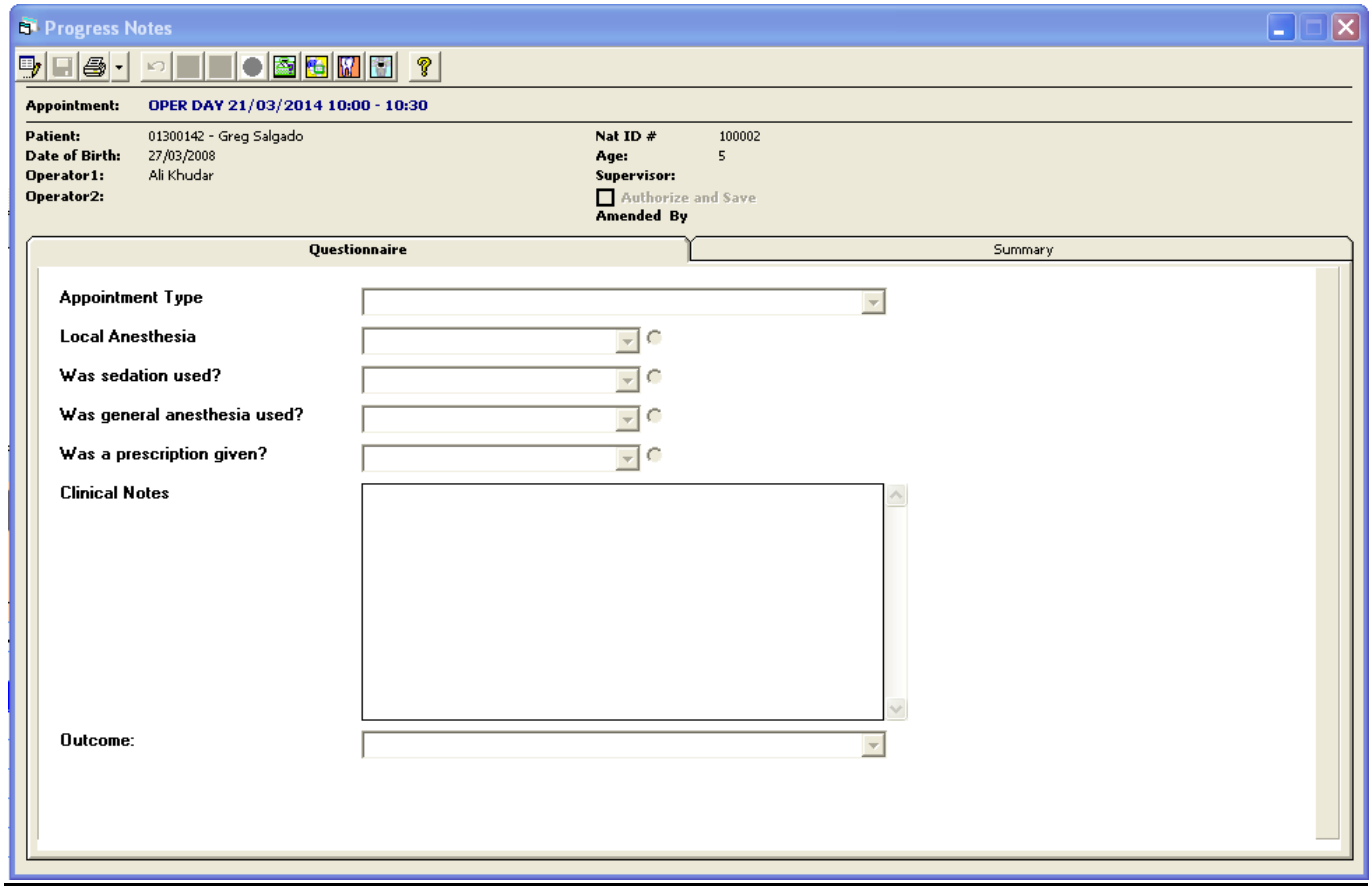


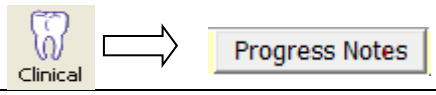
Where: 
Notes:

3.12.6. Progress Note screen

Summary:

The Progress Note screen is accessed from the CMS screen and is used to record information about the appointment. The questionnaire template is automatically created per appointment based on the discipline of the appointment and the treatments completed.

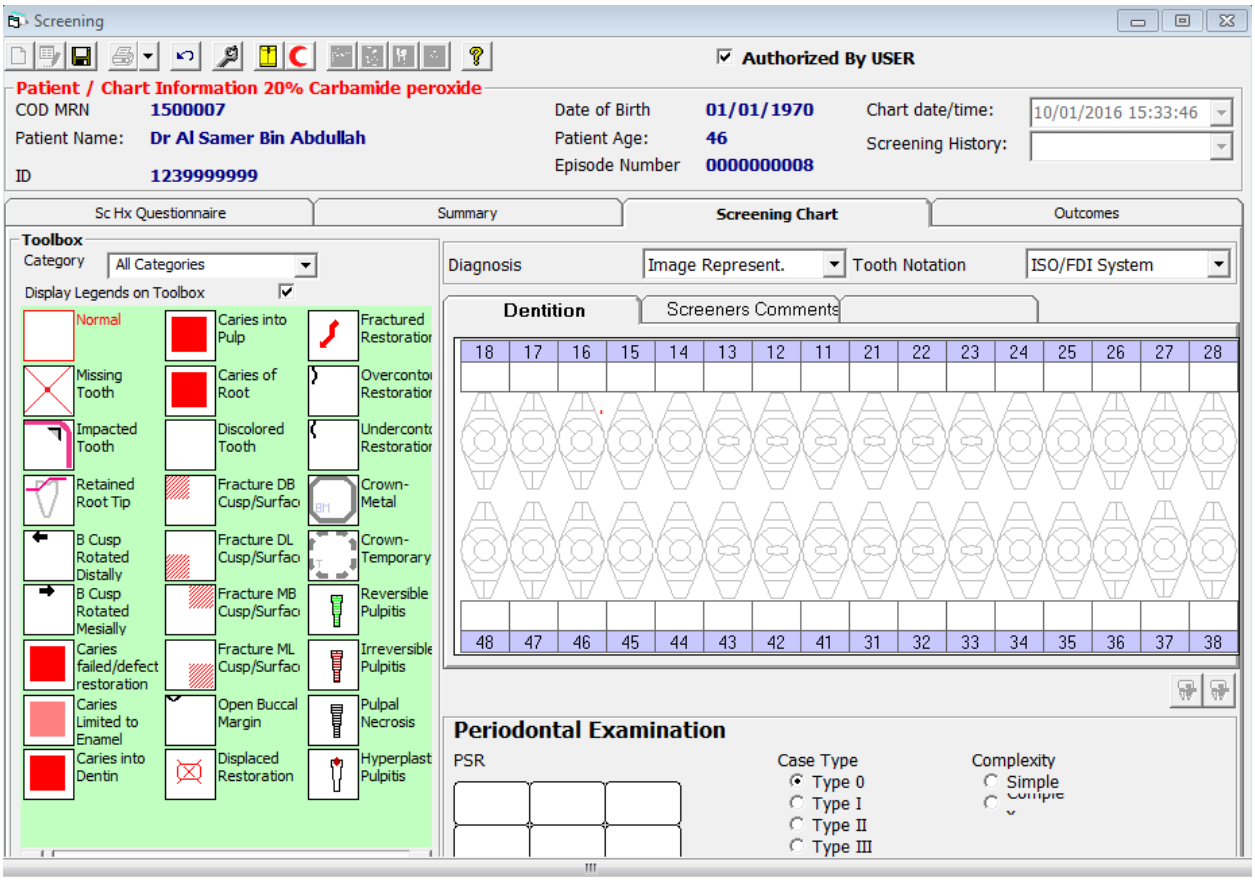


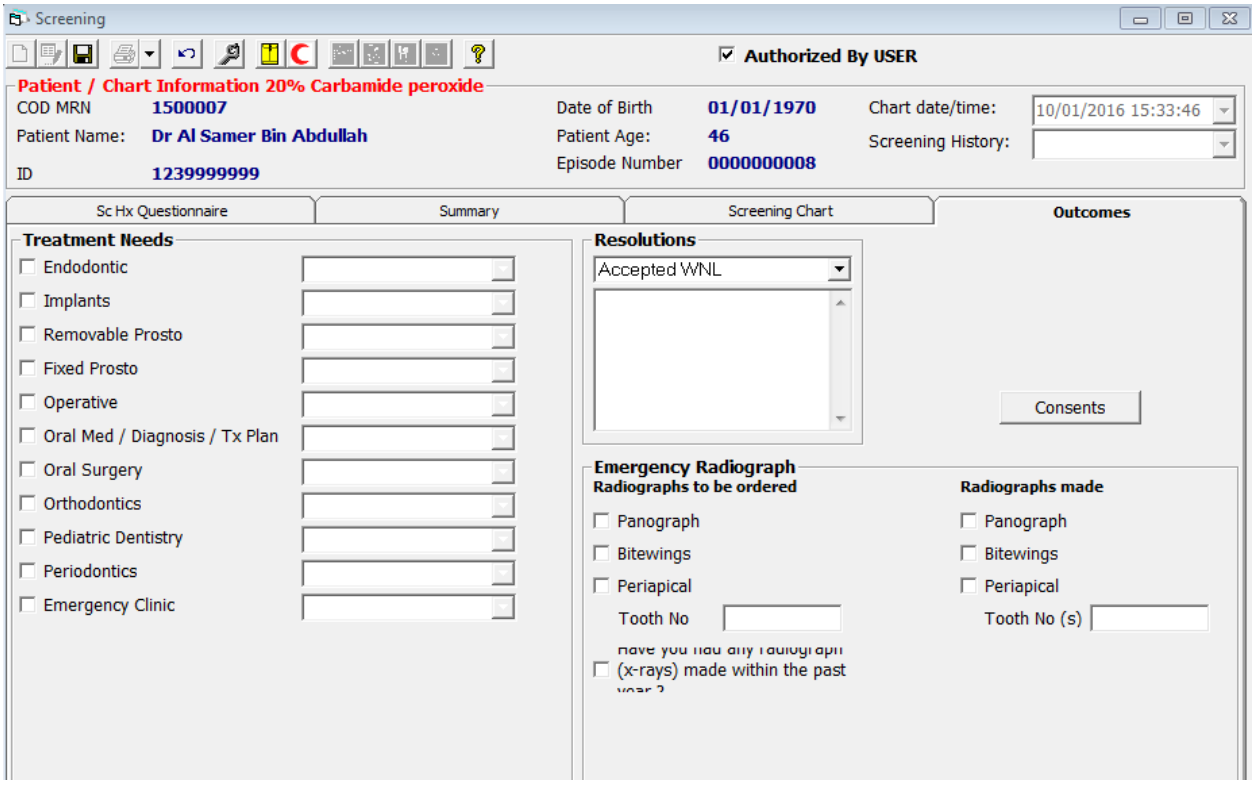
Where:

NOTES:

3.12.7. Screening Chart

Summary:

The Screening Chart is used to record the patients' high level diagnosis, findings and indicative treatment needs. This informs the department that the patient is sent to for treatment.

