

Medical Cannabis

The Drug Science Perspective



Part I - History & Current Law

Ancient History of Medical Cannabis



 2700 BC; China
Variety of ailments

Earliest record of cannabis use in the world's oldest pharmacopoeia, mentioning cannabis for the treatment of over 100 ailments including gout, rheumatism and malaria

 1500 BC; Egypt
Inflammation

Ancient Egypt's Ebers Papyrus makes note of medical cannabis as a way to treat inflammation

 200 AD; China
Anaesthetic

Use of cannabis as an anesthetic during surgery is recorded by Hua Tuo. The word for anesthesia in Chinese literally means "cannabis intoxication." During this time, Chinese physicians also used the root, leaves, and oil of cannabis to treat blood clots, tapeworm and constipation.

 2000 - 1400 BC; India
Happiness & reduce anxiety

The earliest mention of cannabis in India in The Vedas, or sacred Hindu texts as 1 of 5 sacred plants. The Hindu deity, Shiva, is associated with cannabis indica in preparations known as bhang. Medicinal uses of bhang include digestion aid, dysentery and sunstroke

 480 BC; Siberia
Breast Cancer Pain

Evidence of cannabis use in female who died in her early 20s due to metastatic breast cancer identified in Altai Mountains in Russia

History of Medical Cannabis Use in the UK



 1842

William O'Shaughnessy publishes the 'Bengal Dispensatory and Companion to the Pharmacopoeia'. The section on cannabis is 25 pages and is a comprehensive assessment of the properties of cannabis and its effects as a medicine, including its ability to treat a variety of disorders such as rheumatism, tetanus and convulsions

 1890

Queen Victoria is thought to have used medical cannabis to ease menstrual and childbirth pain as her personal physician, Dr. J Russell Reynolds, advocated widespread use of cannabis in healthcare in his article in the Lancet

 1689

First UK report of the effects of cannabis before the Royal Society

 1870s

Cannabis used to treat insanity. Thomas Clouston wins the Fothergillian Gold Medal of the Medical Society of London in 1870 for his work with hemp drugs in the treatment of mental illness

 1890s

Cannabis is entangled in parliamentary debates on opium. In 1894 the Indian Hemp Drugs Commission publish results of a large study showing moderate use does not cause physical or psychological harm

Why was Medical Cannabis Banned?

In the 1930s, the collapse of alcohol prohibition in the US led to a redundant task force

Harry Anslinger, in charge of the DEA at the time, sought to restore the vitality of the agency by creating a new evil...

He generated public hysteria surrounding cannabis, adopting the term marijuana to help perpetuate the idea that Mexicans were a threat to the moral character of young Americans.

“Marijuana is the most violence-causing drug in the history of the world”

- Harry Anslinger



Why was Medical Cannabis Banned?

1934

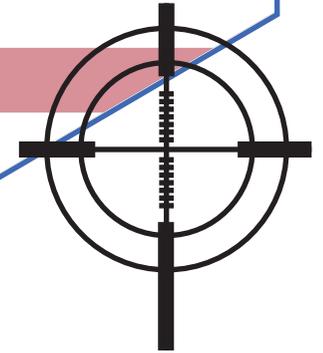
Pressure from the US government led the League of Nations Health committee to conclude that there was no medical benefit of cannabis

1961

The Egyptian government lobbied the US to ban cannabis, which was agreed to in exchange for airbases. The result was an international ban at the first UN convention

1968

Nixon launches the official **War on Drugs**, imposing increasingly harsh sentences for drug crimes



Why Was Medical Cannabis Banned?

In the UK...

International political pressure to ban medicinal cannabis begins to build...



The cotton and wood pulp paper industries are threatened by hemp...



Two rogue GPs are found to be prescribing cannabis for recreational purposes...



The Intervening Years

Following the illegalisation of medicinal cannabis, various reports were issued expressing that in fact cannabis posed little danger and advising its decriminalisation



In 1972 Nixon's National Commission on Marijuana and Drug Abuse concluded:

"There is little proven danger of physical or psychological harm from the experimental or intermittent use of natural preparations of cannabis."

The commission suggested that personal use of cannabis was decriminalised

The report was ignored.



