MedReleaf AUSTRALIA

Cannabis as Medicine

CPD-Accredited Course

australian pharmacy council
ACCREDITED CPD

This course is CPD-accredited

Accreditation Number: A2402CAN1

The 2016 Competency Standards addressed by this activity include: 2.2, 2.3, 3.1, 3.2, 3.5.

This activity has been accredited for 1 hour of Group 1 CPD (or 1 CPD credit) suitable for inclusion in an individual pharmacist's CPD plan, which can be converted to 1 hour of Group 2 CPD (or 2 CPD credits) upon successful completion of relevant assessment activities.

Welcome to this eLearning Course

Learning objectives

This course examines the role of the endocannabinoid system and the role Medicinal Cannabis plays in patients. It describes the history and background of cannabis, clinical safety information, indications and prescription information, and dosing and patient management.

The learning objectives for this course are:

- Describe the process of the endocannabinoid system
- Describe the entourage effect hypothesis
- Describe the role of Medicinal Cannabis and cannabinoids in our body
- List the patients who may benefit from Medicinal Cannabis treatment
- Understand the importance of safety and legal implications when being treated with Medicinal Cannabis
- Identify important counselling points and product information advice for patients taking Medicinal Cannabis
- Identify the role of the pharmacist throughout patient Medicinal Cannabis treatment

Welcome to this eLearning Course

Pharmacist learning plan

This educational activity addresses the following competencies in the National Competency Standards Framework for Pharmacists in Australia 2016. Pharmacists who have identified these areas for improvement in their personal learning plan can use this course to help meet their learning needs.

The 2016 Competency Standards addressed by this activity include

2.2	Collaborate with professional colleauges
2.3	Communicate effectively
3.1	Develop a patient centred, culturally responsive approach to medication management
3.2	Implement the medication management strategy or plan
3.5	Support Quality Use of Medicines

References are listed at the footer of each page.

Part 1: History and Background

Cannabis as Medicine

How Medicinal Cannabis fits into our world as Health Care Professionals

Considerations:

- Why is this an important topic for pharmacists?
- What is in it?
- How does it work, is it safe?
- Why do we want it, what is it good for?
- How do we provide it for our patients?
- Where do we get it from?

Introduction

Why is Medicinal Cannabis an important topic for Pharmacists?

Medicinal cannabis has been used for a **variety of purposes** overseas for many years. Cannabis in various forms has been used in folk medicine for centuries.

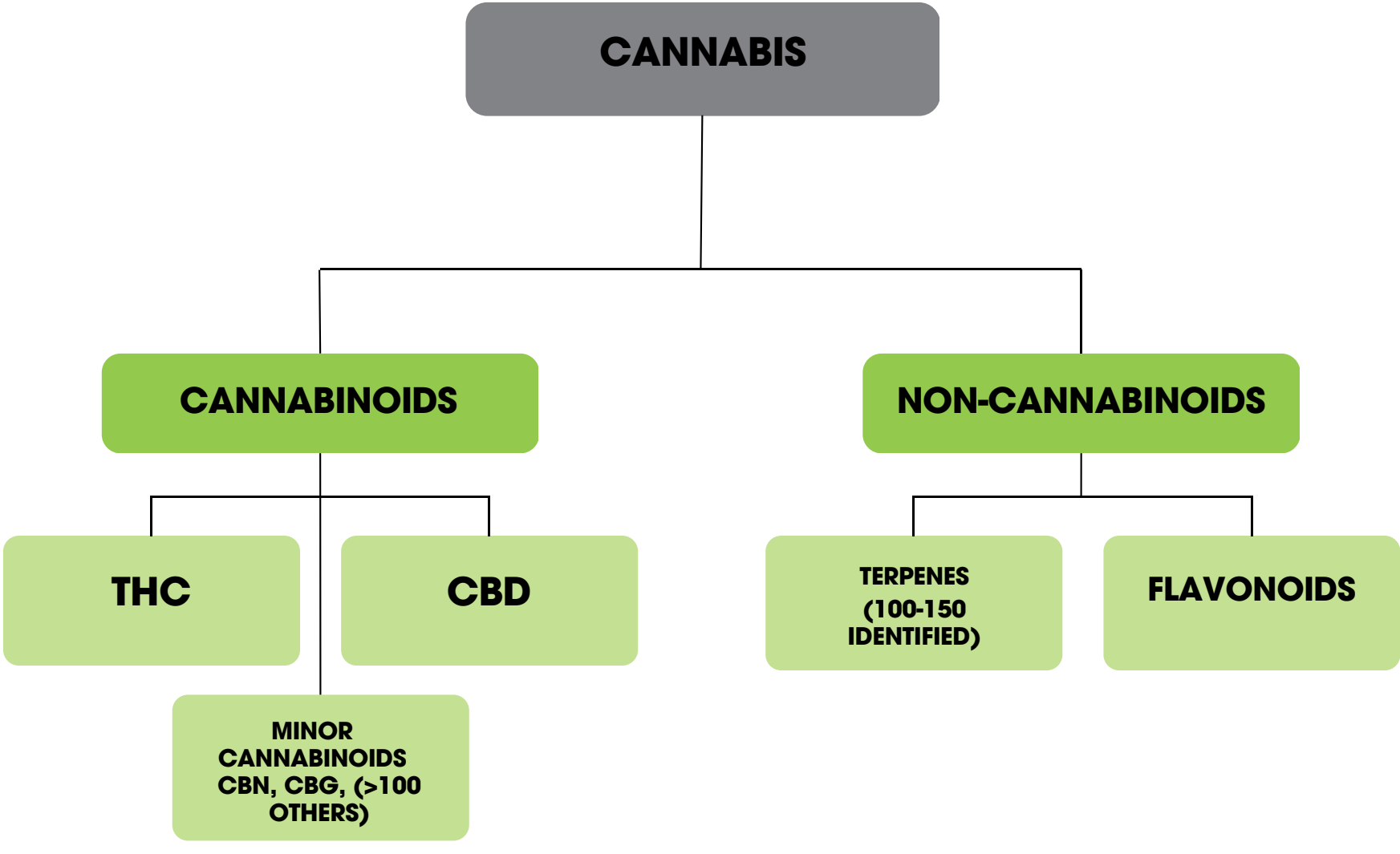
In **2016**, Australia introduced legislation to permit the **cultivation and production** of cannabis for **research and medicinal purposes**.

