



**PHARMA**  
drug delivery systems

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CTT Pharmaceutical Holdings, Inc  
*Novel Drug Delivery Technologies*

# Forward Looking Statements

Except for the historical information contained herein, the matters discussed in this PPT release are forward looking statements within the meaning of the federal securities laws. Important factors could cause our actual results to differ materially from those contained in the forward looking statements including our growth strategies, our ability to successfully and economically develop Oral Thin Films, anticipated trends in our business, our liquidity and ability to finance our development activities, market conditions in the industry, our ability to make and integrate acquisitions, the impact of governmental regulation and other risks more fully described in the company's filings with the Securities and Exchange Commission. Forward-looking statements are typically identified by use of terms such as "may," "will," "expect," "anticipate," "estimate" and similar words, although some forward-looking statements may be expressed differently. All forward looking statements contained in this release, including any forecasts and estimates, are based on management's outlook only as of the date of this release, and we undertake no obligation to update or revise these forward looking statements, whether as a result of subsequent developments or otherwise.



# Executive Summary

- CTT Pharmaceuticals Holding Inc “**CTT**”, is a bioscience company that focuses on providing novel and disruptive drug delivery technologies.
- **CTT** has three (3) verticals - OTC, Big Pharma and Cannabis.
- **CTT** has 7 worldwide IPs assets which include specific Intellectual Property ‘IP’ from CTT Pharmaceutical Holdings Inc that is new, innovative and state of the art technology.
- **CTT** has the ability to provide an oral fast-dissolving drug delivery system, the “**Wafer**”, which can be used for various applications.
- The patented **Wafer** or oral thin film is placed on the top or floor of the tongue, is retained at the site of application and rapidly releases an expansive list of pharmaceuticals, cannabis in oil form and a host of over-the-counter applications.
- **CTT** will market its products under the following brands:
  - CTTMx – our patented WAFER formulation
  - CTTMx<sup>2</sup> - our WAFER use for delivering the active ingredient
  - CTTMx<sup>3</sup> - our WAFER for more complex Pharmaceutical applications
- **CTT** is currently listed in the US-OTC under the symbol “CTTH”

# CTT Overview

CTT Pharmaceutical Holdings Inc. “CTT” has invented and developed an oral fast-dissolving drug delivery system “the Wafer”, for Breakthrough’ Cancer , Post-Surgical and dermatologic pain Management conditions Our patented Wafer or oral thin film is placed on the top or floor of the tongue, is retained at the site of application and rapidly releases a variety of opioids such as Morphine, Codeine, Fentanyl etc. as well as narcotics such as Marijuana and its derivatives

## ***MedWafe – Medical Marijuana and OPIOIDS FOR PAIN MANAGEMENT***

*CTT believes that - its film strip, encapsulated with a novel opioid reduction formula (combination of THC + CBD + Opioid). This combination will reduce the opioids dosages and will help reduce addiction and improve the patients safety.*

***CannaWafe – ORAL THIN WAFER: CBD and THC FOR PAIN MANAGEMENT*** for pain management and inflammation indications such as Arthritis