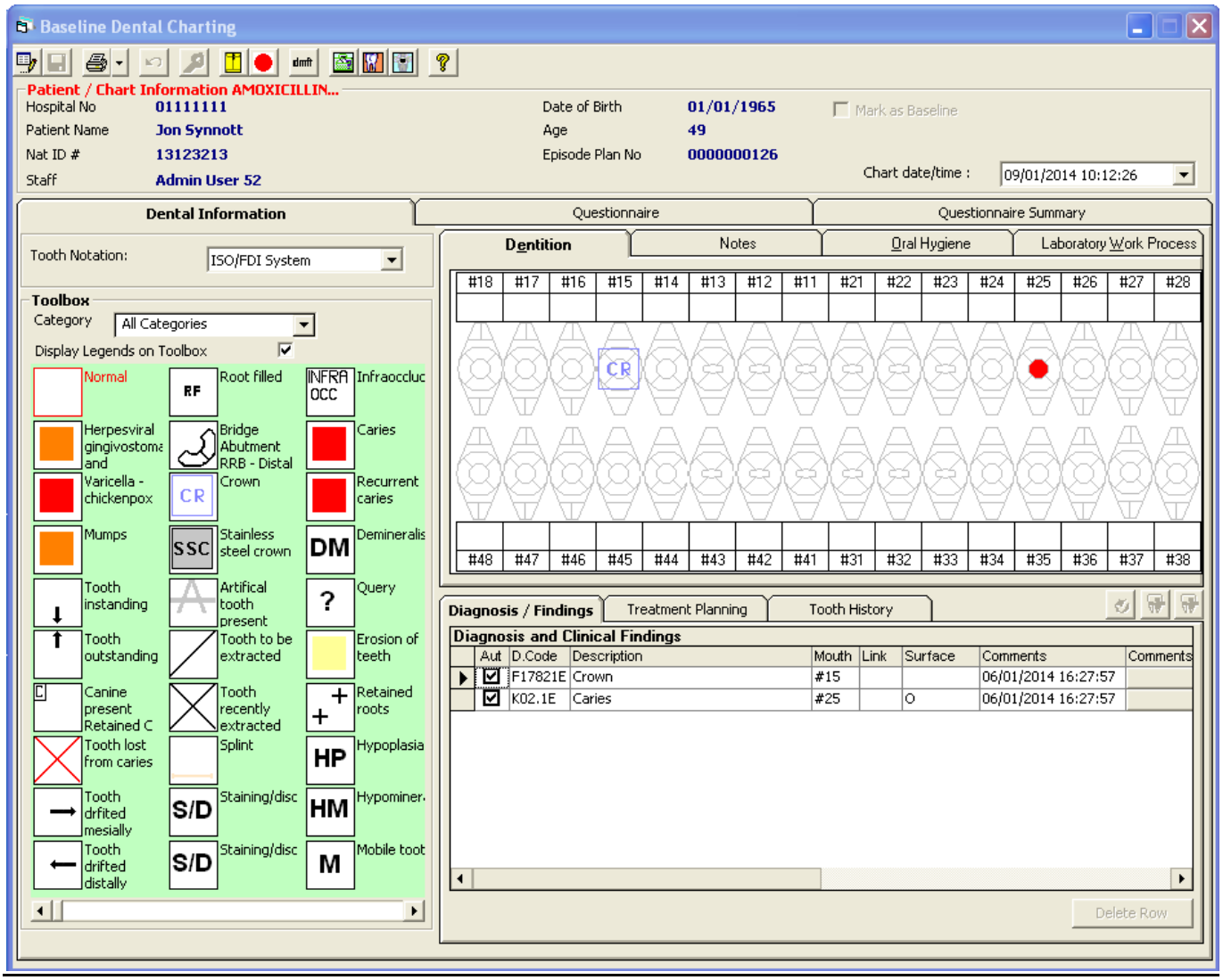

Screening
Authorized By USER
Patient / Chart Information 20% Carbamide peroxide
COD MRN 1500007
Patient Name: Dr Al Samer Bin Abdullah
ID 1239999999
Date of Birth 01/01/1970
Patient Age: 46
Episode Number 0000000008
Chart date/time: 10/01/2016 15:33:46
Screening History:
Sc Hx Questionnaire
Summary
Screening Chart
Outcomes
Toolbox
Category All Categories
Display Legends on Toolbox
Normal
Caries into Pulp
Fractured Restoratior
Missing Tooth
Caries of Root
Overcontor Restoratior
Impacted Tooth
Discolored Tooth
Undercontc Restoratior
Retained Root Tip
Fracture DB Cusp/Surfac
Crown-Metal
B Cusp Rotated Distally
Fracture DL Cusp/Surfac
Crown-Temporary
B Cusp Rotated Mesially
Fracture MB Cusp/Surfac
Reversible Pulpitis
Caries failed/defect restoration
Fracture ML Cusp/Surfac
Irreversible Pulpitis
Caries Limited to Enamel
Open Buccal Margin
Pulpal Necrosis
Caries into Dentin
Displaced Restoration
Hyperplast Pulpitis
Diagnosis Image Represent.
Tooth Notation ISO/FDI System
Dentition
Screeners Comments
18 17 16 15 14 13 12 11 21 22 23 24 25 26 27 28
48 47 46 45 44 43 42 41 31 32 33 34 35 36 37 38
Periodontal Examination
PSR
Case Type
Type 0
Type I
Type II
Type III
Complexity
Simple

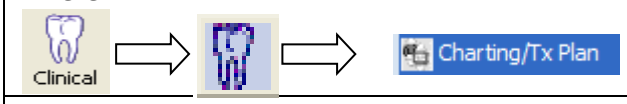

Screening
Authorized By USER
Patient / Chart Information 20% Carbamide peroxide
COD MRN 1500007
Patient Name: Dr Al Samer Bin Abdullah
ID 1239999999
Date of Birth 01/01/1970
Patient Age: 46
Episode Number 0000000008
Chart date/time: 10/01/2016 15:33:46
Screening History:
Sc Hx Questionnaire
Summary
Screening Chart
Outcomes
Treatment Needs
Endodontic
Implants
Removable Prosto
Fixed Prosto
Operative
Oral Med / Diagnosis / Tx Plan
Oral Surgery
Orthodontics
Pediatric Dentistry
Periodontics
Emergency Clinic
Resolutions
Accepted WNL
Consents
Emergency Radiograph
Radiographs to be ordered
Panograph
Bitewings
Periapical
Tooth No
(x-rays) made within the past
Radiographs made
Panograph
Bitewings
Periapical
Tooth No (s)

Where: 
NOTES:

3.12.8. Charting / Tx Plan
Summary:

The Dental Chart is the main charting screen where Dentition, Diagnosis and Treatment plan is recorded.

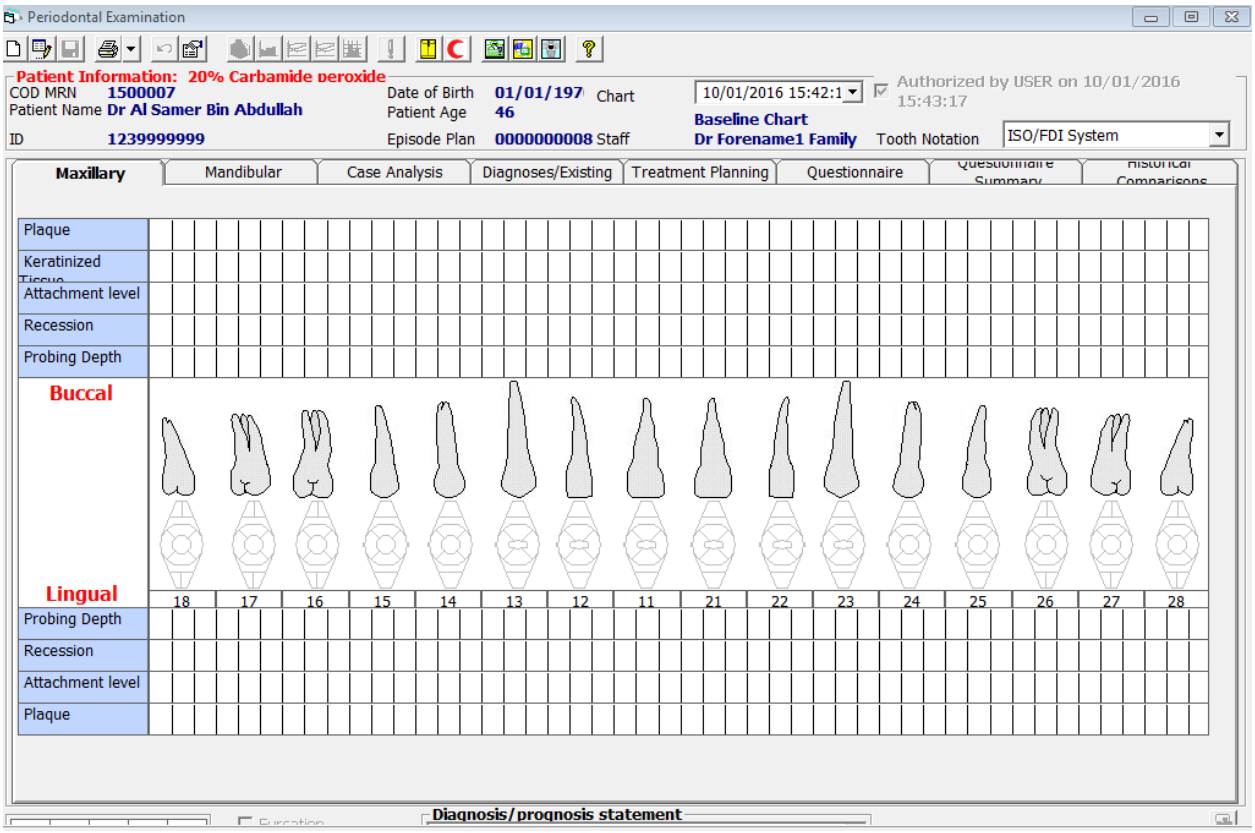


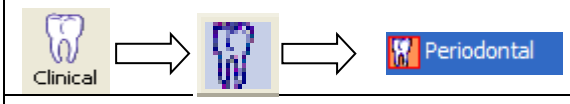
Where: 
NOTES:

3.12.9. Perio Chart

Summary:

The Periodontal chart is used to record the patients' periodontal findings.

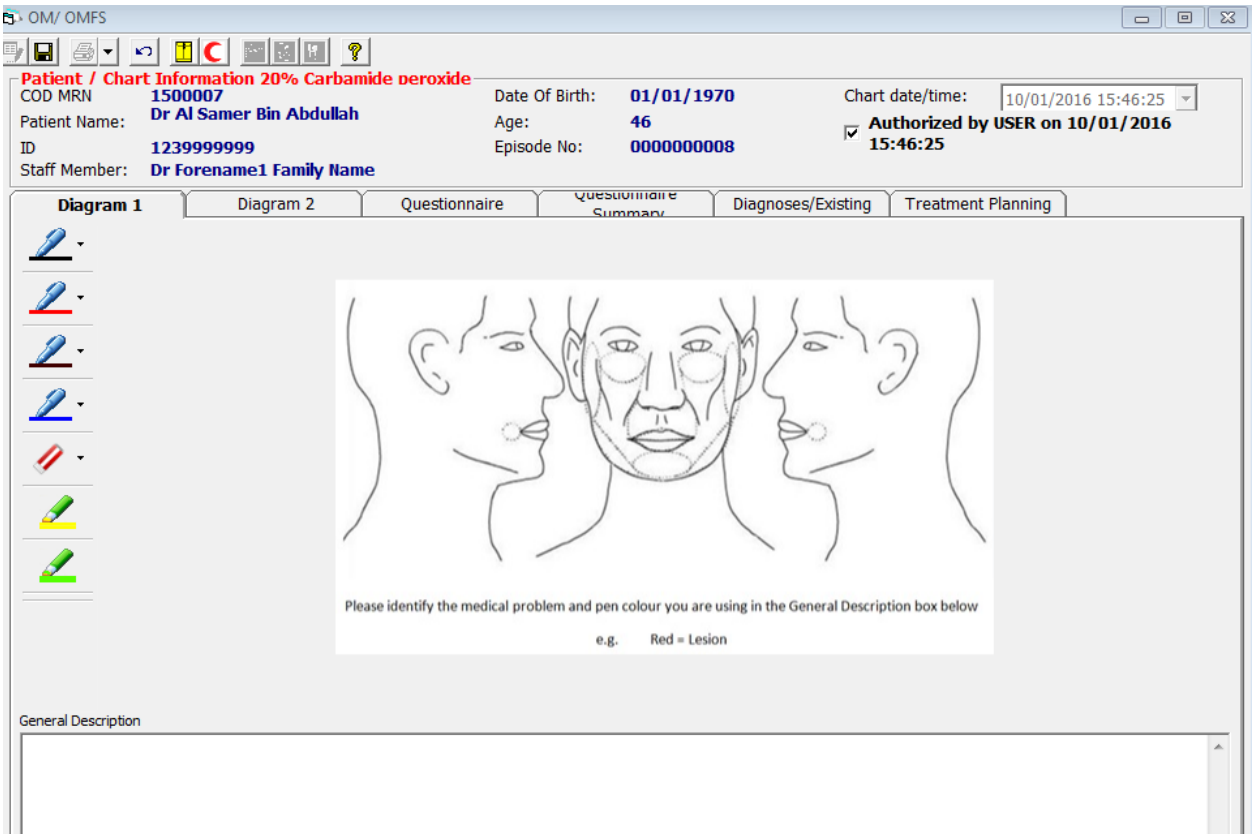

Periodontal Examination
Patient Information: 20% Carbamide peroxide
COD MRN 1500007
Patient Name Dr Al Samer Bin Abdullah
ID 1239999999
Date of Birth 01/01/197
Patient Age 46
Episode Plan 0000000008
Chart
Staff
10/01/2016 15:42:1
Baseline Chart
Dr Forename1 Family
Authorized by USER on 10/01/2016 15:43:17
Tooth Notation
ISO/FDI System
Maxillary
Mandibular
Case Analysis
Diagnoses/Existing
Treatment Planning
Questionnaire
Plaque
Keratinized
Attachment level
Recession
Probing Depth
Buccal
Lingual
18 17 16 15 14 13 12 11 21 22 23 24 25 26 27 28
Probing Depth
Recession
Attachment level
Plaque
Diagnosis/prognosis statement

Where:  Clinical Periodontal
NOTES:

3.12.10. OM/ OMFS Chart

Summary:

The Oral Medicine/ Oral Maxillary Facial Surgery chart is where Oral Medicine and Surgery diagnosis is recorded.