As health care professionals, we should acknowledge the existence of another useful medication that could bring relief to our patients in need. The use of medicinal cannabis is currently accepted by the Therapeutic Goods Administration, upon application.

- Patients already know this and are asking for access.
- They may already be using cannabis sourced elsewhere.

All Pharmacies are eligible to dispense medicinal cannabis.

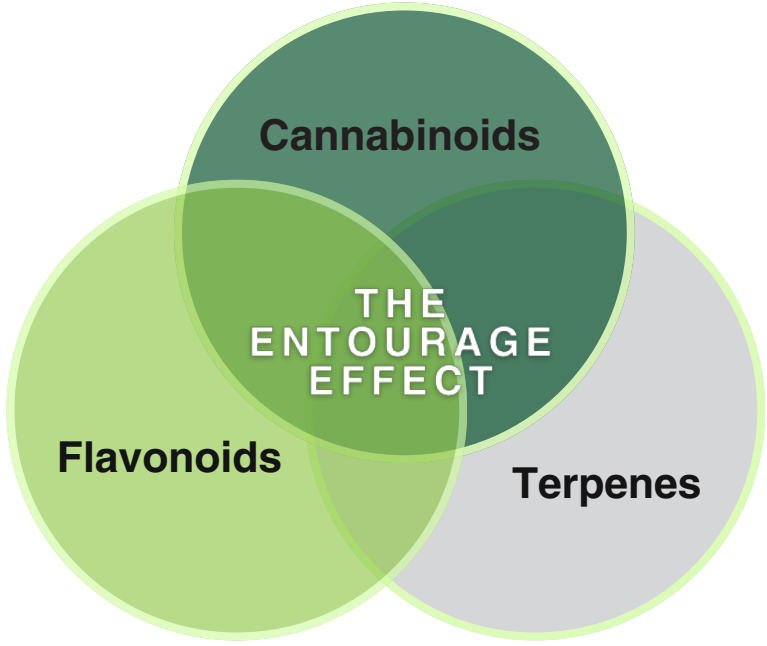
Medicinal Cannabis constituents



Entourage effect hypothesis

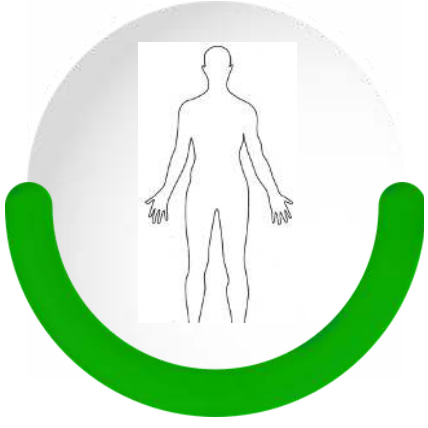
Cannabinoids work synergistically with each other and/or with terpenes [1]

This hypothesis is supported by findings that show extracts of cannabinoids are more efficacious than isolated, single cannabinoids, supporting the idea that there are additive therapeutic effects between the different compounds found in cannabis[1-6]



1. Russo 2011 2. Comelli et al. 2008 3. Darkovska-Serafimovska et al. 2018 4. López-Valero et al. 2018 5. Lorente et al. 2011 6. Aizpurua-Olaizola et al. 2017

Cannabinoids



ENDOCANNABINOIDS
are naturally produced cannabinoids in the body in response to stimuli (e.g. anandamide, 2-AG)

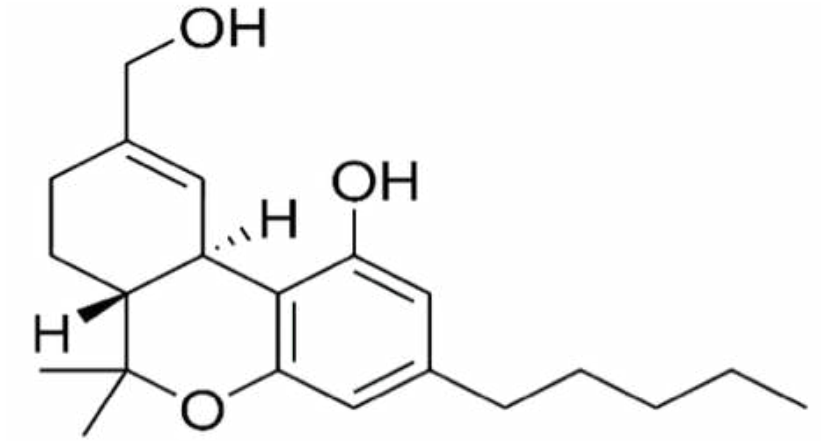
PHYTOCANNABINOIDS
are produced by the cannabis plant & mimic endocannabinoids (e.g. THC, CBD)

SYNTHETIC CANNABINOIDS
are synthesised chemical compounds (e.g. nabilone (Cesamet®))

Major Cannabinoids

Δ^9-Tetrahydrocannabinol (THC)

- Principle psychoactive cannabinoid found in cannabis
- CB_1 and CB_2 receptor partial agonist [7,8]
- Potential therapeutic effects: [8,9]
    - Analgesic
    - Anti-emetic
    - Anti-inflammatory
    - Anti-spasmodic
    - Anti-cancer

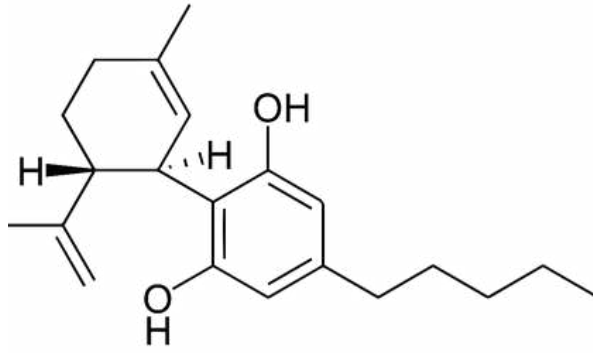


7. Pertwee 2008 8. Tham et al 2018 9. Thomas et al. 2009

Major Cannabinoids

Cannabidiol (CBD)