In 1998 a House of Lords Report recommends that all criminal sanctions against medicinal cannabis users are dropped and cannabis-based medicines be approved for prescription within 3 years

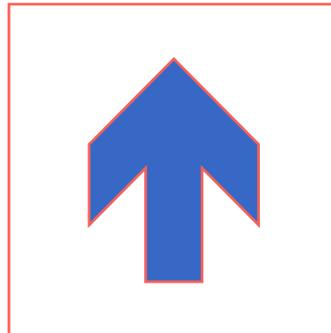
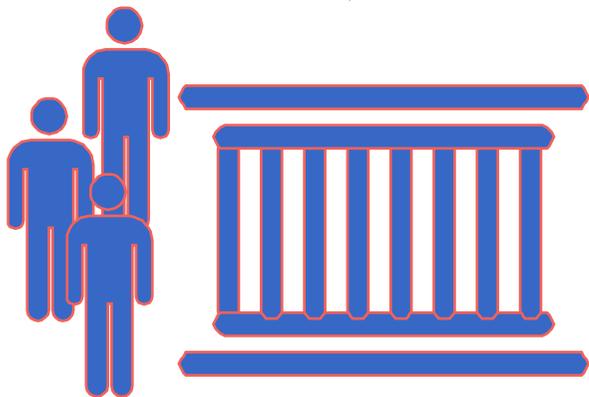
This does not happen.

Social Impact of the War on Drugs

Prison population incarcerated for **drug offenses soared** from 41,100 to 0.5 million between 1980 to 2008

Marijuana arrests accounted for **80% of arrest growth** in the 1990s

Once branded a felon, people in the US **lose access to housing benefits, food stamps and employment**



CLICK HERE TO WATCH JAY-Z SPEAK ABOUT THE WAR ON DRUGS



Scientific & Healthcare Impact of the War on Drugs



The position of cannabis within schedule 1 prevented scientific research into potential beneficial uses

**CLICK HERE TO
WATCH A VIDEO ON
HOW THE WAR ON
DRUGS HELD
RESEARCH BACK**



Patients who grow or use cannabis illegally for medicinal purposes, where conventional medications have failed them, face legal action



Case Study 1: Lezley Gibson

Suffers from MS, at point of diagnosis was told she would be incontinent and in a wheel chair within 5 years

Used cannabis to ease pain and 22 years post diagnosis is still able to walk

Set up Therapeutic Help from Cannabis for Multiple Sclerosis (THC4MS)

Supplied cannabis chocolate to 1,600 MS sufferers to great therapeutic benefit.

Required doctor's note from each person requesting cannabis chocolate for MS pain and spasticity

Arrested in 2005 and put through lengthy and traumatic trial, which resulted in deterioration of her MS and closure of THC4MS

"At the moment I don't know if I'm able to move when I wake up," she said two days before the verdict. "I'm not sleeping, I'm constantly in pain across my shoulders. I'm not taking as much cannabis as I should because I'm stuck in court."

Lezley Gibson speaking to the Guardian (2006)

"I shall miss it very much," says one woman with MS. "I have tried gradually using less each day but was in so much pain I started back on a full dose. Don't know what I shall do when this bar has finished."

An email sent to Lezley Gibson, taken from the Guardian (2006)

Case Study 2: Alfie Dingley

Alfie had his first seizure at just 8 months old. After this, he began suffering clusters of seizures which came every few months and **by the time he was 5, these clusters came every week.**

Alfie responded to intravenous steroids (methyl prednisone), however, the frequency of his seizures meant he needed needed up to 5 doses every week - a treatment that would eventually kill him.

In 2017, Alfie and his family moved to the Netherlands so they could access medicinal cannabis in a last ditch attempt to save his life. Full extract CBD oil reduced Alfie's seizures, but after they added THC, **Alfie went without a seizure for 42 days**, and when he did have seizures they were less intense.

After a long and hard-fought campaign in the UK, Alfie's mother Hannah Deacon secured the **first UK licence for medical cannabis** products for Alfie. Alfie received the first NHS prescription, on 7 Nov 2018.

CLICK HERE TO WATCH ALFIE'S MOTHER SPEAK ABOUT HER FIGHT TO GET HIM ACCESS TO MEDICAL CANNABIS



Despite Hannah & Alfie's success, many other children in similar situations have not been able to get these medicines despite now being legal.