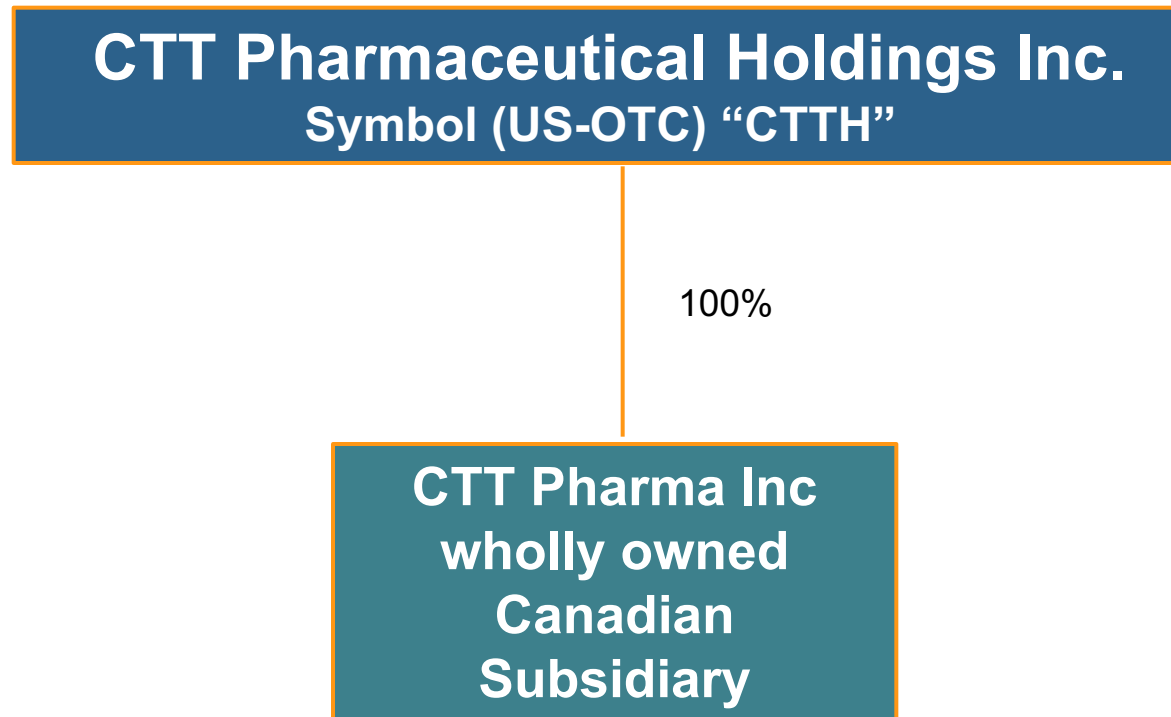
*While medical use of Cannabis is growing, the current delivery systems of smoking and vaporizing are unhealthy, inconvenient and lack proper dosage control. Our flavored would provide users with a smoke-free, alternative with a proper dosage control that would increase patient use worldwide.*

## ***VetWafe – ORAL THIN FILM: PAIN MANAGEMENT***

*Pain Management for Pet Markets. Thin Films for Treating Dogs and Cats; (Opioids based, Non-Opioids Drugs and Medical Marijuana). Vetwafe product is easy to administer orally as thin film which dissolves within few seconds.*

***CTT Pharma is targeting commercialization and licensing of the drug delivery system technology to major pharmaceutical companies***

## CTT CORPORATE STRUCTURE



All IP is owned by the Canadian sub CTT Pharma Inc and exclusive licensing agreement for Canada with CanniMed Therapeutics



# CTT PATENTS

## **Patent Series #1 - Opioids Patents:**

US 8623401 ISSUED

Canadian 2624110 ISSUED

The patent covers orally administrable wafers comprising a film forming agent that forms a gel, and also the process of making the wafers by exposing the gel to heating and cooling cycles. In the United States, coverage is particularly directed toward CTTs broadly covering opioid delivery. Use of the wafer delivery mimics an injection path with uptake speed comparable to intravenous administration.

## **Patent Series #2 - Cannabinoid/Steroid:**

Canadian 2910206 ISSUED

US 14921501 Pending\*

This patent in Canada broadly covers Cannabinoids (all natural and synthetic brands) and corticosteroids combined together in any type of composition (wafer, tablet, lozenge, capsule, ointment, solution, and so on). In the United States, the patent application is still pending, and the coverage should end up similar to Canada. This composition exhibits a high dissolution rate and is useful in treating a variety of diseases and ailments in humans and other mammals, and can be marketed as a primary agent or a secondary agent.