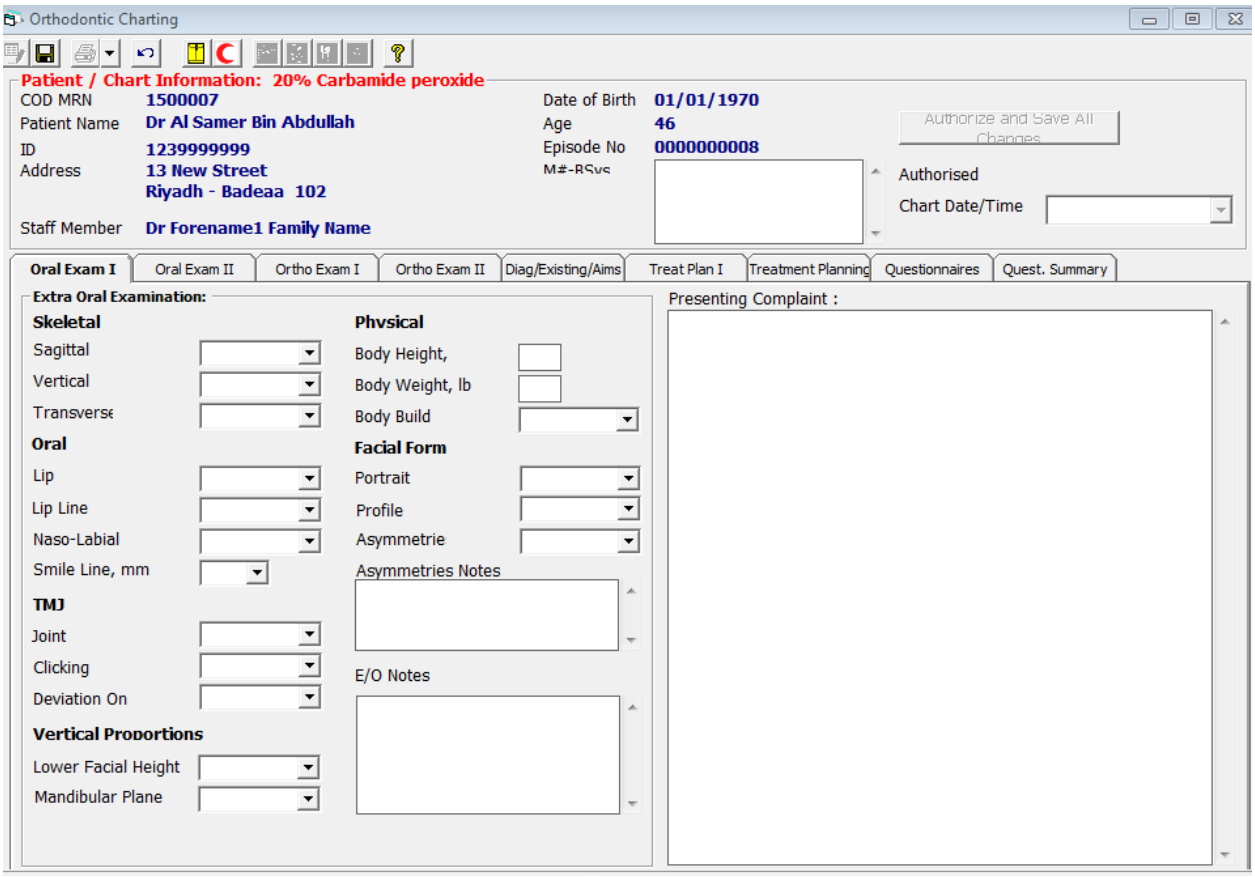


Where: 
NOTES:

3.12.11. Ortho Chart

Summary:

The Ortho Chart is the chart specified to record Orthodontic conditions and anomalies.


Orthodontic Charting
Patient / Chart Information: 20% Carbamide peroxide
COD MRN 1500007
Patient Name Dr Al Samer Bin Abdullah
ID 1239999999
Address 13 New Street
Riyadh - Badeaa 102
Staff Member Dr Forename1 Family Name
Date of Birth 01/01/1970
Age 46
Episode No 0000000008
Authorize and Save All Changes
Authorised
Chart Date/Time
Oral Exam I
Oral Exam II
Ortho Exam I
Ortho Exam II
Diag/Existing/Aims
Treat Plan I
Treatment Planning
Questionnaires
Quest. Summary
Extra Oral Examination:
Skeletal
Sagittal
Vertical
Transverse
Oral
Lip
Lip Line
Naso-Labial
Smile Line, mm
TMJ
Joint
Clicking
Deviation On
Vertical Proportions
Lower Facial Height
Mandibular Plane
Phvsical
Body Height,
Body Weight, lb
Body Build
Facial Form
Portrait
Profile
Asymmetrie
Asymmetries Notes
E/O Notes
Presenting Complaint :

Where:

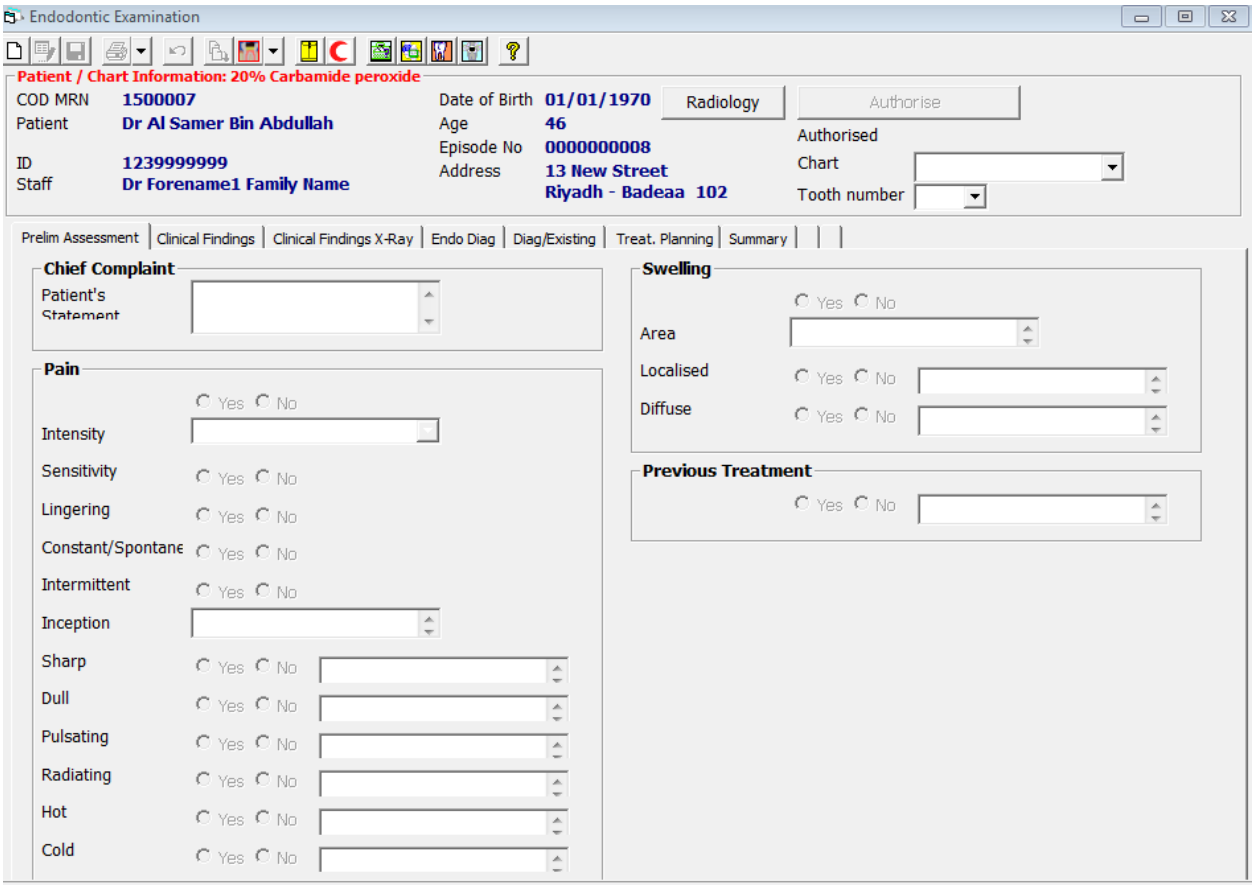

Clinical
Ortho

NOTES:

3.12.13. Endo Chart

Summary:

The Endo Chart is the main chart to record tooth specific conditions and anomalies.

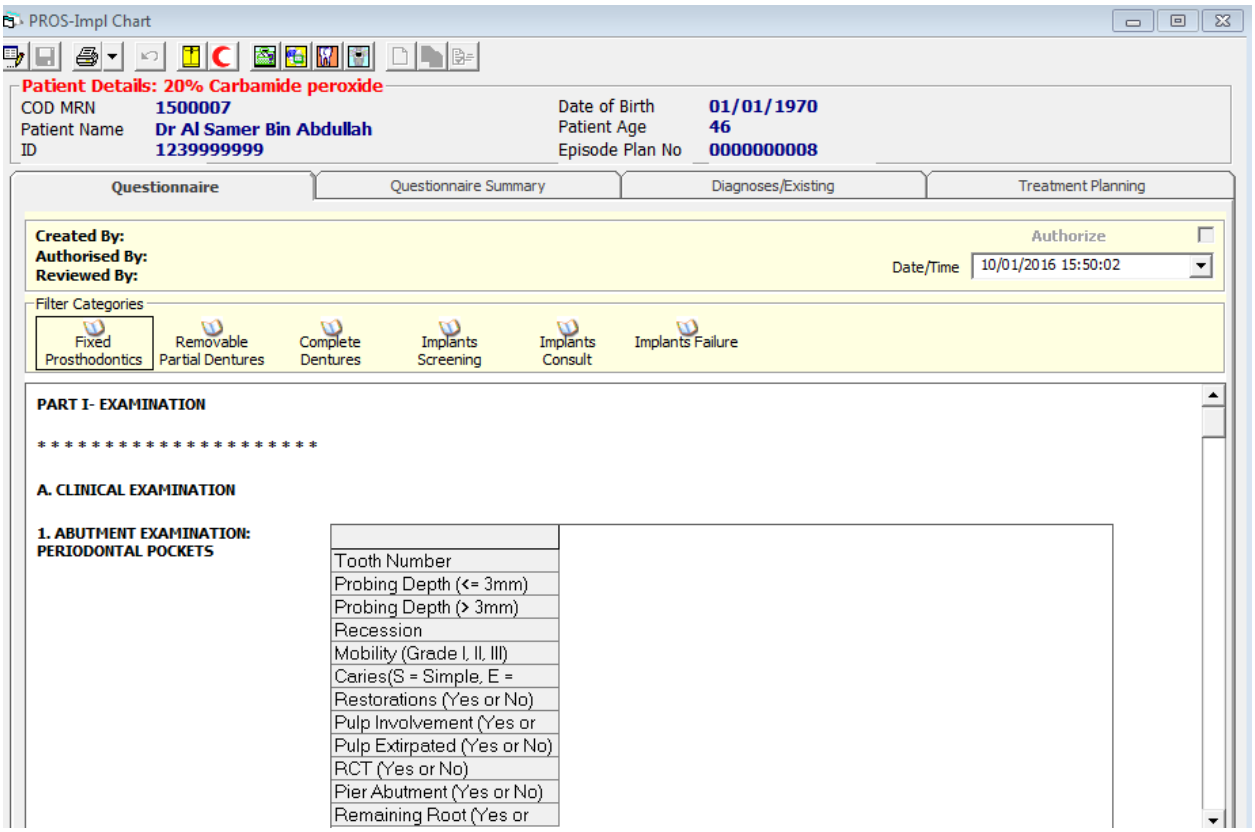


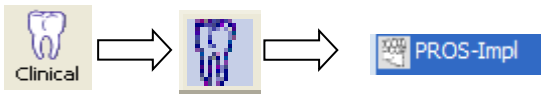
Where: 
NOTES:

3.12.14. Pros/ Implant Chart

Summary:

The Pros/ Implant Chart is used to record prosthetic and implant specific information.

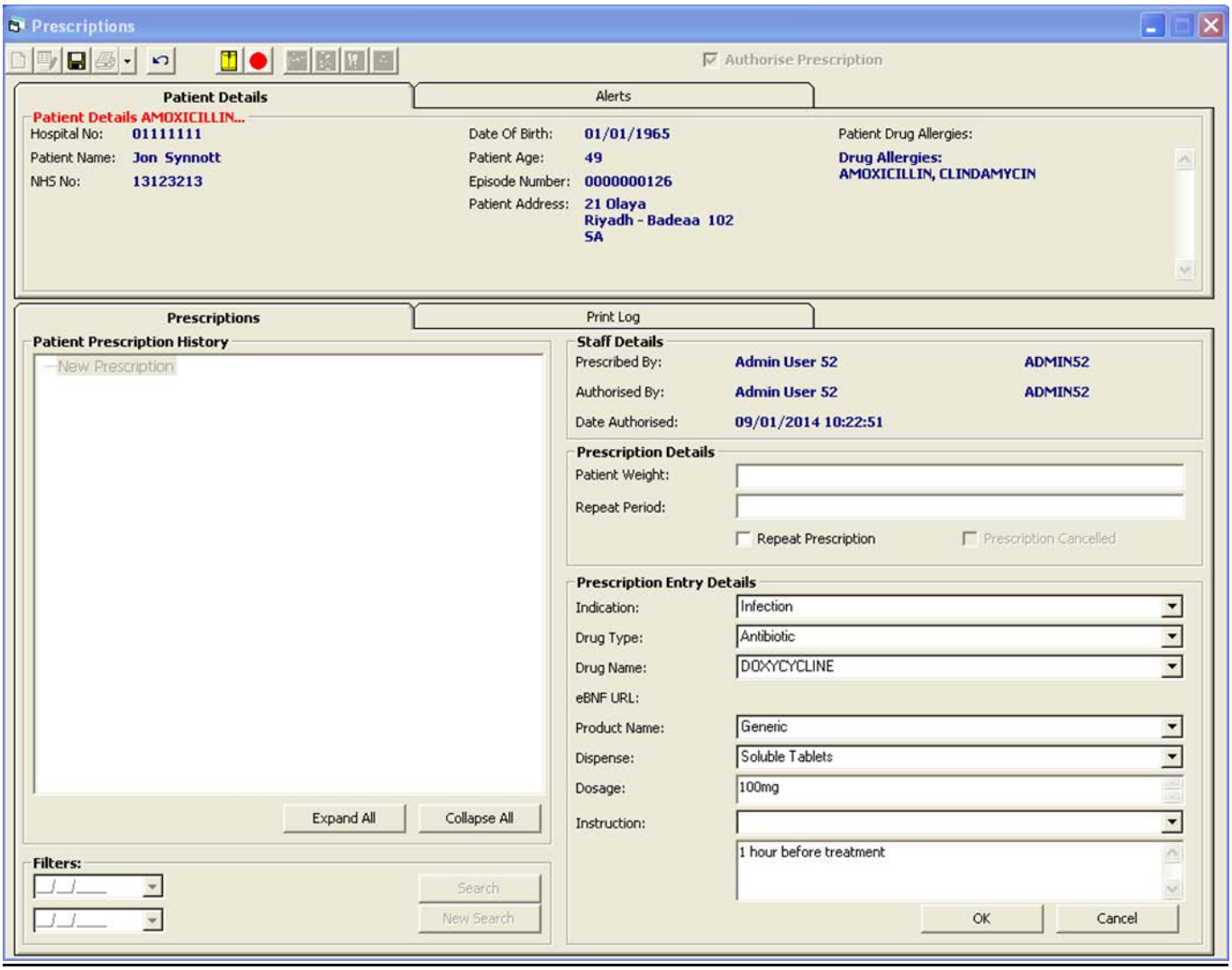


Where: 
NOTES:

3.12.15. Prescription Chart

Summary:

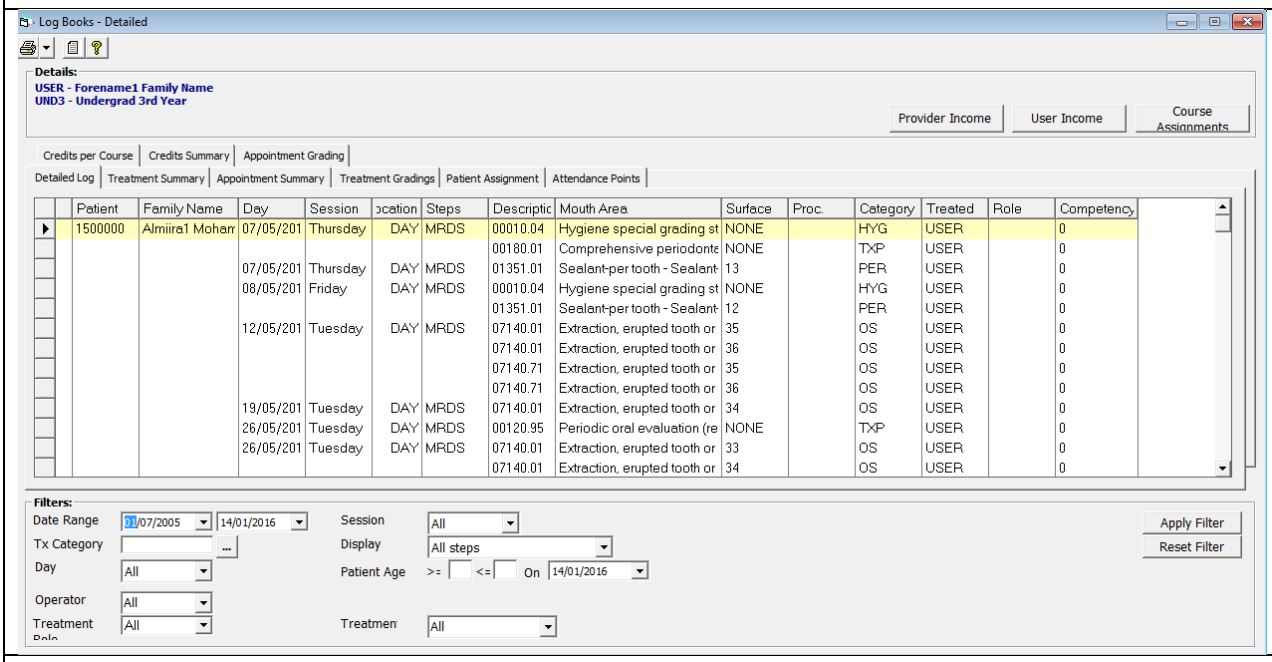
The prescription screen is used to create a prescription request for the patient to receive medication from the pharmacy.


Prescriptions
Authorise Prescription
Patient Details
Alerts
Patient Details AMOXICILLIN...
Hospital No: 01111111
Patient Name: Jon Synnott
NHS No: 13123213
Date Of Birth: 01/01/1965
Patient Age: 49
Episode Number: 0000000126
Patient Address: 21 Olaya
Riyadh - Badeaa 102
SA
Patient Drug Allergies:
Drug Allergies:
AMOXICILLIN, CLINDAMYCIN
Prescriptions
Print Log
Patient Prescription History
New Prescription
Expand All
Collapse All
Filters:
Search
New Search
Staff Details
Prescribed By: Admin User 52 ADMIN52
Authorised By: Admin User 52 ADMIN52
Date Authorised: 09/01/2014 10:22:51
Prescription Details
Patient Weight:
Repeat Period:
Repeat Prescription
Prescription Cancelled
Prescription Entry Details
Indication: Infection
Drug Type: Antibiotic
Drug Name: DOXYCYCLINE
eBNF URL:
Product Name: Generic
Dispense: Soluble Tablets
Dosage: 100mg
Instruction:
1 hour before treatment
OK
Cancel

Where:


Clinical
Prescription

NOTES:



Where: Application > My Log Book

4. DENTAL LABORATORIES

At the College of Dentistry in KSAU-HS the student will be involved in two types of Dental Laboratories; Clinical Simulation Laboratories and Production Laboratories.

4.1. STUDENTS' LABORATORIES

4.1. 1. Clinical Simulation Laboratories

These Laboratories are Pre-clinic Laboratories that prepare the students for the performance of patient care procedures according to the undergraduate dental curricula. The laboratories are equipped with phantom heads that simulate the patients with all the necessary equipment and materials for adequate preclinical training of the students in the following subjects: Operative Dentistry, Periodontics, Endodontics, Prosthodontics, Implants and Pedodontics.

The laboratory dispensary provides the students with all needed materials and instruments which are requested by the faculty staff members of each course. Students are required to handle and deal with the equipment at the laboratory with care, and are responsible to maintain the instruments in a good condition throughout the time of their training in this lab. Students should give back their instruments at the end of the course to the laboratory dispensary in a good condition as they were given to them before. Students are also required to wear the uniform according to the dress code of the College; Medical Scrub and to use appropriate infection control precautions similar to those followed in the clinic. They also should wear protective barriers during laboratory dental procedures. This includes wearing disposable surgical gown, gloves, face mask and eyewear. Facial protection is a must whenever blood or fluids contaminated with blood may be spattered. Students are not allowed to step out of the Lab with gown or gloves on.

Students need to deal with the colleagues, dental axillary staff and supervisors with

respect and professional manner. Professional skills and habits that the students achieve in this realistic clinical simulation at this lab ensure the student's ease, confidence, and competence in their later application to patient care.

4.1. 2. Student Responsibilities for All Lab Equipment's

It is the responsibility of all students to comply with the pre-clinical lab policies. Students are assigned to one station for their entire pre-clinical curriculum. The student's name will be affixed to the assigned station. A degree of pride and ownership is expected from each assigned student so that the laboratory remains in good condition for continuous use. These responsibilities are described below:

Working stations must be clean at all times.
Working with dental materials such as wax, impression material…..etc. must be done with the use of a white paper sheet to cover table tops.
Simulation manikins are to be treated with the respect as live patients.
Do not to use another student's simulator or station for assigned lab sessions or interchange any parts with another simulator unless reassigned by **STUDENTS AFFAIRS or FACULTY.**
Students should inspect their simulator and station at the beginning of each lab period to verify that the units are functional and that the torso or other components have not been damaged or defaced. If damage is noted, the student should report this to the attending faculty.

*Students are ethically and financially responsible for damage or defacement of simulator torso.

Students are responsible for their own rubber facemasks. Absolutely NO ink pens, felt-tipped markers, iodine as these items permanently stain and damaged the simulation mannequins.
If a student finds any equipment at their unit that does not belong to them, it is to be immediately turned in to the **STUDENT AFFAIRS /or FACULTY or to the DENTAL**

LAB. ASSISTANT assigned in that session.

No student is permitted to remove any equipment or material, (i.e.; dentoform plates, screws, curing lights or any material from the simulation mannequin) from the Pre-clinical Lab without explicit permission from the student affairs, dispensary, or clinic administration.

Abuse of equipment and wasting of supplies are prohibited. Exercise care and practice good safety habits when using school dental equipment's and materials.

4.1. 3. Student Responsibilities for All Pre-Clinical Lab Maintenance

Students are responsible for the cleanliness, the asepsis method and management performance of the pre-clinical laboratory. Students must know the proper care, operation, use, and settings of lab equipment. Improper use could render the equipment unsafe for the next user. Use of lab equipment other than for its intended purposes constitutes misuse of university property and may result in follow-up disciplinary sanctions. These responsibilities are described below:

Prior to working at their stations, students must lay down a white paper sheets on the counter to prevent dirt and debris from accumulating on the work stations. In case of spills, splatters, wax, or acrylic deposits on work station surfaces, students must wipe, scrape, or remove such deposits immediately to avoid build-up.

Each student is responsible for collecting and depositing trash that she/he has generated in trash containers located throughout the lab.

Food and beverages are not allowed or permitted in the pre-clinical- lab.

Remove the dentoform from the jaw assembly once done.

Clean the simulator torso and jaws with wet paper towels.

Clean and dry jaw assembly and place on the simulator base. Turn off the simulator power switch (green), the water pressure valve (up is off), the bench light, the

composite curing light, and the computer simulation equipment.

Place the hoses on their proper holder.

Leave the torso in a folded forward position, stored under the bench top.

Ensure proper disposal of saliva ejector and high volume evacuator (HVE) without detaching/ or removing the adaptors.

Leave the bench and work area neat, dry, and clean.

Push the stool under the bench upon leaving.

When using gas or alcohol burners, ensure sufficient distance is maintained from the nearby items to prevent accidental melting or burning. Do not place burners directly underneath lamps, shelves or hoses.

Seal or cap all the containers that could spill or leak fumes or chemicals in the air or working surfaces. To ensure efficient vacuum operation at student workstations, avoid suctioning moisture or moist items into suction units.

Casts and prosthesis must be dried prior to grinding or trimming with suction vents on.

Clean suction vents and shields after grinding or trimming.

Don't suck the alginate debris as it may cause clogged suction lines.

To keep the laboratories in the best usable condition, each person must exercise a professional **"CLEAN AS YOU GO"** practice as they work in the Lab.

The working areas station will be checked for student compliance with the maintenance protocols.

4.1. 4. Prosthetic Laboratories

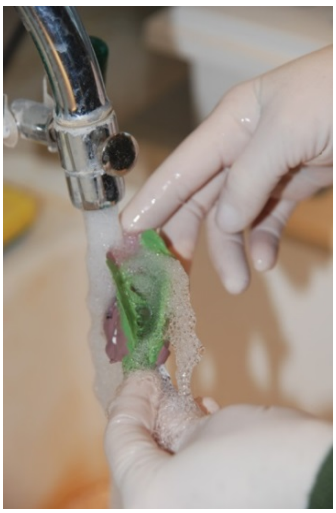
The goal of the Students' Prosthetic Lab is to fulfill an educational role and laboratory training, as well as providing an opportunity for the completion of lab cases for the students in their own hands, as part of the requirements in certain courses of their curriculum. Through a cooperative effort with faculty and lab technicians, students are taught how to use a dental lab to achieve the best possible result for prosthetic cases, and in certain cases, alternative lab techniques.

For clinical cases that the student must perform, the following should be adhered to:

1. The clinical instructor should approve all the clinical steps.

2. The student or dental assistant should clean and disinfect the laboratory/clinical related materials and other items that have been used in the mouth (e.g., impressions, bite registrations, fixed and removable prostheses and cast) before sending them to the laboratory. Ensure to use disinfectant that is approved in COD to disinfect laboratory materials. Impressions may be cleaned by scrubbing gently and rinsing to reduce bioburden, and subsequently disinfected with an antimicrobial agent. Dental impressions may be disinfected by spraying, dipping, or immersing. Refer to the "Infection Prevention Manual, Practice for the Dental laboratory.

Disinfected materials should be placed in a plastic bag, before sending to the lab.



3. Before leaving the clinic and going to the lab, gowns, gloves and masks should be removed.

4. Each step of the lab work has to be consulted with the lab supervisor and approved by the clinical instructor supervising the case.

5. The student should finish the case at the exact date corresponding to the patient's appointment.

6. The student has to record the case and each step of the lab work in his log book and this should be signed by the clinical instructor.

7. The student should return any borrowed item/s to the lab after the case is delivered.

4.2. PRODUCTION LABORATORY

The goal of the Production Laboratory is to fulfill an educational role as well as providing service for the completion of lab cases by professional lab technicians. Through a cooperative effort with faculty, laboratory technicians, and staff, students will learn effective methods of prescription writing and lab communications, and how to prepare cases for presentation to a professional dental lab.

4.2.1. Laboratory Service Procedures

1. After the clinical instructor approves the clinical step, the student should fill the Laboratory Work Authorization form and get it signed by the clinical instructor.

2. The student or dental assistant should disinfect the clinical case and place it in a plastic bag, and submit it to the lab with authorized laboratory work form.