"I work with the campaign group #EndOurPain, currently supporting 16 such families. It is heart breaking that seemingly no NHS doctor is willing or able to prescribe medicines that could help these children who have been very sick, some for many years, after having tried many other drugs"

Hannah Deacon, BMJ 2019

Case Study 3: Billy Caldwell

Billy is an autistic child who suffers from a rare, severe and treatment-resistant form of epilepsy, which causes thousands of seizures a month.

His mother, Charlotte Caldwell, took Billy to the US and Canada to try cannabis oil, which was remarkably effective in managing his condition.

Once back in the UK Billy's GP was persuaded by the success of the treatment to keep prescribing cannabis oil. **They stopped prescribing the drug when faced with charges of gross medical misconduct.**

Charlotte was arrested at Heathrow when attempting to bring cannabis oil from Canada into the UK, the drugs were confiscated.

Without the oil, Billy's condition deteriorated so severely that he entered a state of status epilepticus which resulted in his hospitalisation, sedation and ventilation.

Following public outcry, the Home Secretary gave Billy a special licence to use cannabis oil.

Current Legal Status of Medicinal Cannabis

In November 2018, cannabis-based medicinal products (CBMPs) were moved to schedule 2

They can only be prescribed by doctors on the GM specialist register

There must be clear evidence of safety and efficacy for the condition indicated

And (with 1 exception) these are unlicensed medicines and so are only available on a named patient basis, where licensed medicines have failed to meet the clinical need

The current conditions which the NHS currently allows the use of medicinal cannabis products includes:

- ◆ Children with rare, severe forms of epilepsy
- ◆ Adults with nausea and vomiting due to chemotherapy
- ◆ Adults with muscle pain due to multiple sclerosis

Sativex

- ◆ Patented by GW pharmaceuticals
- ◆ **Licensed in the UK** for moderate to severe spasticity in adult patients with MS
- ◆ A natural cannabis product which contains a 1:1 ratio of THC and CBD, and many other cannibnoids
- ◆ Cost to NHS is £120 a 10ml vial
- ◆ NICE analysis puts the cost of Sativex for one gained DALY at £50,000
- ◆ **NICE does not recommend** that patients are prescribed Sativex



Sativex is mostly only available to patients on private prescription

...and is not the right choice of medicinal cannabis-based product for all patients

The spray is "very, very strong" and, she says, more likely to incapacitate her than smoking

Lezley Gibson, on Sativex (Guardian)

Dronabinol

Synthetic product which is identical to THC

Produced in UK

Unlicensed in the UK

Assigned to **schedule 2**, prescribed on a named patient basis

Can be prescribed for **nausea and vomiting due to chemotherapy** which is unresponsive to conventional antiemetics

Nabilone

Synthetic product structurally similar to THC

Produced in UK

Licensed in the UK
Assigned to **schedule 2**, no restrictions on prescribing, GPs can continue prescriptions

Can be prescribed for **nausea and vomiting due to chemotherapy** which is unresponsive to conventional antiemetics

Epidiolex

Cannabidiol (CBD) isolated from cannabis

Produced in Canada

Licensed in the UK

Approved by US FDA rare forms of childhood epilepsy

Can be prescribed for **rare forms of childhood epilepsy**

Many other unlicensed cannabis-based products (such as oils and herbal cannabis) are produced to good manufacturing practices standard and can now be prescribed

What Does This Mean for Doctors

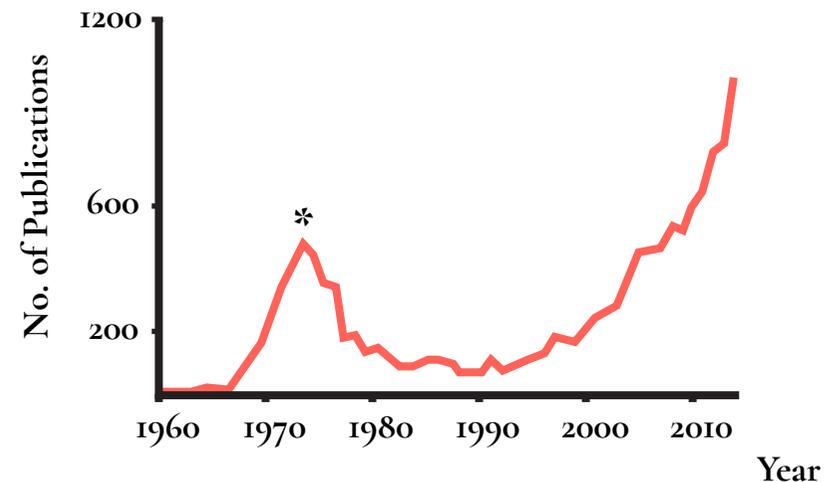
Doctors are not supported to prescribe CBMPs, as under schedule 2 they must take personal responsibility if they choose to prescribe without sufficient evidence