- Non-psychoactive cannabinoid
- CBD may interact with a number of different targets such as:
    - CB_1 and CB_2 receptors (agonist, partial agonist, inverse agonist, antagonist, negative allosteric modulator)[7–11]
    - 5HT1A receptors (agonist)[12]
    - PPARγ receptors (agonist)[13]
    - GPR55 receptors (antagonist)[14]
    - TRPV1 channels (agonist)[15]



- Potential therapeutic effects[16]:
    - Anti-epileptic
    - Anxiolytic
    - Anti-cancer
    - Antioxidant
    - Anti-inflammatory
    - Neuroprotection
    - Analgesic

10. Ligresti et al. 2006 11. Breuer et al. 2016 12. De Gregorio et al. 2018 13. Vallée et al. 2017 14. Ferro et al 2018 15. Philpott et al 2017 16. Baron 2018

The Endocannabinoid System

The human body possesses an Endocannabinoid System that influences various crucial physiological functions to keep the body in homeostasis.

The signaling molecules: anandamide, 2-arachidonoylglycerol and others.

The receptors: CB1, CB2, G-protein coupled receptor (GPR) and TRP channels.

Known Cannabinoid receptors in the various systems [17]

CB1

Receptors are concentrated in the brain & the central nervous system but are also present in some nerves and organs.

CB2

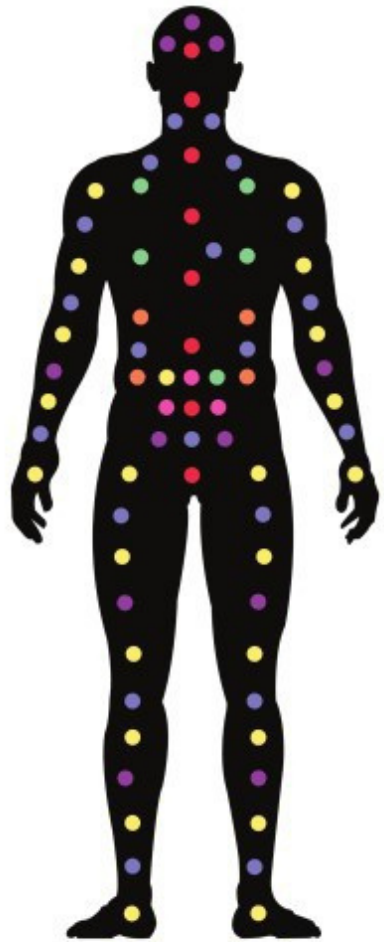
Receptors are mostly in peripheral organs, especially cells associated with the immune system.

TRVP1

Receptors are concentrated in the blood, bone, marrow, tongue, kidney, liver, stomach & ovaries.

TRPV2

Receptors are concentrated in the skin, muscle, kidney, stomach & lungs.



GPR 18

Receptors can be found primarily in bone marrow, the spleen and lymph nodes, and to a lesser extent the testes.

GPR55

Receptors are found in the bones, the brain, particularly the cerebellum, and the jejunum and ileum.

GPR 119

Receptors are found predominantly in the pancreas and the intestinal tract, in small amounts.

MCANZ

/MCANewZealand/

@MCAwarenessNZ

mcawarenessnz.org/

17. Medical Cannabis Awareness New Zealand. (2019).

Part 2: Clinical Safety

Safety

Death from cannabis overdose is undocumented

This does not include harm associated with driving or other activities while intoxicated.

Pharmacists must be able to differentiate between the following, in accordance with Quality Use of Medicines in Australia:

- **Smoking vs Vapourising**

Smoking is not recommended, a dried herb vapouriser should be used to administer dried flower.

- **Different dosage forms**

Time of onset and duration of effect VARY.

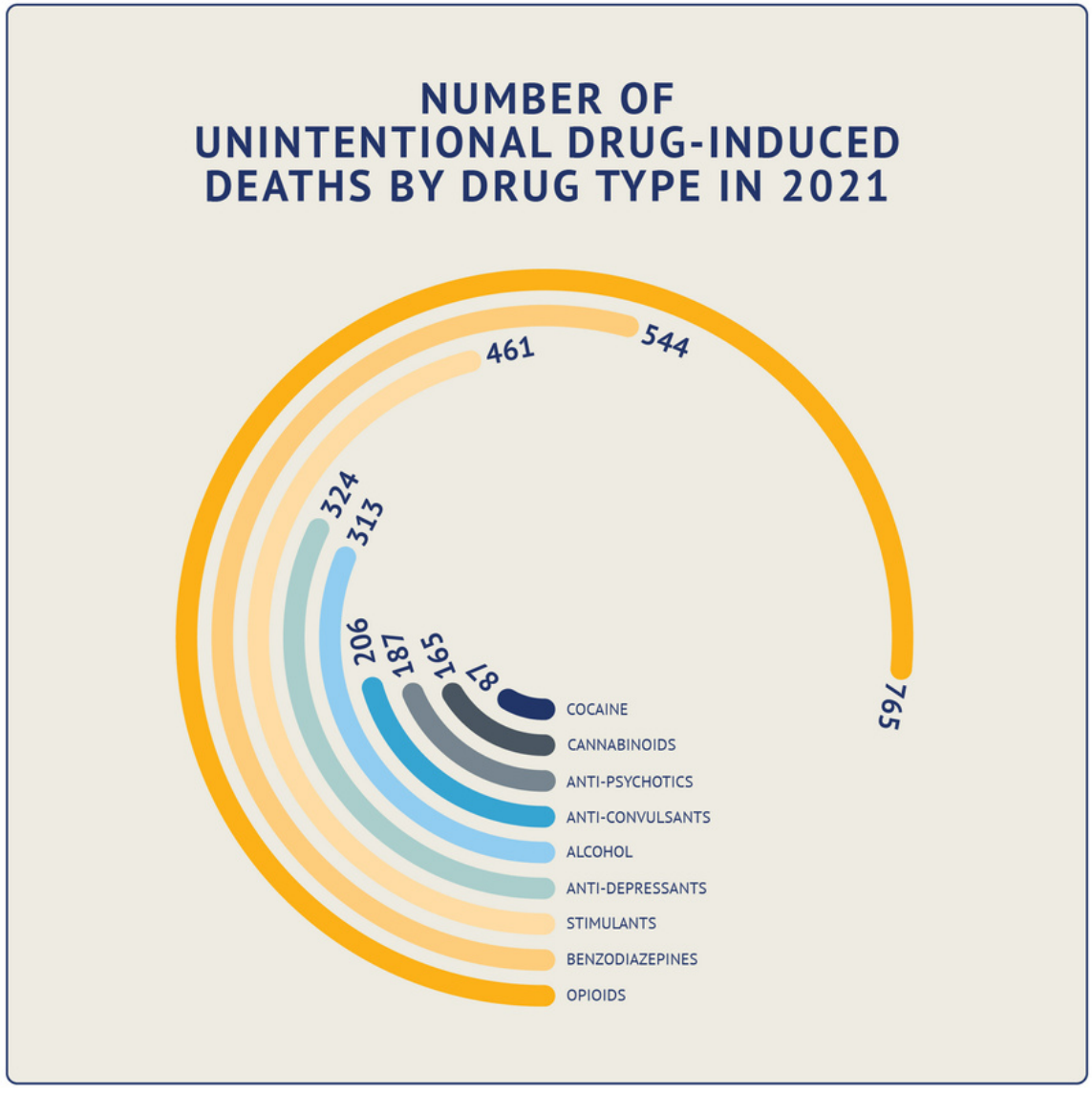
- **Medicinal Cannabis vs Unregulated Synthetic Cannabinoid Compounds**