3. Lab receptionist should receive and register on the Lab Data Base, the case material as received recording the date of both reception and release according to the time schedule of the case.

4. Lab receptionist should ensure to record all the information on the lab data base including student name and instructor.

5. Lab Receptionist should officially transfer the case to the Lab technicians, according to the lab systematically distributed schedule based on dental technician specialty, availability and workload.

6. The technician should proceed according to case requirement and finish the case at the exact date.

8. The Technician should finalize and prepare the work in numbered boxes with case details for collection.

9. The student or the dental assistant should collect the finished work from the lab receptionist after signing the receiving paper.

10. The student should return any borrowed item/s to the lab after the case is delivered.

4.2.2. Infection Control

Prior to submitting the case, gowns, gloves and masks should be removed. All items to be received by the Production Laboratory must be properly disinfected in the clinic and sealed in a plastic bag or in a denture cup covered by an iodophor-soaked towel or placed in a lab pan. For infection control policy at the Dental Laboratory please refers to the ***"Infection Prevention Manual, Practice for the Dental laboratory.***

4.2.3. Laboratory Work Authorization Form (Manual /SALUD)

- The form should be filled out completely, properly, and clearly.
- The form must include:
  - Student name and ID number.
  - Patient's name and medical record's number
  - Clear instructions
  - Clinical instructor's name and signature

4.2.4. Quality and Time Control

The clinical case must be approved by the clinical instructor before submitting it to the laboratory. If the case was not accepted by chief dental technician, the clinical instructor will be consulted and the student should correct it. If the case needs many laboratory steps the clinical instructor must evaluate the laboratory work after each step, and any comments should be listed in the lab form. The completion of the lab work will be according to the schedule announced by the lab, which indicate the time needed for each step of the laboratory work, and the student has to arrange the appointment of his patient accordingly.

5. RADIOLOGY

Radiographs are an indispensable diagnostic aid in dentistry as they allow the detection of disease and other abnormalities, as well as disease progression to be monitored. However, exposure to ionizing radiation also carries the risk of harm. No matter how small the dose is, every exposure to ionizing radiation entails a risk to the patient and the effects accumulate over time

Adverse effects of ionizing radiation can be divided into deterministic and stochastic effects. Deterministic effects have a threshold level below which no damage will occur and their severity increases with dose. It has been suggested that a cataract is a typical deterministic effect on the eye and may be caused by lower doses than previously considered and stochastic effects, including carcinogenesis, result from DNA damage.

Thus, good radiological practices are very essential to reduce the harmful effects of ionizing radiation. With this underlying philosophy, the manual is developed with an objective to describe guidelines that should be followed by the clinicians, dental students and staff while using ionizing radiation for diagnostic purposes in dentistry. These guidelines are intended to ensure the safest and effective use of ionizing radiation while acquiring radiographs of diagnostic quality.

5.1. Criteria for Exposure

a. Professional judgment should be used to determine the type, frequency, and extent of each radiographic examination. Diagnostic radiography should be used only after clinical examination, consideration of the patient history, review of prior radiographs, and consideration of both the dental and the general health needs of the patient. The nature and extent of diagnosis required for patient care constitute the only rational basis for determining the need, type, and frequency of radiographic examinations, not the concept of routine use of radiography as a part of periodic examinations of all patients. In addition, the most important factor

in reducing radiation exposure is to eliminate clinically unproductive procedures. Appropriate prescription of x-ray examinations involves two major categories: the clinical decision to order a given examination, and the choice of the number and type of views required to conduct it within the principles of good radiological practice.

b. It is advised to follow the basic principles of radiological protection during each exposure viz., Principles of Justification, Optimization of Protection and Applications of Dose limits.

5.1.1 Patient Selection Criteria

The most effective means to reduce unnecessary exposure is to reduce unnecessary radiographic examinations. Essential guidelines have to be followed before prescribing radiographs.

1. All radiographs shall be prescribed by qualified dentist or physician.
2. It is advised to follow the ADA/FDA guidelines and recommendations for prescribing dental radiographs for new and recall patients.
3. All radiographic examinations must be justified on an individual patient basis by demonstrating that the benefits to the patient outweigh the potential detriment.
4. The anticipated benefits are that the radiographic examination would add new information to aid the patient's management.
5. The 'routine' use of radiography on patients based on a generalized approach rather than individual prescription is unacceptable. A 'routine' or 'screening' examination is defined as one in which a radiograph is taken regardless of the presence or absence of clinical signs and symptoms.
6. A thorough clinical examination, consideration of the patient history, review of any prior radiographs, caries risk assessment and consideration of both the dental and the general health needs of the patient should precede radiographic examination

7. The number of radiographs shall be limited to the minimum required for a complete diagnostic workup.
8. The decision to take recall radiographs shall be based on the patient's age, general or systemic condition, dental history and current status.
9. Post-operative radiographs shall only be taken when judged necessary, not on a routine basis.
10. Individuals shall not be exposed for teaching or training or administrative purposes unless there is a concomitant documented diagnostic need as determined by a member of the faculty
11. When referring a patient to a specialist for a radiographic examination, the dentist shall supply sufficient clinical information (based on the history and clinical examination) and adhere to the principles of justification.
12. Whenever a patient, patient's guardian or authorized representative refuses recommended radiographs, such refusal shall be noted in the patient's file.

For more information about criteria for adult and child patient's exposure, please refer to the following documents published by ADA and the American Academy of Pediatric Dentistry (AAPD):

- http://www.ada.org/sections/professionalResources/pdfs/topics_radiography_examinations.pdf
- http://www.aapd.org/annual/2009/pdf/RadiographicGuidelines.pdf

5.1.2. Patient Qualification

a. All radiographs will be ordered by a dentist or physician.

b. Radiographs for new patients will only be ordered after clinical examination of the patient, consideration of the dental history, and availability of prior suitable radiographs.

c. Additional radiographs, including recall bitewings, may be prescribed during patient treatment only when they are judged to be required for patient diagnosis.

d. Individuals will not be exposed for teaching or training purposes unless there is a concomitant documented diagnostic need as determined by a member of the faculty.

e. Patients will not be exposed following restorative treatment to document procedure completion.

f. Individuals exposed for other than diagnostic reasons must have the approval of the Human Subjects Protection Committee and written informed consent must be obtained.

g. Ordinarily a full-mouth survey will not be repeated in less than 3 years and bitewings will not repeated in less than 12 months unless there are specific indications requiring more frequent radiographic examination.

The recommendations of the ADA/ Federal & Drug Administration (FDA) guidelines are subject to clinical judgment and may not apply to every patient. They are to be used by dentists only after reviewing the patient's health history and completing a clinical examination. Because every precaution should be taken to minimize radiation exposure, protective thyroid collars and aprons should be used. This practice is strongly recommended for children, women of childbearing age and pregnant women

5.1.3. Operator Qualifications

1. Exposures shall only be made by any of the following individuals
    a. Faculty members or Clinicians employed by the College of Dentistry, KSAU-HS possessing a minimum qualification of bachelor's degree in dentistry

b. A qualified Dental Radiographer
c. Dental students under the supervision of above mentioned professionals

2. All those involved in radiography should have received adequate theoretical and practical training for the purpose of radiological practices and relevant competence in radiation protection. Continuing education and training after qualification is required, particularly when new equipment or techniques are adopted.

3. Students should demonstrate technical competence on mannequins before carrying out radiographic procedures on patients.

5.1.4. Exposure Procedures

1. Generally, only the patient shall be in the operatory during radiation exposure. A member of the patient's family is sought for assistance wherever it is deemed necessary especially for children or handicapped patients or geriatric patients. The assisting adult shall be provided with a protective lead apron and positioned so that the individual is not exposed to the primary beam.
2. Limiting unauthorized access into the controlled area during X-ray exposures shall be achieved by the use of warning signs and lights.
3. Radiation doses to the patient shall be kept As Low as Reasonably Achievable.
4. Use of leaded aprons with thyroid collars is highly recommended especially in children and pregnant women.
5. Collimation is essential to reduce the volume of tissue irradiated. Diameter of a collimated x-ray beam be restricted to 2.75 inches at the patient's skin. Rectangular collimation is a highly effective means of dose reduction in intraoral dental radiography.
6. For conventional (film-based) intraoral radiography, only the fastest available (Group E or faster) films shall be used, as they significantly reduce patient dose. For digital intraoral radiography, appropriate sized sensors shall be used.

7. It is recommended to use receptor holders incorporating beam-aiming devices. Paralleling technique of periapical radiography is recommended to be practiced in cases where it is feasible.
8. Patients shall not be subjected to retakes solely to demonstrate technical perfection.
9. Students are not allowed to perform more than three retakes in a Full-Mouth Radiographic Survey (FMRS) without the direct supervision of faculty or staff.
10. For conventional (film based) extraoral radiography the fastest available rare-earth intensifying screen/film combination consistent with satisfactory diagnostic results should be used. The speed of the system should be at least 400.
11. If available, limitation of field size to the area required for diagnosis should be used for extra oral radiography.
12. Accurate positioning in panoramic radiography can be facilitated by using all available positioning aids correctly and by adequate training of users.
13. A Cephalostat and a fixed X-ray source/patient/image receptor relationship should be used for cephalometric radiography.
14. For minimizing exposure to the operator or the personnel involved in dental radiography, the following protocols shall be followed:
    a. Implementation of radiation exposure limits to occupationally exposed individuals recommended by ICRP.
    b. All practices shall have written instructions related to staff radiation safety.
    c. During exposure of the image, the operator shall leave the controlled area or take a position behind a suitable barrier (made of lead) or wall of adequate thickness and material as recommended by international regulatory organizations.
    d. If leaving the room or making use of the barrier is not possible, the operator should stand at least 6 feet (2 m) from the patient, at an angle of 90 to 135 degrees to the central ray of the x-ray beam.
    e. The operator should never hold films or sensors in patient’s oral cavity during exposure.

f. Neither the operator nor patient should stabilize the radiographic tube housing during the exposure.
g. Use of personal dosimeter is highly recommended to ensure adequate protection of the operator.

5.2. Processing of Radiographs

1. The dental radiographer is responsible for the maintenance of appropriate processing facilities and materials.
2. All radiographs should be identified with the patient's name, labeled with the date of exposure, and mounted in a film holder, (or in the case of single films), stored in a properly labeled envelope. However, for digital radiographs, all radiographs will be properly identified and stored in the patient' electronic file.
3. All processing equipment shall be examined regularly for proper functioning.

    a. Time-temperature processing parameters for manual processing shall be posted and strictly followed.

    b. When automatic processing equipment is not functioning properly, all films shall be processed manually or by alternative methods.

    c. When digital x-ray system is used, regular maintenance of the related hardware and software is required.

5.3. Maintenance of X-ray Records

1. Every radiographic exposure shall be recorded in the patient's file.
2. Radiographs are considered confidential. Accordingly, they will not be released to other dentists unless a written request by the patient is signed.
3. Radiographs shall be maintained along with the patient's file.

5.4. Clinical Procedure for Exposure of Radiographic Films

If you have successfully completed your Radiology Rotation, or are certified to take intraoral radiographs, you may obtain radiographic film from Central Service by following these procedures:

1. Complete the Radiology Exposure Log on the inside back cover of the patient's chart. Fill out all required information and Instructor's signature.
2. Bring completed chart to Central Service to receive correct number of film packets or x-ray sensor. Care slips will not be acceptable for requesting films.
3. Be sure to indicate in the patient's progress notes how many films were taken and a brief summary of the diagnostic interpretation.
4. All radiographs are to be mounted and properly labeled with the patient's name, chart number, and date of exposure, or patient’s information should be properly filled in the electronic file in case of using digital x-ray system.

For infection control; please refer to the Infection Prevention Manual, Radiographic machines/room protocol.

5. MEDICAL EMERGENCIES

6.1. Aims

1. To minimize the occurrence of medical emergencies in the dental clinics.
2. To optimize the management of victims of medical emergencies in the dental clinics.

6.2. General Guidelines

It is the responsibility of the person who is providing dental treatment to any patient in the dental clinics to:

a. Identify patients at medical risk by proper history taking and clinical examination.
b. Use approved protocols in the management in medical emergencies.
c. Call for expert help when needed.
d. Deal with the victim of medical emergency until expert help arrives.
e. Document medical emergencies in patient's file and report it using proper forms.

6.3. Prevention of Medical Emergencies

In order to minimize the risk of having a medical emergency in the dental clinic, the following should be observed:

1. Detailed medical history including medications and allergies should be obtained from every adult dental patient or the guardian of a pediatric dental patient and recorded on a special sheet made specifically for this purpose. The sheet should be signed and dated by the person obtaining the history.
2. Medical history including medications and allergies should be reviewed with the patient (or guardian) at the beginning of every dental visit, and any changes should be documented.
3. High alert medical conditions or allergies should be highlighted by RED COLOR or a RED STICKER placed on a clearly visible area in the patient's chart.
4. If a patient (or guardian) is unable to list all his/her medications, and the history is suggestive of high alert medication, elective dental treatment should be deferred and the patient should be requested to bring all his medications with him/her in the next visit.
5. If there is any uncertainty about the medical history or condition or the impact this may have on the dental treatment plan, a written consultation should be obtained from the patient's physician.
6. All dental patients should be evaluated to determine their ability to handle the stress of dental treatment. Use of the stress reduction protocol as a routine for all patients is recommended.
7. An appropriate local anesthetic agent in a dose that is compatible with patient's medical condition should be used.
8. Appropriate premedication regimens, post-operative medications and instructions related to the dental procedure, and compatible with the general health status of the patient should be prescribed.
9. The use of any medications, product or device to which the patient has an allergy must be avoided.