Why isn't there an evidence base for CBMPs?

CBMPs have been in schedule 1 for nearly the last 50 years, reducing the amount of research being performed, with the exception of Sativex

Many doctors do not feel comfortable prescribing something which they have little or no experience of treating patients with and which does not have the wealth of data from randomised controlled trials that is expected today



Number of publications on PubMed between 1960 and 2014 related to 'cannabis' research. * represents the change in law making cannabis a Schedule 1 drug

What Does This Mean for Patients



A publication from the Parliamentary Health and Social Care Committee on the 3rd July 2019 concluded...

‘The reality of the change in law was that medicinal cannabis products were rescheduled, which allowed them to be prescribed. However, most medicinal cannabis products are unlicensed, and therefore **remain governed by a restrictive prescribing process**. The **Government failed to communicate this point**, and **unduly raised the hopes and expectations of patients** and their families’

Not only has this failure of communication left thousands of patients frustrated and still struggling to manage their conditions, it has also negatively impacted many doctor-patient relationships

What Does This Mean for Patients

-  Restrictive prescribing and dispensing practices
-  Unaffordable private prescriptions for many patients
-  Very limited range of CBMPs
-  Patient dependency on the black market

“We just want to be home. As it stands, **we have to either move to Belfast or make two four-hour round trips twice a day** from home in Castlederg”

Charlotte Calding on the decision that Billy's CBD could only be administered at a hospital in Belfast

She now pays £690 for 30 grams, **about triple the black market price**, for a month's supply. **"We're borrowing money and using credit cards** to pay for it," Mark Gibson tells me

VICE talking to Lezley Gibson's husband Mark

What's the cost for patients?

Cost:

- Illicit cannabis £3732 per year¹
- Netherlands medical cannabis prescription £7000 per year¹
- Project 2021 - £150 per product per month

Case series of 10 patients:

- Patients aged 2-48 with severe, intractable, childhood onset epilepsies using combined cannabinoid therapy
- Average cost of £1816 per month per patient¹
- 97% mean reduction in monthly seizure frequency
- Savings in healthcare costs for the NHS
- Cost of 1 day in Pediatric ICU £5462 per day²

What about medical cannabis in other countries?

Countries' legislation and outcomes (Schlag, A. K. (2020))

Country	Year of legislation	Patients, <i>n</i>	Reimbursements
Germany	2017	60,000–80,000	Generally yes
Italy	2006	12,998	Yes
The Netherlands	2003	>20,000 (up to 500,000 without prescription)	No
UK	2018	<10 NHS patients, more private (up to 1 million without prescription)	For NHS patients
Canada	2014	>400,000	No, but options of financial assistance or compassionate pricing
Israel	1990s	>35,000	No
Australia	2016	>10,000 (more without prescription)	Not currently subsidized

What lessons can be learned for the UK?

- Need for education, training and support for clinicians
- Improve evidence collection through Real World Data
- A feasible market plan
- Costs
- Involving patients and addressing patients' concerns
- Communication between stakeholders

The Potential Harm Caused by Cannabis



Schizophrenia

THC heavy cannabis such as skunk may increase the risk of developing psychosis or cause an earlier emergence of symptoms in people with underlying risk factors. Cannabis alone is unlikely to be the sole cause

CBD heavy cannabis, may in fact be helpful in treating neuropsychiatric diseases



Memory Loss and Cognition

Complex and multifactorial issue, but smoking regularly before the brain finishes developing (early twenties) may lead to poorer academic performance

Belief in negative stereotypes of 'stoners' may lower expectations of those around the individual



Addiction

Cannabis is thought to be addictive in about 9% of cases of heavy use

Withdrawal symptoms, such as irritability, typically resolve within three days of cessation of use

Common Side Effects of Cannabis

- Drop in blood pressure which can cause vomiting or collapse, going pale and feeling shaky
- Feelings of confusion, anxiety, paranoia and hunger
- Palpitations

These effects all usually resolve within an hour of smoking cannabis

However, these side effects are comparable or even less serious than the side effects seen with other commonly used drugs...

