



Medical Practice database: Business rules and data

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1. Introduction

The client, The Medical Practice, offers not only general medical services by doctors, but other services such as physiotherapy, podiatry, optometry, and so on. Often, a patient may only want to see a nurse for the purposes of a blood pressure check, an electrocardiogram of their heart, immunisation, or other similar general health screening service that can be provided by a nurse. There are several practitioners employed by the Medical Practice including doctors (General Practitioners or GPs), nurses, physiotherapists, podiatrist, etc. (see the list of the different types of practitioners below).

The Medical Practice is open from Monday to Friday from 8:00 am till 6:00 pm and the practitioners are available at the Medical Practice on varying days of the week. For example, one of the nurses is only available for appointments on Mondays, Wednesdays, and Fridays while the podiatrist is available on Tuesdays and Thursdays of each week. The practitioners' availability does not change from week to week and they're available for the whole day, 8:00 am till 6:00pm, on the days that they work.

The Medical Practice Receptionist will make appointments for patients to see practitioners. The database is only required to provide tracking information of patients' appointments with practitioners and any pathology tests that the patient may be required to undertake.

2. Patient management

The database must store the patient's current personal data as follows:

- Title
- First name
- Middle Initial (if applicable)
- Last name.
- House, unit or lot number. e.g. 3/45
- Street/road name
- Suburb
- State
- Post Code

- Home Phone Number (if applicable)
- Mobile Phone Number (if applicable)
- Medicare Number (if applicable, Unique)
- Date of Birth
- Gender

The patient's current personal details must be updateable. For example, if a patient changes their name or their address, then the new name or address must be recorded in the database. All addresses recorded in the database must be within Australia. Only the patient's current details need to be stored. Not all Patients will have a Medicare Number.

The database must allow for the following operations on patient data:

- Inserting the details of a new patient
- Retrieving the details of an existing patient
- Updating the details of an existing patient
- Patients' records are never to be deleted.

3. Appointment management

The system must store details of both past and future appointments made by the Receptionist for patients with practitioners. The Appointment details must include the following:

- Title, first name, surname and date of birth of the patient that is making the appointment
- Title, first name, surname, and type of practitioner with whom the appointment is to be held
- The date and start time of the appointment.

The database must allow for the following operations on appointment data:

- Creating new appointments for patients with practitioners
- Retrieving the details of a patient's appointments
- Retrieving the details of all the appointments for a practitioner

- Retrieving the details of all the appointments for a practitioner on any particular date.
- Cancelling a future appointment of a patient or a practitioner
- Updating an appointment date or time
- Deleting an appointment.

3.1 Appointment rules

- An appointment can only be made with a practitioner if they're available on the day of the desired appointment.
- Appointments are allocated in 15 minute increments commencing on the quarter hour. For example an appointment could begin at 10:00 am and finish at 10:15 am. Or, for a more complex consultation with a doctor an appointment may commence at 2:00 pm and finish at 2:45 pm. In this case, three 15 minute appointments are booked for the patient with the practitioner.
- Patients can make an appointment to see any of the practitioners.
- A patient cannot book more than one appointment on the same date and start time. That is, patients must not be 'double-booked'.
- A practitioner cannot take more than one appointment on the same date and start time. That is, practitioners must not be 'double-booked'.

4. Practitioner management

The database must store the practitioner's current personal details as follows:

- Title
- First name
- Middle Initial (if applicable)
- Last name
- House, unit or lot number
- Street/road name
- Suburb

- State
- Post Code
- Home Phone Number (if applicable)
- Mobile Phone Number (if applicable)
- Medicare Number (Unique)
- Australian Health Practitioner Regulation Agency (AHPRA) Medical Registration Number (MRN) (Unique)
- Date of Birth
- Gender
- Practitioner Type
- Days of the week available.

The practitioner's current personal details must be updateable. Only the practitioner's current details are stored.

The database must allow for the following operations on practitioner data:

- Inserting the details of a new practitioner
- Retrieving the details of an existing practitioner
- Updating the details of an existing practitioner
- Practitioners' records are never to be deleted, however a practitioner can be 'inactive' if they're currently not working at the Medical Practice.

4.1 Practitioner rules

All practitioners must have an AHPRA Medical Registration Number (MRN) and a practitioner can only practise under one Registration (one practitioner type) with the Australian Health Practitioner Regulation Agency (AHPRA) as per the following types of practitioner:

- Medical practitioner (Doctor or GP)
- Medical radiation practitioner
- Diagnostic radiographer
- Radiation therapist
- Nurse

- Registered nurse
- Enrolled nurse
- Midwife
- Occupational therapist
- Optometrist
- Osteopath
- Physiotherapist
- Physical therapist
- Podiatrist
- Psychologist.

5. Pathology test request management

The database must store details of pathology tests that have been requested for a patient by a practitioner. Pathology tests are not necessarily requested during the patient's appointment with the practitioner and could be requested at any time.

The details should include the following:

- The type of pathology test
- The date that the pathology test was ordered
- The time that the pathology test was ordered
- The practitioner that ordered the pathology test
- The patient for whom the pathology test was ordered
- A practitioner cannot request a pathology test for a patient on the same date and at the same time.

The database must also store details of the pathology test code, the test name and its description. Examples of the types of pathology tests that can be requested include (but are not limited to) the following:

Table 1: Types of pathology tests

Test Code	Test Name	Description
HLYSN	ABO	Haemolysins (serum)
CPEP	C Peptide	C-Peptide: CPEP
MOLINT	Deafness	Autosomal Recessive, Complete GJB2 Gene Sequencing Analysis Connexin 26: CX26: CXB2: Recessive Autosomal Deafness: Autosomal Deafness: Hereditary Deafness: GJB2: DFNB1: Nonsyndromic Neurosensory Deafness: Neurosensory Deafness Type I: DNA deafness gene abnormality: Connexin 30: CX30
IMISC	Paraneoplastic	Paraneoplastic Pemphigus Antibodies [NOTE: Authorisation required from an Immunopathologist]
ECH	Echis Time	Ecarin time
ENT	Ear, Nose, Throat, Eye Swab	includes gram stain (except throat swab) and bacterial culture. Contact screening for Corynebacterium
RAST	Radioallergosorbent Test	RAST: IgE RAST: Allergen Screen: Radioimmunosorbent Assay of Allergens: Allergen-Specific IgE: Aspergillus RAST, Specific IgE: Ig to specific allergens

The database must allow for the following operations on requested pathology tests:

- The creation of a new pathology test request
- The deletion of an existing pathology test request

- A listing of all pathology tests requested for a particular patient
- A listing of all pathology tests requested by a particular practitioner
- A listing of all pathology test requests.

6. Version control

No	Effective	Approved by	Updates
1	12 July 2021	Christina Kaiser	Initial release