## **Patent Series #3 - Nanonized Cannabinoids:**

US 15059444 Pending\*

Canadian 2922959 Pending

PCT Pending PCT / US2017/ 15059444 (world Patent- (151 countries))

This patent covers an orally administrable composition comprising a film forming agent and is used to effectively deliver a nanonized therapeutic, which is difficult to do. Simply put, nanonized therapeutics will allow the ready absorption of otherwise poorly soluble pharmaceuticals and the like. The main aim is the delivery of large therapeutic molecules such as proteins or cannabinoids. This technology has the potential to be combined with our patented cannabinoid/ corticosteroid composition, and has potential indications in pain management and opioid addiction management.

# CTT'S verticals

CTT sales and marketing efforts are aligned to focus on three (3) key verticals and are further broken down by sectors within those verticals.

**OTC** - The over the counter nutritional market (melatonin, caffeine boosts). The primary targets for CTT are the large retail chains selling high volume consumer oriented products. Focusing on US market

**Licensed Producers (LP)** - marijuana growers selling marijuana for medical and recreational purposes

The sectors for this market are aligned geographically and by regulatory policies. Focus on medical applications initially

**Pharmaceutical** - branded drug manufacturers seeking alternative delivery to promote or enhance products where rapid dosage is an important factor

The sectors have been reviewed for branded products near patent expiry, line extension and/or generic defense.

- CTTMx – our patented WAFER formulation
- CTTMx<sup>2</sup> - our WAFER use for delivering the active ingredient
- CTTMx<sup>3</sup> - our WAFER for more complex Pharmaceutical applications
- Exclusive Licensing Agreement with CanniMed Therapeutics for Canada

# Milestones

- A Licensing Agreement has been signed by CTT with CanniMed Therapeutics (licensed producer) through Health Canada's MMPR program for exclusive Canadian rights. The LP is an established expert in growing various types of Cannabinoids and Cannabis Plants and extracts. *Due to the recently announced Aurora Cannabis acquisition of CanniMed this license will become part of AURORA CANNABIS*
- The LP intends to develop, manufacture and market CTT's novel Orally Dissolvable Thin Films, **CCTMx<sup>2</sup>**, for smoke free delivery of medical cannabis (Cannabinoids and Cannabis derivatives).
- Filed various International patent applications (US and Canada for wafer technology and related technologies) through law firm Gowlings patent agents.
- Currently pursuing sales and joint venture opportunities in various States within U.S., Europe and Asia to bring the products to market world-wide through collaborative efforts and joint venture arrangements.



# CTT Management Team

▷ **DR. PANKAJ MODI, PHD, MD – President and CEO and CSO**

- PhD: Biotechnology-Biochemistry-Photobiology
- MD: Internal Medicine with specialization in Endocrinology and Pain Management
- MS: Polymer Science and Engineering
- Author of over 30 US and worldwide patents on various drug delivery systems
- Published over 30 papers and book chapters
- Oral trans-mucosal fentanyl wafer – currently at the licensing stage
- Developed ORAL-LYN (Oral Insulin Spray Delivery)

▷ **DR. ALLEN GREENSPOON, Director, MD**

- Physician in the Hamilton area for 27-years
- Participated in numerous clinical studies related diabetes, lipids (cholesterol) management, dermatology, obesity, oncology related research and caCTTiovascular diseases
- Founder of Wellington@Work and the owner of Wellington Medical Centre
- Serves as a director and medical director in many privately held biotech companies.