Aspirin

GI bleeds, GI ulceration, and reduced blood coagulation

Morphine

Nausea, vomiting, hypotension, sedation, constipation, and respiratory depression

Clozapine

Weight gain, dyslipidaemia, insulin resistance, diabetes, cardiovascular disease, and agranulocytosis

SSRIs

Nausea, headaches, GI issues, increased aggression, insomnia, anxiety and sexual dysfunction

Medical Cannabis Working Group

Drug Science launched the **Drug Science Medical Cannabis Working Group** at its House of Lords annual evening reception on Wednesday 22 May 2019.

The Medical Cannabis Working Group is a **cross-sector collaboration** that includes scientific experts, academics, policy makers and leaders of patient advocacy groups, alongside industry partners.

Industry partners include: Ethypharm, LEAFYTUNNEL, ANADA DEVELOPMENTS, AVIDA GLOBAL, Alta Flora, Beckley, Cellen, Khiron, JMCC, Cannuba, LYPHE Group (February 2022).

The aim is to **improve and accelerate access to medical cannabis** in the UK for all patients.

Objectives:

- Research
- Education
- Real World Data collection
- Patient involvement
- Address stigma
- Transparency across industry relationships

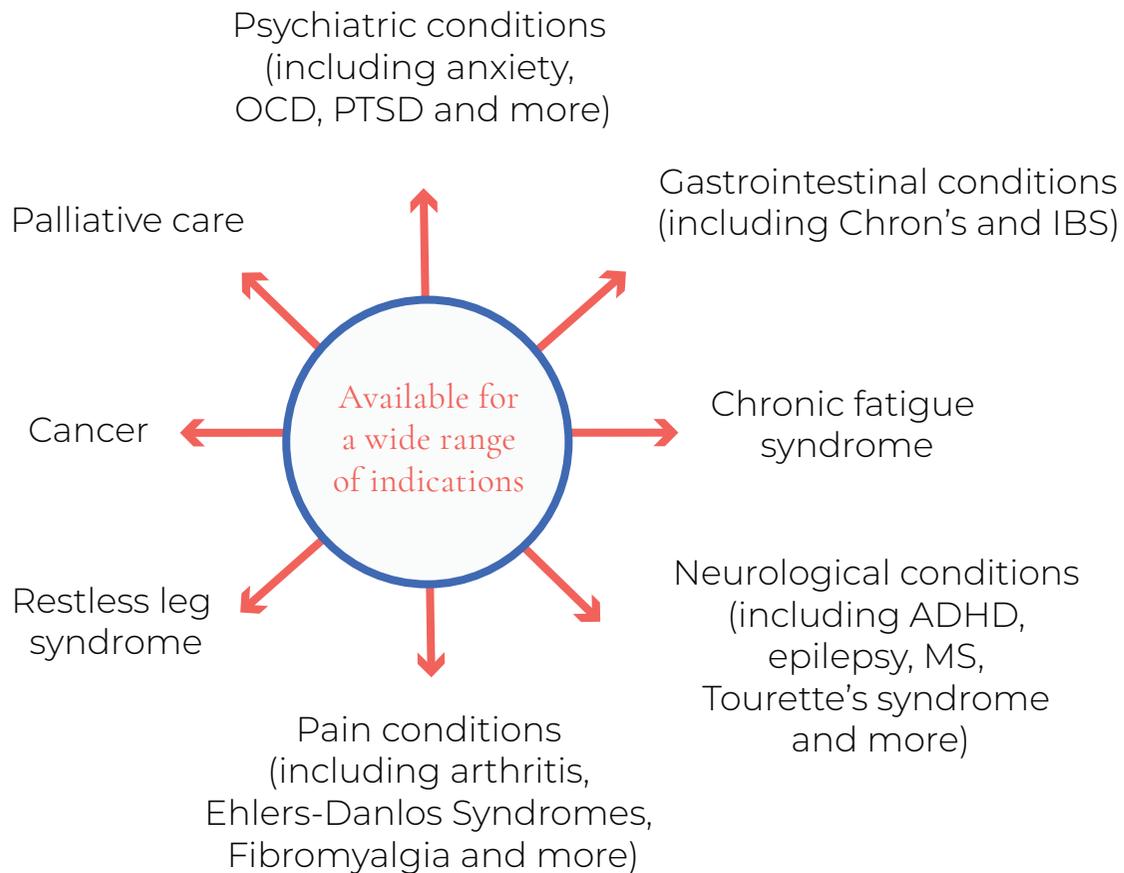


The Working Group has made considerable progress in the past few years.

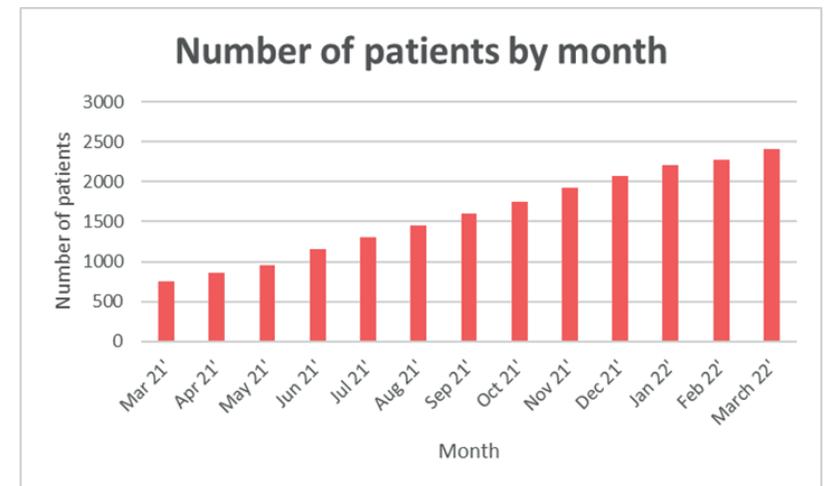
Project TWENTY21

Project Twenty21 is the largest observational medical cannabis study in the UK, gathering data on the efficacy of cannabis-based medicines for a wide range of conditions.

£ Cost: £150 per product per month



Collecting Real World Data



Long COVID and medical cannabis study

Clinical trial: *Single arm, open label, phase 2*

