Medicinal Cannabis - where are we up to?
Dr Sue Ballantyne
Senior Medical Advisor
Medicinal Cannabis Unit

History of medicinal cannabis

Evolved from Central Asia
Hemp used for clothes and pottery as early as 5000BC
Records have been found in India, Egypt, Greece of early use
Introduced into France by Napoleon for pain relief and as a sedative in 1799
Used by Queen Victoria in England
Then after years of “medical use”
Banned in UK in 1928 and banned in USA in 1937 (despite the American Medical Association voting against it being removed as a medicine)

Endocannabinoid System
THC as the main psychoactive ingredient of cannabis was discovered by Dr Raphael Mechoulam, Professor of Medicinal Chemistry in Israel in 1964

Endocannabinoid System
• But no-one knew how it worked on the brain....
• 1973 – opioid receptors in the brain identified
• 1988 – cannabinoid receptors in the brain (CB1) identified by mapping using THC and other synthetic THC medicines – identified the sites of the cannabis receptors.
  • Act on executive function, memory, mood, cognition, movement, analgesia
Endocannabinoid System

• The CB2 receptors were discovered...
• CB2 is prevalent through the immune system, peripheral nervous system, gut, liver, bones, blood vessels and more...
• CB2 receptors appear to regulate the immune response
• The body produces natural cannabinoids – such as anandamide (Bliss) which interact with the receptors

Endocannabinoid System

• Using THC enabled the discovery of the ECS – so although the name suggests the plant came first, in fact, the ECS has been evolving for over 600 million years and can be found in primitive life forms and all mammalian life
• CB1 and CB2 receptors recognise 3 kinds of cannabinoid agonists
  • Endogenous cannabinoids (naturally occurring)
  • Phyto-cannabinoids (from the plant)
  • Synthetic cannabinoids (good and bad! eg Kronic, Spice)

Endocannabinoid System

• How do we think this system works...
• Appears to “guide and protect” many of the functions of the body
• Acts as a regulator – “turns up” some responses and “turns down” other responses
• Still learning.....
Flowering heads of the cannabis plant - trichomes

Medicinal Cannabis

- Three main varieties of cannabis plants
- Marijuana = dried flowering heads and leaves of the cannabis plant
- Most of the cannabinoids are concentrated in the flowering heads of the unfertilised female plant
- About 80-100 cannabinoids
- About 200-400 non-cannabinoids – flavonoids and terpenes which give cannabis its flavour, smell and taste

Main cannabinoids

- THC tetrahydrocannabinol
  - Partial CB1 and CB2 agonist
  - Psychoactive component
  - S8 when used therapeutically, S9 when not
  - Possibly effective for the relief of acute pain, muscle spasticity, controlling nausea and stimulating appetite
  - Can be combined with CBD which might mitigate some of the effects of the THC

Main cannabinoids

- Cannabidiol (CBD)
  - Partial antagonist of CB1 and CB2
  - Not psychoactive
  - Possibly anti-inflammatory, anti-nausea, anti-epileptic, anti-psychotic
  - Scheduled as S4
  - Being used in trials at present at LCCH
What about street cannabis?

for recreational use – using cannabis that is 'bred' for high THC levels

- generally people are looking for the euphoric feeling
- cultivated – bush or hydroponic
- increasing levels of THC (study in NSW indicated 43% of samples tested from cultivation sites had >15% THC – at this level the Netherlands classify cannabis as a hard drug)
- generally smoked

Problems when used for medical reasons

- not sure what cannabinoid content is in each batch, crop
- leads to inconsistency in dosing
- concerns about contamination – moulds, pesticides, heavy metals

What is the evidence for medical use?

• Evidence is very limited
• Little in the way of good randomised trials
• Some therapeutic benefit possible – potential
• Best we have available is for
  - Drug resistant epilepsy in children (CBD)
  - CINV (high THC or THC:CBD combination)
  - Spasticity in MS (Equal quantities THC:CBD)
  - Palliative care – especially loss of appetite and weight loss
• Possibly neuropathic pain???
What is allowed through the C‘wealth?