Unregulated Synthetic Cannabinoids are designer drugs that are commonly sprayed onto plant matter. These drugs can be fatal.

- **Medicinal Cannabis vs Black Market Cannabis**

Black market cannabis (flower, oils) can contain pesticides, bacteria, fungi, heavy metals from the soil and from poor quality and illegal growing techniques.

Australia's Annual Overdose Report 2023[18]



18. Penington Institute, 2023

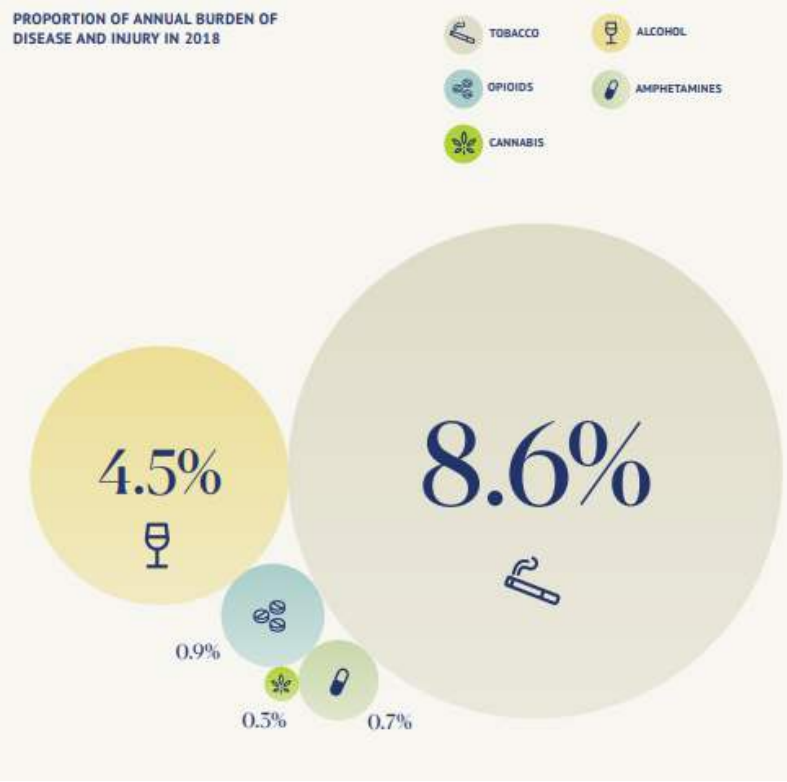
Penington Institute: Australia's Annual Overdose Report 2023

Unintentional deaths includes drug-related deaths determined to be unintentional by legal rulings and excludes suicide, homicide and or deaths with undetermined intent.[18]

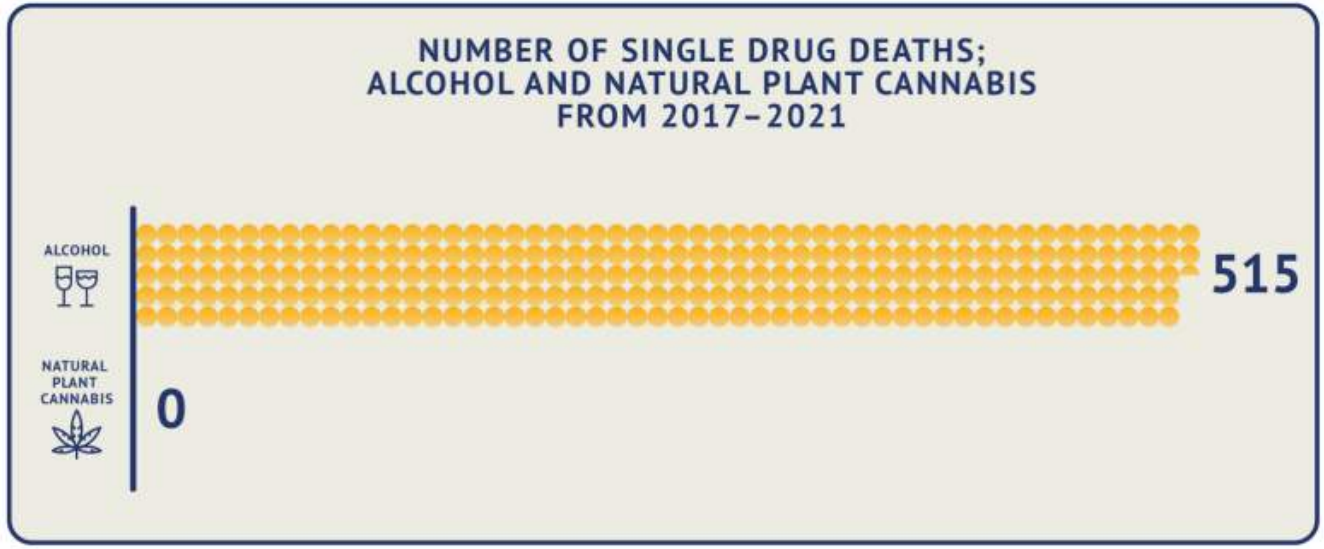
Opioids continue to be the largest overall drug group identified in drug-induced deaths, followed by **benzodiazepines, stimulants and anti-depressants** (this includes methamphetamine, amphetamine and ecstasy).