Participants: *30*

Treatment: *MediCabilis Cannabis sativa 50, a full spectrum CBD dominant plant based medicinal cannabis containing 50 mg/ml CBD and 2 mg/ml THC*

Dose: *100 mg CBD and 4 mg THC (potential to increase to 150 mg CBD and 6 mg THC)*

Duration: *total 24 weeks (21 weeks with medication, 3 weeks with no medication)*

Recruitment starting March 2022

Primary outcomes:

- Recruitment rate
- Retention
- Number of side effects

Secondary outcomes (assessed via a smartphone app and Fitbit):

- Long COVID symptoms
- Fatigue
- Self-reported quality of life
- Pain score
- Mood/anxiety/depression
- Sleep quality
- Resting heart rate
- Activity levels
- Oxygen saturation
- Daily symptoms

ClinicalTrials.gov Identifier:
NCT04997395



The Role of the Medical Student

As future doctors, **it is important that you are aware of the harms and benefits of cannabis**. This will enable you to provide patients with valuable information and help support them in their decisions about their treatment plan.

You will also be in a position to **help make real change to policy** by helping to gather patient data and help provide unbiased information about the harms and benefits of medicinal cannabis.

Where can you find out more?

-  drugscience.org.uk
-  Drugs, without the hot air, *David Nutt*
-  Students for sensible drug policy

**CLICK HERE TO
WATCH A
PARLIAMENTARY
DEBATE ON
MEDICAL CANNABIS**



The debate continues in parliament, raised by **Baroness Meacher**, chair of the UK All-Party Parliamentary Group for Drug Policy Reform & Medical Cannabis Working Group member

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