- Commonwealth responsible for the cultivation, production, manufacture and importation of medicinal cannabis.
- No local manufacturing yet – might take several years
- Recent changes have allowed bulk importation and wholesaling in Australia – about 6 companies now have stock available in Australia (ODC website)
- TGA responsible for the approval of “supply” through Special Access Scheme Category A and B and Authorised Prescriber schemes.
- Medicinal cannabis products are unapproved therapeutic goods

What is allowed in Queensland?

- Public Health (Medicinal Cannabis) Act and Regulations since 1 March 2017
- Enables doctors to prescribe medicinal cannabis products under three pathways:
  - Single patient pathway – MC approval
  - Patient-class prescriber pathway – class of patient
  - Clinical trials
- Pharmacists also require approval to dispense
- Expert Advisory Panel can provide recommendations to the Chief Executive
What is allowed in Queensland?

- Doctors can prescribe, supply and administer under the single patient or patient class pathways
- Pharmacists can dispense and issue under the dispensing approval
- Nurses are able to administer off a medication chart in hospitals provided the product has been lawfully obtained.
- Administration is allowed in places like schools, nursing homes, hospices and prisons

What is allowed in Queensland?

- Manufacturers will require a Queensland Approval as well as licences from the ODC and TGA
- Wholesalers will require an approval if they wish to supply product into Queensland
- Medicinal Cannabis Unit can provide information to doctors, pharmacists, wholesalers and manufacturers

In Queensland....

- The following products are allowed to be used:
  
  Dried flos or dried flower heads such as those provided by Bedrocan in the Netherlands. Can only be used in a vaporiser.
  
  Oro-mucosal sprays such as Sativex [registered product in Australia]. These are absorbed in the same way as oral products.

In Queensland....

- Topical products that are either rubbed onto the skin or used in patches. There are presently trials using a topical product in Queensland

- Oil products either as capsules of oil taken via a dropper.
Vaporiser

• The Volcano Medic and Mighty Medic are the only vaporisers available that have been certified as medical devices – in Canada and Germany, not in Australia however.

What don’t we know?

• Dosing regimes –
  • limited information on what type of product and how much should be used.
  • Is dose dependent on patients previous use of, or no use of, cannabis
  • What is the best administration route
  • Only advice available at present:
    • “Start low and Go Slow”

What we don’t know?

• Which combinations of cannabinoids are best for what condition/symptoms
  • Work at a national level led by TGA to provide a national guidance document to help assist doctors to determine what products are best for what
  • Queensland has an initial, first steps guidance document which will be replaced by the national document when it is available
  • Do we need the whole plant?
  • What are the short term and long term side effects?
  • Research, research, research…….

Do doctors have to prescribe medicinal cannabis? Do pharmacists have to dispense?

• No – with lots of reasons why not…
  • Fear of regulatory environment
  • Lack of knowledge
  • No guidelines available to help guide practice
  • Fear of misuse-abuse
  • Opioid disasters in the past
• But –
  • patients are asking for it
  • Lots of media interest
  • Illicit products may cause real harm
  • We want to try and keep it within the medical system if we want to use it as a medicine – need to treat it like a medicine.
Take home messages....

- Medicinal Cannabis is **not first line therapy** – all conventional medicines should have been tried first
- **Smoking** of medicinal cannabis **will not be approved**
- Only medicinal cannabis products that have been cultivated and manufactured here in Australia, or imported from overseas and meet the required standards set by the TGA and ODC will be able to be prescribed for patients
- Doctors and pharmacists are encouraged to be willing to talk to patients about medicinal cannabis use but are **not required** to prescribe/dispense it. They must be satisfied that the benefits outweigh the risks.....

Helpful resources

- Reviews by Whiting et al. JAMA 2015
- Review by Barnes and Barnes, UK 2016
- NAS review, just released USA 2017
- “Information for Healthcare Professionals” produced by Health Canada
- A number of medical colleges/faculties have also produced Statements on Medicinal Cannabis e.g Pain Faculty

Contact details

- **Medicinal Cannabis team**
  - Greg Perry, Director
    - greg.perry@health.qld.gov.au
  - Dr Sue Ballantyne, Senior Medical Advisor
    - susan.ballantyne@health.qld.gov.au
  - Medicinal Cannabis Team
    - Phone 37085283
    - Email MCTeam@health.qld.gov.au