6.4. Determination of Medical Risk

For simplicity and convenience, the general medical status of the patient can be determined according to the American Association of Anesthesiologist (ASA) classification, which classifies patients into the following classes:*****

1. ASA I

Patients are considered to be normal and healthy. Patients are able to walk up one flight of stairs or two level city blocks without distress. Little or no anxiety. Little or no risk. This classification represents a ***"green flag"*** for treatment.

2. ASA II

Patients have mild to moderate systemic disease or are healthy ASA I patients who demonstrate a more extreme anxiety and fear toward dentistry. Patients are able to walk up one flight of stairs or two level city blocks, but will have to stop after completion of the exercise because of distress. Minimal risk during treatment. This classification represents a ***"yellow flag"*** for treatment. **Examples**: History of well-controlled disease states including non-insulin dependent diabetes, prehypertension, epilepsy, asthma, or thyroid conditions; ASA I with a respiratory condition, pregnancy, and/or active allergies. May need medical consultation.

Note: Patients who demonstrate a more extreme anxiety and fear toward dentistry have a baseline of ASA II even before their medical history is considered; that situation raises the classification system.

3. ASA III

Patients have severe systemic disease that limits activity, but is not incapacitating. Patients are able to walk up one flight of stairs or two level city blocks, but will have to stop enroute because of distress. If dental care is indicated, stress reduction protocol and other treatment modifications are indicated. This classification represents a ***"yellow flag"*** for treatment. **Examples:** History of angina pectoris, myocardial infarction, or cerebrovascular accident, congestive heart failure over six months ago, slight chronic obstructive pulmonary disease, and controlled insulin dependent diabetes or hypertension, will need medical consultation.

4. ASA IV

Patients have severe systemic disease that limits activity and is a constant threat to life. Patients are unable to walk up one flight of stairs or two level city blocks. Distress is present even at rest. Patients pose significant risk since patients in this category have a severe medical problem of greater importance to the patient than the planned dental treatment. Whenever possible, elective dental care should be postponed until such time as the patient's medical condition has improved to at least an ASA III classification. This classification represents a ***"red flag"*** - a warning flag indicating that the risk involved in treating the patient is too great to allow elective care to proceed. **Examples**: History of unstable angina pectoris, myocardial infarction or cerebrovascular accident within the last six months, severe congestive heart failure, moderate to severe chronic obstructive pulmonary disease, and uncontrolled diabetes, hypertension, epilepsy, or thyroid condition. If emergency treatment is needed, medical consultation is indicated.

5. ASA V

Patients are moribund and are not expected to survive more than 24 hours with or without an operation. These patients are almost always hospitalized, terminally ill patients. Elective dental treatment is definitely contraindicated; however, emergency care, in the realm of palliative treatment may be necessary. This classification represents a ***“red flag"*** for dental care and any care is done in a hospital situation.

6. ASA VI

Clinically dead patients being maintained for harvesting of organs (not applicable in Clinical Dentistry).

7. ASA-E

Emergency operation of any variety (used to modify one of the above classifications, i.e., ASA III-E).

* Status can change as medical history changes; adapted by Margaret J. Fehrenbach, RDH, MS, from the American Society of Anesthesiologists, *Medical Emergencies in the Dental Office* (Malamed, Mosby, 2008), and included in *Saunders Review of Dental Hygiene* (Fehrenbach and Weiner,Elsevier, 2009).

6.5. Optimizing the Management of Victims of Medical Emergencies

It may not be possible to completely prevent medical emergencies, however, lives may be saved and complications of an emergency may be minimized by proper management. This in turn is dependent on adequate preparation as follows:

- All students are required to obtain certification at the level of Basic Life Support (BLS) healthcare provider of the American Heart Association (AHA).
- All students must be trained on recognition and management of medical emergencies in the dental clinic at the beginning of their clinical training. Such training should be repeated at the beginning of every academic year.
- All students should be trained on when and how to request “expert help” so that emergency management is not delayed.
- All students should be familiar with the Emergency Contact Number, and the location and operation of the nearest phone to their location.
- All students should be familiar with the nearest Crash Cart to their location.
- All students should be familiar with the nearest oxygen supply, and disposable oxygen mask and tubing to their location.

6.6. General Emergency Management Protocol

In case of an emergency in the dental clinic, follow the following steps:

1. Do not panic as this may adversely affect your clinical judgment.

2. Assume charge of the emergency and stay with the victim until expert help arrives.
3. Request expert help when needed.
4. If the patient is light headed, put him/ her in the supine position, with the feet slightly higher than the head.
5. If there is bleeding, apply pressure to the bleeding site.
6. If there is vomiting, turn the patient on his side and place him/ her in the recovery position to protect the airway
7. Assess **A**irway (make sure it is patent), **B**reathing (watch chest movement), and **C**irculation (Check for pulse at the neck) (**ABCs**).
8. If ABCs present, stay with the victim.
9. If ABCs are absent, contact **(EMS # 85-19924)** and start CPR until expert help arrives.
10. Keep the area around the victim clear so as not to interfere with the arrival of needed help

6.7. PROTOCOLS FOR SPECIFIC EMERGENCIES

6.7.1. Breathing difficulty:

This is an acute emergency that requires IMMEDIATE REQUEST OF EXPERT HELP AND ACTIVATION OF THE EMERGENCY TEAM. It may be caused by:

I. Foreign body, secretions, or blood in the airway:

Signs and symptoms:

- Breathing difficulty.
- Cyanosis.
- Extreme stress and gasping for air.
- “Universal choking sign” clutching of the neck with both hands.
- Signs of compromised airway such as stridor, gargling sounds, ..etc.

Management:

- Call for help.

- Ask the patient if they can speak.
- Clear the airway by removing the foreign body/ fluid with a finger sweep, suction or Heimlich Maneuver.
- Continue attempt of removal until airway is re-established.
- If patient becomes unconscious place in a supine position, make sure emergency team is on the way and start CPR.

II. Asthma:

Signs and symptoms:

- Breathing difficulty, more on exhalation.
- Wheezing.

Management:

- Call for help
- Allow the patient to sit upright and take their medication if they have it with them
- Remove all dental materials in the mouth that may cause airway obstruction.
- Instruct the patient to try to relax and breath slowly.
- Request fast acting bronchodilators and allow two deep inhalations repeated if necessary after 5 minutes.

III. Allergic reaction (anaphylaxis):

Signs and symptoms:

- Breathing difficulty
- Swelling (especially of the face).
- Hypotension and shock.
- The victim may have a history of allergic reactions and may carry an epinephrine auto-injector (also known as an EpiPen™).

Management:

- Call for help.
- Allow the victim to sit upright, or in the position that is most comfortable.
- You may be able to assist the victim under the following conditions:
    i. The medication is prescribed to the victim.
    ii. The victim identifies his/her medication but is unable to administer it without assistance.

6.7.2. Seizures (Convulsions):

Signs and symptoms:

- Most patients are previously diagnosed with a seizure disorder.
- Most patients can tell that a seizure fit is eminent.
- A typical fit consists of loss of consciousness and tonic-clonic convulsions.
- A typical fit ends spontaneously in less than 5 minutes.

Management:

- If a patient tells that a fit is eminent, immediately remove any materials or foreign bodies from the mouth and place in a supine position.
- Call for help.
- Put the victim in a safe environment.
- Do not try to restrain the victim.
- After the end of a fit, put the victim on their side in the recovery position to protect the airway. Ensure that the patient is able to breathe and check pulse.

6.7.3. Heart attack:

Signs and symptoms:

- Chest pain, tightness, or heaviness that may radiate to the left shoulder and arm, neck, or left side of the jaw.
- Symptoms may be spontaneous or provoked by stress.

- Shortness of breath.
- Nausea or vomiting.
- Sudden collapse and loss of consciousness.

Management:

- Call for help.
- Allow the victim to set up in a comfortable position, ensure open airway.
- Talk to the victim and try to reassure him.
- Give aspirin to conscious patient and oxygen.
- Monitor **A**irway, **B**reathing, and **C**irculation (**ABCs**) and start CPR if ABCs are not present.

6.7.4. Stroke:

Signs and symptoms:

- Weakness in one side of the body including the face.
- Speech difficulty, and/or vision changes.

Management:

- Call for help.
- Place in reclined position with elevated head.
- Open airway.
- Keep patient calm.
- Stay with the victim until help arrives.

6.7.5. Bleeding

Signs and symptoms:

- External bleeding is obvious and can’t be missed.

Management:

- Call for help
- Protect yourself from direct contact with blood (use gloves).

- Apply continuous pressure to the bleeding site until bleeding stops or help arrives.

7.7.6. Cuts and Scrapes

After stopping bleeding (as described above) clean the cut with running water or an antiseptic solution and consult Oral Surgery.

6.7.7. Burns

Burns may be caused by heat (thermal burns), electricity, or chemicals.

A. Thermal burns:

Management:

- Call for help.
- Immediately cool the burn in cold, running water and continue at least until pain is relieved.
- Do not use ice, as this may freeze skin and cause more damage.
- Do not pop burn blisters.

B. Electrical burns:

Electrical burns are usually internal, and only a small outside burn may mask a large area of damage inside the victim.

Management:

- Call for help.
- Protect yourself. Do not approach or touch the victim until the power has been turned off.

- Check **A**irway, **B**reathing, and **C**irculation (**ABCs**) and start CPR if ABCs are not present.

C. Chemical burns:

Management:

- Call for help.
- Protect yourself from exposure the chemicals.
- Remove contaminated clothing.
- Irrigate affected area with water and continue to irrigate until medical help arrives.

6.7.8. Sprains, strains, bruises and broken bones

Management:

- Call for help.
- If you think the injury is serious, do not try to move the victim.
- Cover open wounds with a clean dressing.
- Do not try to push exposed broken bones or protruding tissues into the skin.

6. INFECTION PREVENTION

The main aim of the Infection Prevention Protocol is to provide the patients and the health care team with maximum safety and minimal risk of disease transmission.

Patients and dental healthcare workers (DHCWs) may be exposed to a variety of infectious, viral, and bacterial agents in dental care settings.

7.1. Routes of microbial transmission

a. General Routes:

i. Direct contact with a lesion, organisms or potentially infectious secretions when performing intraoral procedures (e.g., practicing without wearing gloves).

ii. Indirect contact via contaminated instruments or disposable items (e.g., accidental percutaneous exposure from used needles).

iii. Airborne or droplet via aerosolization of microorganisms from patients' blood or saliva while using devices that can generate droplet spatter (e.g., air water devices, dental hand pieces).

b. DHCWs and patients as modes of transmission during patients care:

i. Patient to DHCW transmission of potentially infectious microbes can occur through breaks in the skin or through airborne exposure.

ii. DHCW to patient transmission of potentially infectious microbes can occur as a result of DHCW bleeding into a patient's mouth after sharps exposure or through respiratory droplets passed from DHCW to the patient.

iii. Patient to patient transmission can occur if instruments are improperly reprocessed or due to improper hand hygiene or improper glove wearing on the part of DHCWs.

7.2. Infection Prevention Program

At the beginning of each academic year, the first week will contain a specially structured orientation that will introduce all DHCW including faculty staff, dental students and interns to the infection prevention policy (IPP) of the college.

7.3. Immunization

Routine immunizations recommended for healthcare personnel.

A. Hepatitis B vaccination

1. All susceptible DHCWs should be vaccinated against hepatitis B.
2. One to two months after completing the series, the vaccine level of anti-HBs is expected to be >10 mIU/L, and this value should be checked in any HCW with patient exposure.
3. Refer to ICM-VI-07 Hepatitis B Immunization for Healthcare Workers for those HCWs who are non-responders the first series of vaccination.

For other vaccination, see below table:

Generic name	Primary booster dose schedule	Indications
Hepatitis B recombinant vaccine	1. Give IM 2. Give 3-dose series (0, 1 and 6 months) 3. Obtain anti-HBs serological testing 1-2 months after 3rd dose	HCWs at risk of exposure to blood and body fluids
Influenza vaccine	One dose of trivalent influenza vaccine (TIV) annually.	All HCWs

MMR vaccine	1. Give SC 2. For HCWs who have no serological evidence of immunity or prior vaccination 3. Give 2 doses of MMR, 4 weeks apart.	HCWs should have a documentatio n of 2 doses of MMR
Tetanus, diphtheria (Td)	Td booster every 10 years following the completion of primary 3-dose series given IM.	All HCWs
TetanusDiphtheria Acellular Pertussis (Tdap)	One-time dose of Tdap to all HCWs younger than 65 years of age.	All HCWs in direct patient care,
Hepatitis A vaccine	Two doses of the vaccine 6 to 12 months apart (HAVRIX®, AVAXIM®)	For adults who have no sign of immunity or no previously documented series of 2 shots

7.4. Control of Cross Infection in the Dental Clinic & Clinical Asepsis:

In the dental clinic, blood, saliva and saliva contaminated with blood can be spread during dental treatment or during clinic or interments cleaning. Decontamination in any clinic is achieved through three procedures; cleaning, disinfection and sterilization.

7.4.1. Cleaning

This includes physical removal of debris and reduction of the number of micro-organisms present. This step is the basic in clinic asepsis and all items should be cleaned before disinfection or sterilization.