- Drug-induced deaths involving opioids, benzodiazepines and anti-depressants have been increasing steadily over the past decade, following a fairly stable period to 2006.
- From 2009 onwards, the number of drug-induced deaths involving alcohol appears to have increased more slowly.
- In contrast, deaths involving stimulants, anti-psychotics and anti-convulsants have increased rapidly since 2013.

18. Penington Institute, 2023.



Burden of disease relating to cannabis use



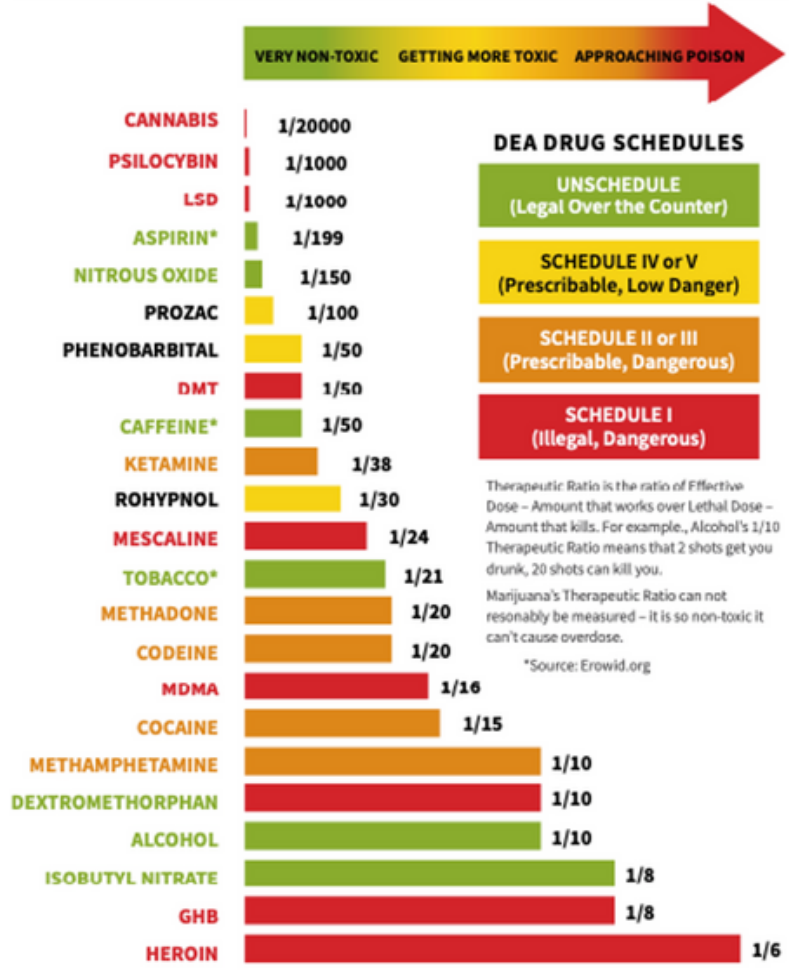
Low Risk of Toxicity

RISK OF TOXICITY [4,64]

The risk of severe, adverse events or dependence is low with medicinal cannabis.
However, concurrent use of other drugs may mask the effects of cannabis and severe toxicity.

THC MEDIAN LETHAL DOSE: >800MG /KG

CBD IS SAFE FOR HUMANS: 1000MG/ KG



Contraindications for Medicinal Cannabis Treatment

Pharmacists should reference the following information upon patient enquiries regarding Medicinal Cannabis safety:

TGA's Guidance for the use of medicinal cannabis in Australia: Overview

Consistent with the Queensland Health recommendations, this guidance advises that medicinal cannabis products containing THC are generally **not appropriate** for patients who:

- have a previous psychotic or concurrent active mood or anxiety disorder;
- are pregnant, planning on becoming pregnant, or breastfeeding; and/or
- have unstable cardiovascular disease.

Furthermore, **patients should be advised that they are not able to drive while treated with medicinal cannabis**. Patients should be informed that measurable concentrations of THC can be detected in saliva for many hours after administration.

Caveats

- **Medicinal cannabis is not the 1st line treatment for any indication.**
  It is often used as an adjunct to existing treatment, e.g. reducing existing opioid dose and adverse effects.

- **Polypharmacy in the target population is common**
  Beware of interactions – Medicinal Cannabis is metabolised through the CYP450 pathway.[20]

- **Some conditions** - palliative care, chronic non-cancer pain, may result in <u>life-long use.</u>
  No long-term safety data exists.

- Consider **legal** situation with driving
  Patients should not drive or operate machinery while being treated with medicinal cannabis because measurable concentrations of THC can be detected many days after the last dose.
  Drug-driving is a criminal offence (except Tasmania), and patients should discuss the implications for safe and legal driving with their doctor and always carry a copy of their approved prescription with them when travelling.

- Consider **safety** issues
  E.G. working in hazardous environment/ operating machinery/ caring roles.

