1. **Executive summary.**

**A one-page document summarizing the business problem and the benefits to be obtained from your solution.**

In today’s world computerized information storage system is useful in any kind of business and can be implemented easily by formulating business rules and records needed for storage. Hence, for this case of small local dental office(LDO) it applies as well.

From the case we find that the Local Dental Office(LDO) has been serving public with high quality services since 20years. There are 3 dentists, 5 hygienists, and 3 office staff employed in the LDO. The patients require prior appointment to visit their preferred dentist. The patients are attended by other dentists available in case of selected dentist unavailability under any circumstances. The cleaning is performed by hygienists only and need a separate appointment for the same. The hygienists are assigned to patients according to their availability. The patients can make multiple appointments in a single day. The LDO supervise the drugs and suppliers. The LDO needs to record the drug specifications like brand, dose, and supplier of it. The LDO receives drugs from multiple suppliers and each supplier provides multiple drugs. And also, a single drug can be provided by multiple suppliers. The LDO receives drugs in batches, one batch is associated with one drug and the drug specifications like dose, expiration date, etc. are same of drugs received in one batch. LDO handles different drugs that are in different physical forms. The LDO needs to record all the activities performed with respect to patients, hygienists, dentists, drug suppliers, and drugs received and their details. Currently the recording of patient details is done manually but the LDO staff members convinced the dentists to digitize the same in order to meet the increased demand of public. Currently the details being recorded are – hygienist and dentist who have attended the patient, drugs prescribed to patients along with their expiration date and drug supplier details, and also the destroyed drugs details.

By replacing manual record keeping with computerized system can yield better results like :

**Improved billing** : The invoice details can be updated and improved with the computerized record keeping, can be tracked, and traced when required to improve record management and consolidation ultimately improving customer service as well.

**Drug order details :**With the available supplier, batch information, type of drug details we can also track drug order details like drug ordered date, drug received date, amount paid to supplier.

We have included above mentioned as part of ERD proposed and in addition, we can also gain benefits through below suggestion :

**Improved accessibility to patient data**: With increased storage available the entire medical history of patients can be made available and not only the dental record details hence will add value during treatment process more efficiently and provide proper care.

**Self-appointment scheduling**: With computerized system in place, manual intervention for appointment booking can be eliminated and patients now can go online to schedule their appointments as LDO allows the service for the patient to see the available dentist to choose from , this will improve wait time on calls/visits for patients for booking appointment and will have correct information available with less margin of error. The details of appointment will be available as records in the system Hence, the end goal is to expand the existing office to meet the demand for services being offered ensuring good customer service along with digitizing the manual recording procedure of patients.

1. **Make a list of business rules with your assumptions.**

This office houses 3 dentists, 5 hygienist and 3 office staff. Dentists are planning to expand due to high demand and hence need a computerized storage system to track records for appointment details, patients, dentists, hygienist, supplier, drugs, service, and billing.

Business rules:

* Dentists treat numerous patients
* Hygienists treat numerous patients
* Each patient has a primary dentist assigned which can be replaced by another dentist in case of unavailability of primary dentist
* Separate appointment for teeth cleaning for every patient that can be performed only by a hygienist (only one)
* A patient can schedule multiple appointments in one day (at least one)
* A drug can have multiple suppliers, suppliers provide multiple drugs and drugs are received in batches(1 batch is for 1 drug)
* Each drug is part of only one batch which has same expiration date

1. **Entity Relationship (ER) diagram**

Diagram

Description automatically generated

1. **Relational Data Model/Schema**

Diagram, schematic

Description automatically generated