7.4.1.1. Dental Clinic Surfaces cleaning: These surfaces are classified into:

a. **Clinical contact surfaces: These surfaces should be cleaned, disinfected between patients.**

i. Touch surfaces which are touched and contaminated during treatment procedures (e.g.: dental unit controls, dental light handle).

ii. Transfer surfaces are not directly touched but often are touched by contaminated instruments (e.g.: instrument trays, hand piece holders).

iii. Splash, spatter and droplet surfaces do not actually contact the members of the dental team or the contaminated instrument or supplies (example: countertops).

Touch and transfer surfaces should be barrier-protected after being cleaned and disinfected using the spray-wipe technique. Splash, spatter and droplet surfaces should be cleaned at least once daily.

After cleaning an environmental surface contaminated with patient material, disinfect it with a chemical germicide registered with the U.S. EPA as a “hospital disinfectant” and labeled “Tuberculocidal.” Examples of such intermediate-level disinfectants include phenolic, iodophors, and chlorine-containing compounds such as diluted household bleach (sodium hypochlorite). The manufacturer’s recommended contact time (kill time) should be used.

Spray-wipe technique:

This procedure involves thoroughly cleaning and disinfecting all surfaces and it must be carried out carefully after each patient visit, as follows:

Spray: the surfaces are thoroughly cleaned to remove all debris. This is done by spraying the surface with a disinfecting solution in a pump bottle.

Wipe: paper towel is used to vigorously wipe the surface clean. The area must be completely clean because if any debris remains, the disinfectant will not be effective.

b. **General housekeeping surfaces:**

These surfaces are cleaned by the genitors only with a detergent and water or an approved disinfectant. Mops and clothes used for this purpose should be cleaned after use and allowed to dry before reuse, or single-use, disposable mop heads

and clothes should be used to avoid spreading contamination. All health care facilities must be maintained in a sanitary condition.

7.4.1.2. Instrument Cleaning

General principles:

All dental and medical instruments can be classified into three categories: critical, semi-critical or non-critical, depending on the potential risk for infection associated with their intended use and how they are reprocessed.

Cleaning of dental instruments:

a. Wear gloves when cleaning and reprocessing to lessen the risk of injury.
b. Clean the instruments thoroughly to remove debris prior to delivery to the Central Sterile Supply Department (CSSD) for disinfection and sterilization.
c. Place the instruments into a container of water or disinfectant/detergent as soon as possible after use to prevent organic material from drying on their surfaces, thus making cleaning easier.

7.4.2. Disinfection:

It is the process that kills pathogenic organisms but not necessarily all Microorganisms. Non-pathogenic micro-organisms may stay on disinfected item. How many and what kind of micro-organisms are killed by infection depends on the level of disinfection used. The efficiency of disinfectant depends on the concentration of its active ingredients and length of time of disinfection.

A hospital disinfectant should kill:

- Grame +ve bacteria: (staph aureuss)
- Grame +ve bacteria: Salmonella typhirium
- Viruses: such as polio 2 and HIV
- Fungi
- Mycobacterium tuberculosis.

7.4.3. Sterilization:

This process kills all micro-organisms including bacterial spores which are the most difficult micro-organisms to kill.

Scientifically recognized methods of sterilization:

1. Moist heat under pressure (steam autoclave).
2. Dry heat.
3. Chemical vapor under pressure (ethyleneoxide).
4. Prolonged immersion in liquid disinfectants (cold sterilization).

The decision on the appropriate method to use for various instruments can be determined based on policy and manufacturer recommendations.

7.4.4. Barrier protection

Barriers used to isolate contamination prone surfaces include clear plastic wrap, bags, sheets, tubing or other materials impervious to moisture.

Surfaces to be properly barrier protected in the dental clinic:

- Headrest on dental chair
- Control buttons on dental chair
- Light handles
- Light switches
- Evacuator hoses and controls
- Radiographs (X-ray) control switches
- Air-water syringe handles
- Dental unit control touch pads
- Patient mirror handles
- Handle on light curing device
- Switch on amalgamators or other automatic mixing devices
- Drawer handles
- Adjustment handles on operator and assistant stools
- Bracket table
- Pens used in charting and writing.
- Portable x-ray machines.

The countertops adjacent to the dental unit must be covered if one of the following procedures will be attempted:

- Mixing of impression material.
- Border molding using green stick compound.
- Waxes heating during jaw relation registration or teeth try in.
- Facebow and bite registration.

7.5. Handling and Disposal of Needles and Sharp Instruments

Almost all accidental exposures resulting in contraction of infectious diseases by DHCW were through needle pricks or other sharp instruments handling.

Try to be extremely careful handling such instruments:

- Needles
- Scalpels
- Explorers
- Scalers
- Rotating burs
- Endodontic files
- Rotating pumice and stone wheels.

Place all disposable sharp instruments such as needles, disposables scalpels, endodontic files, and burs into the puncture-resistant sharps containers located in every clinic area

How to recap used needles:

Never:

- Never recap a needle using two hands.
- Never break the needle.
- Never place used needles in plastic waste bags.

Recap the needle: use the cap holder or the one-hand scoop technique

7.6. Waste Disposal

Classification of waste:

1- **General waste**: is all hazardous, non-regulated waste and should be discarded in covered containers made of durable material such as plastic or metal receptacles. General waste receptacles should be lined with black plastic bags. This type of waste includes disposable paper towels, paper mixing pad. Disposal is done in black bags for general waste.

2- Hazardous waste: refers to hazardous, toxic chemicals and materials, this should be disposed of in red bags that has hazard sign and managed per policies of MNG-HA.

3- Medical Contaminated waste: is waste that has had contact with blood, saliva or other body fluids, examples include used barriers and patient napkins. It is not disposed of as general waste and should be disposed of in Yellow bags with clear Biohazard sign.

Infectious or regulated waste (Biohazard) is contaminated waste that is capable of transmitting an infectious disease. It is never disposed in general waste. There are three types of infectious waste in the dental clinics:

1. Blood and blood-soaked materials.
2. Pathological waste as extracted teeth and soft tissue.
3. Sharps (e.g. needles, scalpel blades…). The sharp boxes must be managed according to KSAU-HA policies and procedures before sending them to the incinerator.

Handling of waste

I. Handling and disposing of sharps:
   Sharp items must be placed in the puncture resistant, leakproof and color-coded sharp container. These containers must be located as close as possible to the place of immediate disposal.

II. Handling contaminated waste:
   Contaminated waste such as gloves and patient napkins should be placed in a lined trash receptacle covered by a properly fitted lid that can be opened

with a foot pedal. This receptacle should not be overfilled and must be emptied at a minimum once daily.

III. Handling of infectious waste:

Containers of infectious waste must be labeled with the universal biohazard symbol.

After completion of the clinical sessions, students are responsible for the following:

1. Cleaning the clinic as mentioned above.
2. Returning used instruments to the CSSD.
3. The clinic should be completely clean, no items are left on the countertops, no impression material left in the washbasin or mixing bowl, no infected items kept in the drawers, no files carelessly left in the clinic (must be returned to the reception or kept temporarily in the locker), no infected gowns nor masks nor gloves left in the clinic, decorations are completely forbidden (only a clock and mirror are allowed).
4. Food and beverages are strictly forbidden in the clinical areas.

7.7. Personal Protective Measures

7.7.1. Hand Hygiene:

Definitions:

To emphasize the importance of hand hygiene (HH) in prevention disease transmission and the indications and techniques needed.

1. Hands may easily become contaminated with infectious microorganisms, which can enter the body through a break in the skin or be transmitted to a susceptible host and cause infection.
2. All personnel, physicians, nurses, technicians, and others who are responsible for complying with the hand hygiene policy should lead by example. They should call the attention of any offenders with observed infractions.
3. Artificial nails and chipped nail polish may be associated with an increase in the number of bacteria on finger nails and should not be used.
4. Resident flora (resident bacteria) refers to the microorganisms residing under the superficial cells of the stratum corneum and also found on the surface of the skin.
5. Transient flora (transient bacteria) refers to the microorganisms that colonize the superficial layers of the skin and are easily removed by routine hand hygiene.

PROCEDURE

A. Indications for HH

Clean your hands (THE FIVE MOMENTS):

FIGURE 10

WHO poster on indications for hand hygiene in a dental care situation

1	BEFORE TOUCHING A PATIENT	WHEN?	Clean your hands before touching a patient.
		WHY?	To protect the patient against harmful germs carried on your hands.
2	BEFORE CLEAN/ ASEPTIC PROCEDURE	WHEN?	Clean your hands immediately before performing a clean/aseptic procedure.
		WHY?	To protect the patient against harmful germs, including the patient's own, from entering his/her body.
3	AFTER BODY FLUID EXPOSURE RISK	WHEN?	Clean your hands immediately after a procedure involving exposure risk to body fluids (and after glove removal).
		WHY?	To protect yourself and the environment from harmful patient germs.
4	AFTER TOUCHING A PATIENT	WHEN?	Clean your hands after touching the patient at the end of the encounter or when the encounter is interrupted.
		WHY?	To protect yourself and the environment from harmful patient germs.
5	AFTER TOUCHING PATIENT SURROUNDINGS	WHEN?	Clean your hands after touching any object or furniture in the patient surroundings when a specific *zone* is temporarily and exclusively dedicated to a patient - even if the patient has not been touched.
		WHY?	To protect yourself and the environment from harmful patient germs.

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1. Before touching a patient
2. Before cleaning/aseptic procedures
3. After body fluid exposure risk
4. After touching a patient
5. After touching patient's surroundings

Other Opportunities for Hand Hygiene

1. When hands are visibly soiled.
2. After contact with a source of microorganisms (body fluids and substances, mucous membranes, non-intact skin, surfaces that are likely to be contaminated).
3. Before donning and after removing gloves.
4. Before and after smoking, eating or preparing food.
5. Before leaving the patient's room.
6. After bodily functions (e.g., using the toilet, blowing one's nose, sneezing).
7. When moving from a contaminated body site to a clean body site during patient care.

B. Techniques:

Hand washing

Wash hands for a minimum of 40 to 60 seconds

1. Remove excess jewelry.
2. Select a comfortable water temperature.
3. Wet hands with running water.
4. Apply soap to cover all surfaces of the hands.
5. Rub hands palm to palm.
6. Right palm over left dorsum with interlaced fingers and vice versa.
7. Palm to palm with fingers interlaced.
8. Back of fingers to opposing palms with fingers interlaced.

9. Rotational rubbing of the left thumb clasped in the right palm and vice versa.
10. Rotational rubbing backward and forward with clasped fingers of the right hand in the left palm and vice versa.
11. Rinse the hands with running water to remove all soap residue, holding hands in upward position over sink.
12. Dry the hands with a paper towel.
13. Turn the faucet off with the used paper towel.

Hand rubbing

Use alcohol-based hand antiseptic rub for a minimum of 20-30 seconds

1. Apply to dry, visibly clean hands.

2. Rub hands vigorously to apply hand antiseptic to all surfaces of hands (as in steps 5 to 10 above).
3. Allow hands to dry.

C. Agents used for HH

1- Water, Soap and Drying Methods:

a. Water is described as the Universal solvent for a large number of substances.
b. When used alone, water cannot remove dirt from hands.
c. Drying practice is a critical factor to determine the level of bacterial residue.
d. Use paper towels.
e. Pat the skin dry rather than rub it to avoid cracking (skin excoriation may lead to bacteria colonizing the skin).
f. Do not reuse or share hand drying towels.

2- Alcohols:

a. Alcohol-based hand antiseptics contain ethanol, isopropanol, n-propanol or a combination of two of these products.
b. They have the ability to denature proteins.
c. The most effective solutions contain 60%-80% alcohol (a higher concentration is less effective).
d. They are rapidly germicidal.
e. Such antiseptics are available in gels, liquid, and foam.

D. Care of Hands

1. Use hand moisturizers to replace the oil lost by frequent hand hygiene procedures.
2. Ensure that the skin on your hands is intact. Cover non-intact skin areas with an occlusive dressing.
3. Do not use petroleum-based lotions, as they may interfere with glove integrity.

E. Medical Assessment

1. Any suspicion of a dermatological condition must be evaluated by an Employee Health Physician or the appropriate medical service.
2. HCWs that have exudative lesions or weeping dermatitis should refrain from all direct patient care and from handling patient care equipment until the condition resolves.

G. Surgical Hand Hygiene

Before starting surgical hand hygiene preparation (hand scrub or hand rub)

1. Remove all jewelry and wristwatches before entering the operating room (OR) suite
2. Wash hands and arms up to the elbows with a non-medicated soap before entering the OR area.
3. Use a nail cleaner for the first surgical hand scrub of the day.

Surgical hand scrub with antimicrobial soap

1. Start timing and then scrub each side of each finger, between the fingers and the back and front of the hand for two minutes.
2. Scrub the arms, keeping hands higher than the arms at all times.
3. Wash each side of the arm from wrist to the elbow for one minute, repeating the process on the other hand and arm.

4. Rinse hands and arms by passing them through the water in one direction (from fingertip to elbow), always keeping the hands above the elbows.
5. Proceed to the OR holding hands above the elbows.
6. Dry hands with a sterile towel and use aseptic technique to put on gloves.

NB: The duration of the procedure depends on the ingredients and the manufacturer's instructions (can range from 2-6 mins).

Surgical hand rubs with alcohol-base preparation

1. Start timing.
2. Use sufficient product to keep hands and forearms wet with the hand rub throughout the procedure.
3. See attachment for proper technique.
4. After application of the product, allow hands and forearms to dry before donning sterile gloves.
5. Proceed to the OR holding hands above the elbows.