20. Zelasko, Arnold & Das, 2015

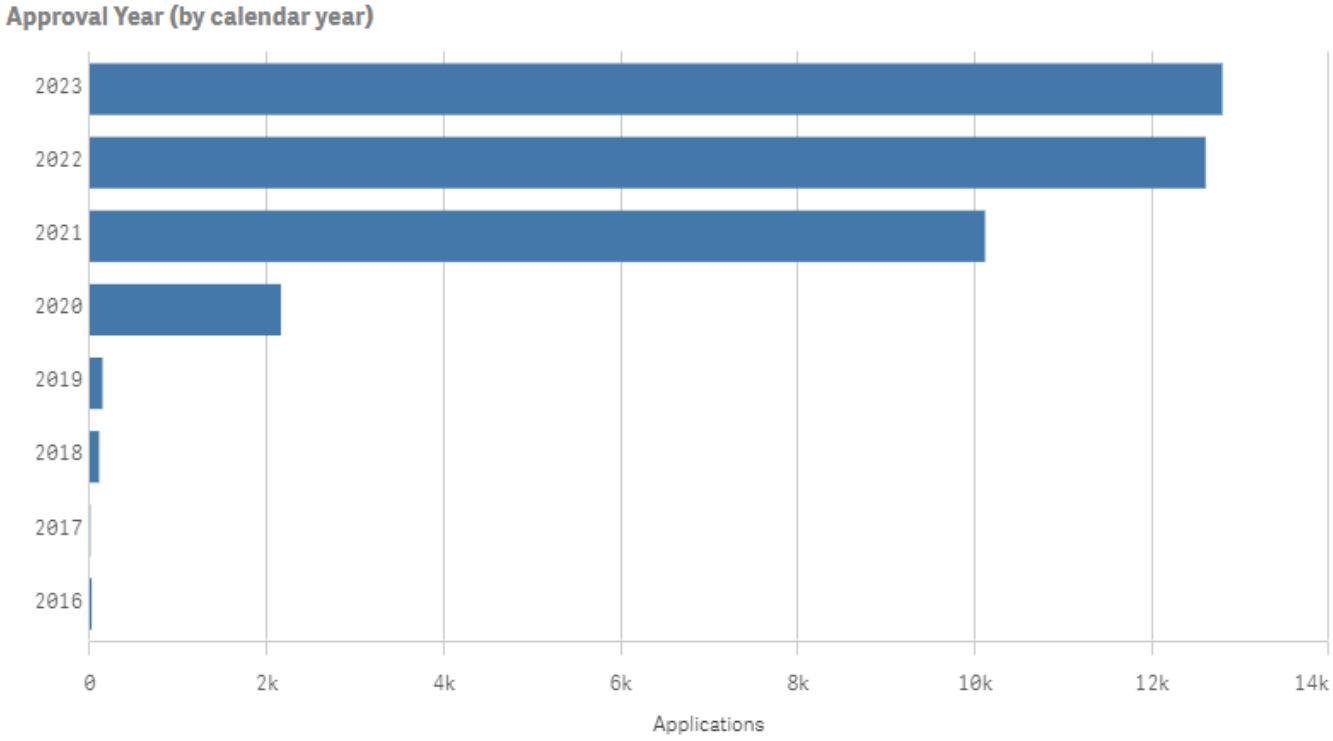
Part 3: Indications & Prescription

What is it Good For?

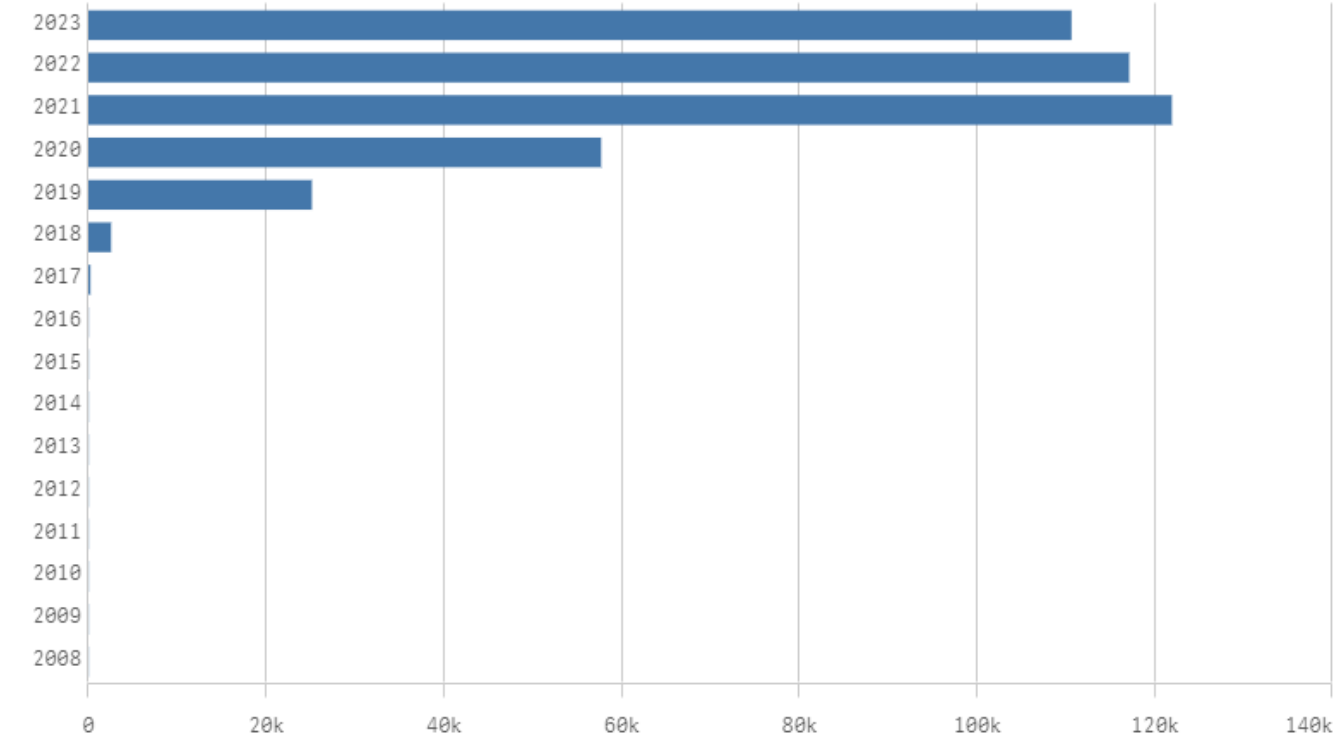
- Over 220 conditions have been approved by the TGA.
- There are no restrictions imposed by the TGA on the indication/s for which a health practitioner may apply to access medicinal cannabis for their patient.

Conditions include:

- Chronic non-cancer pain
- Chemotherapy induced nausea and vomiting
- Palliative care - pain, appetite, sleep, mood
- Multiple sclerosis- spasticity, neuropathic pain
- Epilepsy in children and adults - drug resistant variants
- Anxiety and Depression
- Sleep disorders, including insomnia
- Panic disorder
- Parkinson's disease
- Dyspnoea
- Gastrointestinal disorders
- Oscillopsia
- Muscular Dystrophy
- Post-Traumatic Stress Disorder (PTSD)
- Migraine
- Alzheimer's disease
- Tremor
- Dystonia
- Tourette's syndrome
- Autism spectrum disorder
- Blood glucose management
- Anaemia
- Restless Legs Syndrome
- Myoclonic disorders
- Motor Neurone Disease
- Other neurological disordersTRP Channels



Authorised Prescriber applications per year



SAS-B applications per year

Principles of management for GPs

1. **ASSESS** patient to determine if medicinal cannabis is indicated
2. **SET GOALS** for medicinal cannabis
3. **REVIEW** for possible **CAUTIONS** to medicinal cannabis
4. **EDUCATE** the patient
5. Consider **Dose, Formulation** and if possible, **Cultivar**
6. Complete the **TGA Submission/ SAS Online**
7. **FOLLOW UP** at 2 weeks, then every 4 weeks (dose titration)

Part 4: Dosing & Patient Management

Consider dose & preferred cultivar

- Dose according to strength of THC and/or CBD required

- There are 3 different sub-species of the Cannabis Sativa flowering plant
  - *Sativa, Indica* & *Ruderalis*
  - Sativa is generally more suitable for daytime use & Indica generally more suitable for nighttime use

- Cultivars also differ by their *terpene* profile. Terpenes are the aromatic compounds within the plant responsible for the aroma & taste. They are believed to have medicinal properties of their own and contribute to the entourage effect.

Consider Formulation

Product selection and **dosing** for medicinal cannabis is not yet exact. Prescribers may need to trial a few different products before they find what works best for them.

The **product and dose** that works best may vary based on:

- type and severity of the patient's condition
- their past experience with cannabis
- the chosen variety and administration method

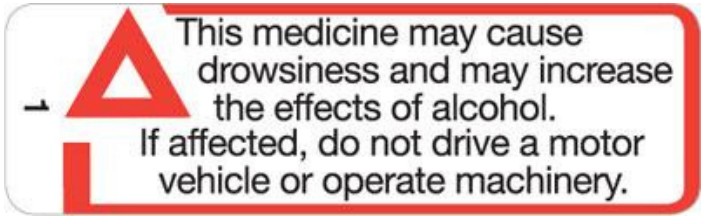
Dosing is **highly individualised** and relies to a great extent on **titration**.

START LOW, GO SLOW

Time to **onset, peak effect and duration** are impacted by the route of administration:

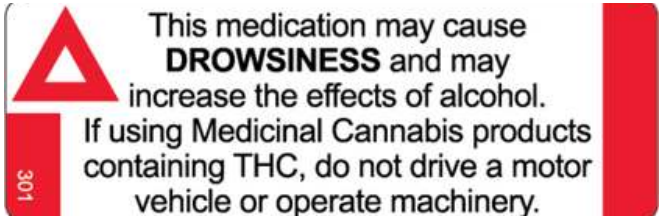
	Vapourised	Soft Gels	Oils
Onset	5 minutes	30 - 120 minutes	30 - 90 minutes
Peak	10 - 30 minutes	2 - 4 hours	2 hours
Duration	2 - 4 hours	8 - 12 hours	6 - 8 hours

Additional dispensing points



A label 1 or 301 ancillary label must be affixed by the pharmacist to all cannabis dispensed

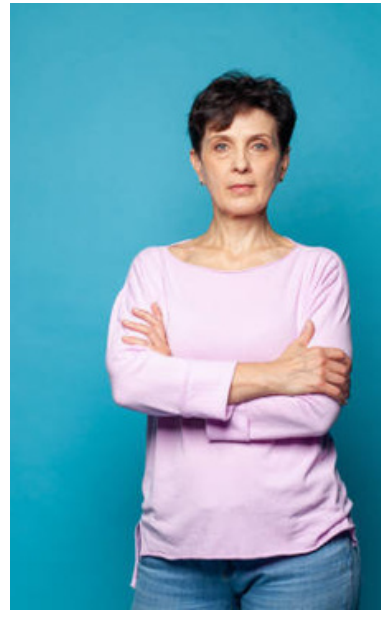
– Medicine may cause drowsiness



All dried herb products must be used with a dried herb vapouriser

Case Study

Meet Joanne, 51 years old.



- Suffers from widespread musculoskeletal pain related to fibromyalgia
- Never used cannabis before, but open to it as she cannot find effective pain medications that she can tolerate
- Worried about dosing incorrectly and getting "high"
- On metformin and gliclazide for type 2 diabetes and amlodipine for hypertension

Role of the Pharmacist

- Patient may express interest to access medicinal cannabis therapy to pharmacist – What is the process involved? Where do I seek access?
- Pharmacists should **refer** patient to their current GP to further discuss treatment options
    - Patient's current GP **can** prescribe Medicinal Cannabis through the TGA's Special Access Scheme
    - If the patient's GP does not wish to prescribe medicinal cannabis, pharmacist can refer patient to the MedReleaf Telehealth Clinic using the Pharmacy Referral Program. Other companies may have comparable programs.

Case Study

GP Prescribes MedReleaf Australia Product

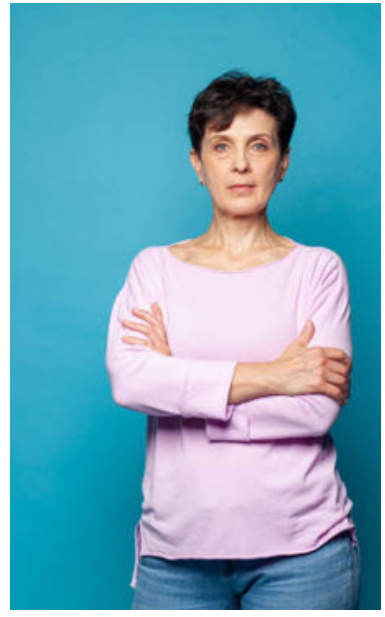
- Patient returns to pharmacy with prescription for MedReleaf Australia Medicinal Cannabis product, along with TGA Approval and relevant state approvals (where applicable)
- Patient wants to begin treatment as soon as possible