NB: The duration of the procedure depends on the ingredients and the manufacturer's instructions (can range from 2-6 min) and should last until hands are dry.

7.7.2. Gloves

Gloves will protect DHCW by providing an extra barrier against entry of micro-organisms through breaks of skin. They will also protect the patients from contracting micro-organism on the DHCW's hands.

When gloves should be worn:

- Whenever hands are to touch patient's mouth.
- Whenever instruments are to be touched.
- Whenever equipment are to be touched.
- Whenever contaminated surfaces are to be touched.

In the faculty and students clinic, three types of disposable gloves are placed on clinic carts.

Gloves:

1. Vinyl gloves:
   Disposable examination gloves suitable for procedures involving contact with oral mucous membranes.
2. Latex gloves:
   Examination gloves suitable for same purpose as vinyl. However, latex gloves are more resistant to punctures than vinyl gloves. Nevertheless, when intact they both are equally effective.
3. Sterile surgical gloves: For procedures that require sterile handling.

7.7.3. Masks and eyewear:

These protective barriers should be worn for facial protection whenever blood or fluids contaminated with blood may be spattered. Procedures that may include such incidents are:

1. All patients' treatment.
2. Cleaning instruments.
3. Disposing of contaminated fluids.

Notes:

- A mask is ineffective when it becomes wet.
- A fresh mask is used for every patient.
- Remember to wear masks before wearing gloves and try to minimize touching the mask with your gloved hands.
- Protective eyewear is mandatory for all dental procedure. Prescription glasses do not provide side protection. Therefore, face shield or goggles are recommended.
- Non-disposable eyewear should be washed with soap and water, then immersed in glutaraldehyde for 10 minutes, then rinse with water.

7.7.4. Attire and Clothing

Surgical gown must be worn over a medical scrub in the clinic during any clinical procedure. A new gown is used for every patient. You are not allowed to step out of the clinic with gown on.

7.8. Instrument Reprocessing: Cleaning, Disinfection and Sterilization

7.8.1. General principles

All dental and medical instruments can be classified into three categories: critical, semi critical or non-critical, depending on the potential risk for infection associated with their intended use and how they are reprocessed. Refer to Table 1.

Classification	Description	Example	Relative risk	Process
Critical	Penetrates tissue; contacts open tissue	Cutting instruments; surgical burs and needles; hand pieces and scaler tips	High	Heat sterilization; sterile, single-use disposables.
Semi-critical	Contacts mucosa	Hand instruments (non-cutting); mouth props; plastic prophylaxis angles; rubber dam frames	Intermediate	Heat sterilization; single use disposables; chemical sterilization.
Non-critical (no intraoral contact)	Contacts unbroken skin	Blood pressure cuffs; radiograph head cone; pulse oximeters	Low	Clean with detergents (no blood or saliva); intermediate-level disinfection if visibly contaminated with

				blood; disposable barriers.

7.8.2. Dental Laboratory

A. Clean and disinfect laboratory materials and other items that have been used in the mouth (e.g., impressions, bite registrations, fixed and removable prostheses, and orthodontic appliances) before manipulating them in the laboratory. After manipulation, clean and disinfect these items again before placing them in the patient's mouth.
B. Use a hospital-approved intermediate-level disinfectant that is labeled "tuberculocidal" to disinfect laboratory materials

7.9. Handling and disinfecting hand-pieces, anti-retraction valves, and other intraoral dental devices attached to air and water lines:

1. Heat-sterilize all high-speed dental hand pieces, low-speed hand piece components used intra-orally, and reusable prophylaxis angles. Acceptable methods of sterilization include steam under pressure (autoclaving), dry heat, or heat/chemical vapor. It is NOT acceptable to reprocess high-speed dental hand pieces, low-speed hand piece components used intra-orally, and reusable prophylaxis angles by wiping or soaking these instruments in liquid chemical germicides.
2. Follow the manufacturer's instructions for cleaning, lubrication, and sterilization of hand pieces and reusable prophylaxis angles to ensure effective sterilization and longevity of the instruments.
3. Install ant retraction valves (one-way flow check valves) in dental unit water lines to prevent fluid aspiration and to reduce the risk of the transfer of potentially infectious material. Ensure routine maintenance of antiretraction valves.
4. Run high-speed handpieces to discharge water and air for a minimum of 20 to 30 seconds after use on each patient. If possible, use an enclosed container or high

velocity evacuation during discharge procedures to minimize the spread of spray, spatter, and aerosols.

5. At the beginning of each clinic day, remove handpieces and allow water lines to run and discharge water for several minutes to reduce overnight microbial accumulation.
6. Use sterile water or saline as a coolant/irrigator when surgical procedures involve cutting bone.
7. After treatment of each patient, clean and sterilize reusable intraoral instruments attached to, but removable from, the dental unit air or water lines (e.g., ultrasonic scaler tips and their component parts and air/water syringe tips) in the same manner as hand pieces. Follow the manufacturer's instructions for reprocessing.
8. Some dental instruments have components that are heat sensitive or are permanently attached to dental unit water lines. Other instruments (e.g., handles or dental unit attachments of saliva ejectors, high-speed air evacuators, and air/water syringes) that do not enter the patient's mouth can become contaminated with oral fluids during treatment procedures. Cover these instruments with impervious barriers that are changed after each use or, if possible, clean and then disinfect them with an EPA-registered "hospital disinfectant" that is labeled "tuberculocidal".
9. Flush all water lines to all instruments thoroughly after the treatment of each patient and at the beginning of each clinic day.
10. Advise patients not to close their lips tightly around the tip of the saliva ejector to evacuate oral fluids.

7.10. Single-use disposable instruments

Use single-use disposable instruments (e.g. cups and brushes, tips for high-speed suction, saliva ejectors, air/water syringes) for one patient only and discard after use.

7.11. Handling of Biopsy Specimens

1. Place each biopsy specimen in a sturdy container with a secure lid to prevent leaking during transport.
2. Avoid contaminating the outside of the specimen container. If the outside is visibly contaminated, clean and disinfect it or place it in an impervious bag.

7.12. Disposal of infectious waste materials

4. Pour blood, suctioned fluids, or other liquid waste into a drain connected to a sanitary sewer system.
5. Place solid waste contaminated with blood or other body fluids in sealed, sturdy impervious bags that are leak proof; refer to policy ICM – IX-02 Waste Management.

7.13. Protocol for the Dental Laboratory

7.13.1. General guidelines:

1. Separate the receiving area from the production area. Clean and disinfect countertops and work surfaces daily.
2. Sterilize or disinfect containers after each use. Discard packing materials to avoid cross-contamination.
3. Production area:
    a. Wear a clean uniform or laboratory coat, a face mask, protective eyewear, and disposable gloves.
    b. Clean debris from work surfaces and equipment and disinfect them daily.
    c. Separate instruments, attachments, and materials to be used with new prostheses/appliances from those to be used with prostheses/appliances that have already been inserted in the mouth.
    d. Disinfect brushes and other equipment at least daily.
4. Disinfect each outgoing case before it is returned to the dental clinic.

The following items should be disinfected after each use by an approved disinfectant:

- Face bow
- Impression syringes (NOT TIPS, tips are disposable)
- Shade guides-after second spray wipe with water or alcohol

7.13.2. Impressions, Casts, Prosthesis, Bite Registrations Records

These items represent potential hazard since impressions, for example, can be contaminated with debris, saliva and blood. Therefore, any of those items should be

disinfected before sending them out of the clinic to the lab and tag the impression as disinfected.

How to disinfect impressions and dental casts:

- All impressions should be gently rinsed under water to remove debris saliva or organic materials.
- Alginate and polyether impressions are placed on paper towels and sprayed with sodium hypochlorite.
- Compound and zinc oxide impressions are sprayed with cocide.
- The impressions are then wrapped in a towel wet with the suitable disinfectant, placed in a plastic bag and sent to the lab. With the lab. form.
- Prosthesis, such as record bases and wax rims shellac, trial bases with tooth set up, dentures, are disinfected by sodium-hypochlorite, 1:10 dilution.
- Fixed prosthesis (metal/porcelain) and removable partials must be disinfected.

7.13.3. Items Received From the Lab:

1. Remove transport wrap and place in a work pan, then disinfect items before insertion into the patient mouth.
2. If the new appliance needs to be cleaned in ultrasonic bath, use fresh bath solution in the pan. This solution should not be re-used.

3. Casts: A stone containing chloromine-T is preferably used. However, for regular plaster, stone and dies the cast is sprayed with glutraldehyde, wait for 3 minutes than spray again and rinse with water.

7.13.4. Work Area:

- Work area should be wiped and disinfected then a clean counter top paper is laid down.
- For laboratory work of each patient: cleaned disinfected and/or sterilized instruments are used.
- After finishing all work, clean work area of all debris.

7.13.5. Personal Protection in the lab:

Personal protection in the dental laboratory: Personal protection equipment at the dental laboratory is done according to the manufacturer recommendations based on the materials safety data sheet.

A. Pouring section:
   1- gloves
   2- yellow gown/ lab coat
   3- eye protection
   4- mask
B. Bendixing section:
   1- yellow gown
   2- eye protection
   3- mask
C. Removable, Ortho & Cr-Co section:
   1- mask
   2- nitrile gloves
   3- eye protection (when needed)
D. Crown & bridge section:
   1- mask N95 (ceramic application)
   2- eye protection
E. Casting and investing:
   1- nitrile gloves
   2- Mask N95
   3- eye protection

7.13.6. Pumice / Lathe:

- **DO NOT** use gloves when operating the lathe.
- Before removing a soft reline from a denture or grinding to prepare a denture for a reline, it should be disinfected first by immersion in glutaraldehyde for 10 minutes

7.14. Protocol for Radiographic and Radioactive devices

7.14.1. Radiography Procedure

I. Before seating the patient:
   1. Use surface disinfectant to spray:
      - Hand-control exposure buttons
      - Chair, head rest
      - Chair switches
      - Tube head
      - Lead apron, collar
   2. Prepare the following:
      - Film(s) in disposable cup
      - Cotton rolls
      - Styrofoam bite blocks/bite wing tabs.

II. Seat Patients
   1. Place covers: lead apron collar
   2. Bib napkin

III. During the Procedure:
   1. Always use barrier techniques:
      a. Gloves
      b. Masks
      c. Eye ware or face shields

2. Use films in envelopes.
3. Place exposed (contaminated) films in plastic cups.

IV. After the Procedure:

1. Hang up lead apron and collar.
2. Set aside plastic cup with exposed films.
3. Dispose of all disposables, e.g. Styrofoam bite blocks, cotton rolls, bite wing tabs etc.
4. Disinfect all surfaces and tolls as in step I.

7.14.2. Film Processing:

1. Wear gloves
2. Set two clean cups
3. Remove plastic film shields without touching films and drop film into one of the clean cups.
4. Repeat if you have more than one film.
5. Dispose cup of films and also of gloves.
6. Wash hands.
7. Process films as follows:
   a. Put the cup of films and a paper towel in the day light loader; close the lid.
   b. Put on clean examination gloves.
   c. Put gloved hands through the light shield, unwrap the film packets and deposit the film into the loading chute slots.
   d. Place the film wrapping into the cup. Remove gloves and place into cup.
   e. Activate the film drop mechanisms and put the loading chute cover in place.
   f. Remove from the daylight loader, lift the lid and dispose cup with waste and wash hands thoroughly.

7.15. Accidental Exposure Report and Management

What is accidental exposure?

A specific occupational incident involving eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood or other infectious materials, including saliva.

Incident report for students and faculty employee

Faculty employees include faculty staff members, auxiliaries, others.

1. Emergency first aid should be available during all clinic periods to be administered approximately in case of exposure.
2. Immediately following an exposure incident, documentation of the route(s) of exposure and circumstances surrounding the incident are recorded on Accidental Exposure form by the faculty member or session supervisor. The following information should be precisely described:
    a. Circumstances of exposure.
    b. Information on the activity the student or employee was engaged in at the time of the incident.
    c. Extent of appropriate work practice.
    d. Extent of protective barriers used.
    e. Source of exposure.
3. Both: exposed person and source individual are offered the opportunity of having a blood sample drawn in the assign clinic.
4. The procedures, routes of evaluation, results of testing are completely confidential.
5. If the exposed person and source individual agree on testing, the blood will be tested in the KAMC Hospital for HBV, HCV and HIV.
6. If one of those persons declined testing, the infection control officer in charge should record that the exposed person declines testing on the form. The exposed person should sign it.
7. If the concerned persons consent to blood collection but not to any of the tests, the blood sample is drawn and frozen for ninety (90) days in case the exposed persons decides to proceed for testing.
8. Medical prophylaxis and consultations area available at no cost following accidental exposure at the outpatient clinic of KAMC.
9. Confidentiality should be respected for all parties involved.

REFERENCES

1. NGHA IPP #ICM – VIII-08 effective 7/12/2011
2. King Abdul-Aziz University Faculty of Dentistry Infection Prevention Manual.
3. Centers for Disease Control and Prevention. Recommended infection-control practices for dentistry, 1993. MMWR 1993; 42(No. RR-8):1-12 Revised 2003.
4. American Dental Association. Infection control recommendations for the dental office and the dental laboratory. J Am Dent Assoc (Suppl), August 1992.
5. APIC Association for Professionals in Infection Control and Epidemiology, Inc 3rd Edition 2009: Dental Services Chapter 50.