Role of the Pharmacist

- Pharmacist must ensure they have received full copy of patient's TGA approval documentation before ordering via the Symbion SHOP portal
- Check the applicable state health website for information on state health approval requirements for medicinal cannabis
- As for all Schedule 8 medications, pharmacist checks relevant Real Time Prescription Monitoring
- Brand substitution is generally not allowed unless authorised by the prescriber

Case Study

Pharmacist Dispenses Medicinal Cannabis Product



- Patient counselled on product appropriately

Role of the Pharmacist

- Educate patient on appropriate Medicinal Cannabis therapy (see following slides)
- Counsel on appropriate dose titration and administration techniques
    - Oil dosing may require measuring with a 1mL syringe, with increments that can measure 0.1mL
    - Pure resin cartridges must be used with a 510 battery
    - Dried Flower is administered using a **vapouriser**
        - **Foltin Puff Procedure:** The standardized protocol requires participants to inhale for 5 seconds, hold inhalation for 10 seconds, and then exhale fully.
        - Wait a minimum of 10-20 minutes between inhalations.
- Ensure normal dispensing protocol with respective S4 or S8 medications
- Check for potential drug interactions
- Reiterate the importance of safety and awareness of legal situations upon starting therapy esp driving
- Monitor therapy through patient follow up, liaise with GP accordingly.

Patient Education

EDUCATE on the Main Components of Cannabis

- Main intoxicating component
- May induce sleep[24] and have anti-pain effects[25]

- Non-intoxicating component
- May have neuroprotectant[26] and anti-inflammatory properties[27]
- May work synergistically with THC[1]
- May mitigate some of the intoxicating effects of THC[28]

Each product formulation will include the percentage of CBD and THC

24. Carley et al. 2018 25. Ware et al 2015. 26. Esposito et al 2007 27. Capasso et al 2008 28. Wright et al 2013

Patient Education

EDUCATE on possible adverse effects

Mild-moderate adverse events:

- Dry mouth[29]
- Drowsiness[30]
- Dizziness[31]
- Impaired cognition[30,31]
- "feeling high"[30,31]

Mild-moderate adverse events:

- Somnolence[32]
- Diarrhoea and vomiting[32]
- Dizziness[33]

Serious adverse events:

- Elevated aminotransferase levels[34]

29. Narang et al. 2008 30. Kleine-Brueggeney et al. 2015 31. Johnson et al 2010 32. Devinsky et al. 2018 33.Hoggart et al. 2015 34. McCoy et al. 2018 35. ElSohly, M., & Slade, D. (2005).

Patient Goals

During counselling, pharmacists should converse with patient around setting **specific treatment goals**, such as improvement in:

- ✔ Pain or other primary symptoms
- ✔ Functioning
- ✔ Anxiety, depression
- ✔ Sleep
- ✔ Quality of life

The pharmacist should discuss other lifestyle factors that can influence these goals along with medicinal cannabis therapy

Contraindications

Use with caution:

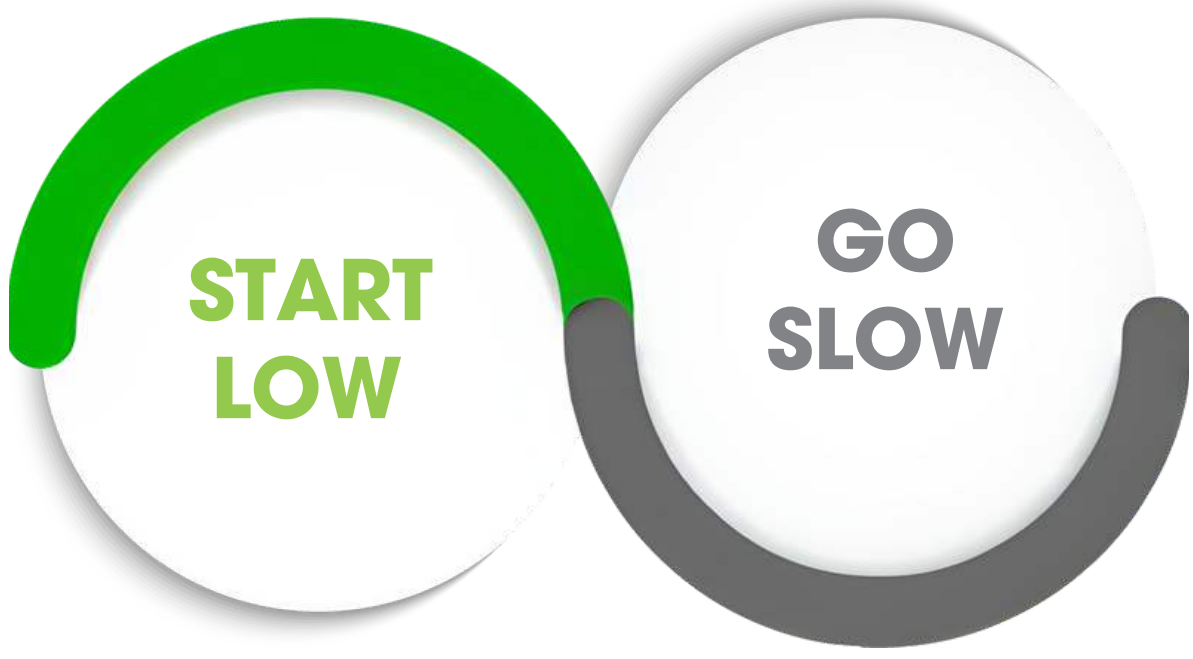
- Polypharmacy
- Concomitant use with sedatives or hypnotics
- History of severe pollen allergic reactions - inhalation
- Respiratory disease

Avoid in:

- Pregnant/ breastfeeding patients
- Current or history of schizophrenic/ psychosis presentation
- History of substance abuse
- Severe cardiovascular, cerebrovascular, liver, renal & respiratory disease

Patient Education

REMEMBER



Many adverse effects can be decreased with low doses, slow titration and/or selection of the medicinal cannabis variety

Doctors and Pharmacists can register for more information at

www.medreleafaustralia.com.au

Pharmacists can contact Clinical Support for any other enquiries or to book in a tailored education session

clinicalsupport@medreleafaustralia.com.au

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