# Market Overview





**CTT**Pharma

# Cannabis Treatment for Various Diseases

- ▷ **CANCER:** works to slow down tumor growth in the lungs, breasts & brain considerably.
- ▷ **SEIZURES:** Marijuana is a muscle relaxant & has “antispasmodic” qualities which have proven to be a very effective treatment of seizures.
- ▷ **MIGRAINES:** have been able to treat more than 300,000 cases of migraines that conventional medicine couldn’t through marijuana.
- ▷ **GLAUCOMA:** there is not a single valid study that exists that disproves marijuana’s very powerful & popular effects on glaucoma patients.
- ▷ **MULTIPLE SCLEROSIS:** it works to stop the neurological effects & muscle spasms that come from the fatal disease
- ▷ **TOURETTE’S & OCD:** the effects slow down the tics in those suffering from Tourette’s and the obsessive neurological symptoms in people with OCD
- ▷ **ADD & ADHD:** alternative for Ritalin & treats the disorder without any of the negative side effects of the pharmaceutical
- ▷ **IBS & CROHN’S:** helps with symptoms of the chronic diseases as it stops nausea, abdominal pain & diarrhea.
- ▷ **ALZHEIMER’S:** blocks the deposits in the brain that cause this disease  
Premenstrual Syndrome: used to treat cramps & discomfort

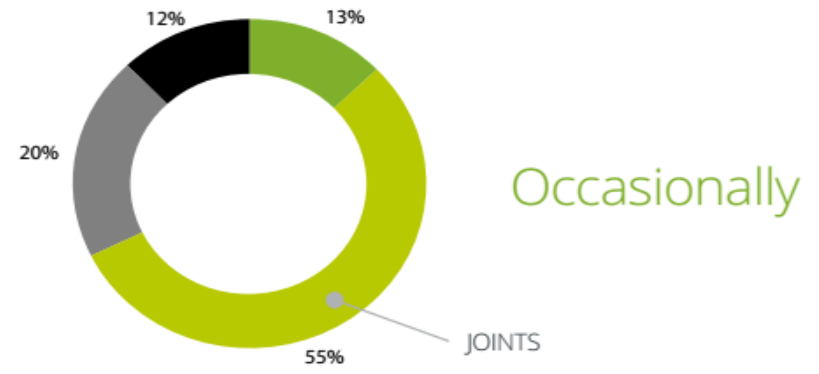
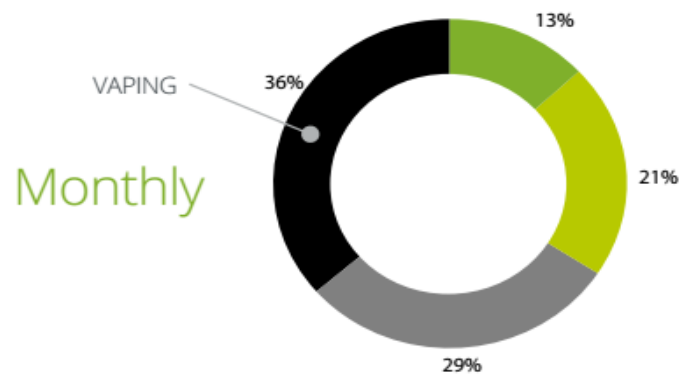
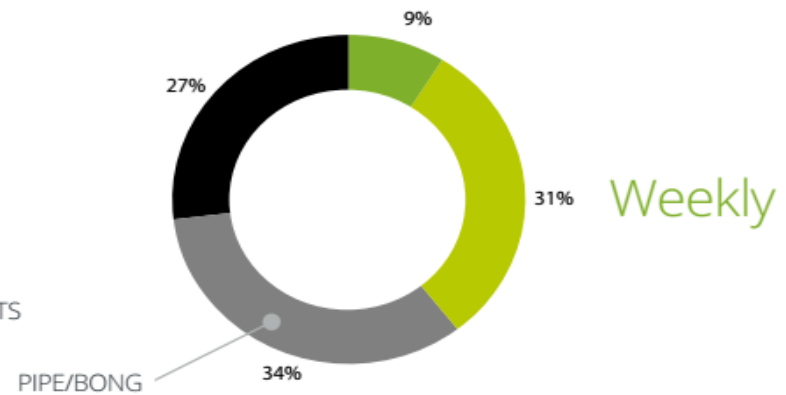
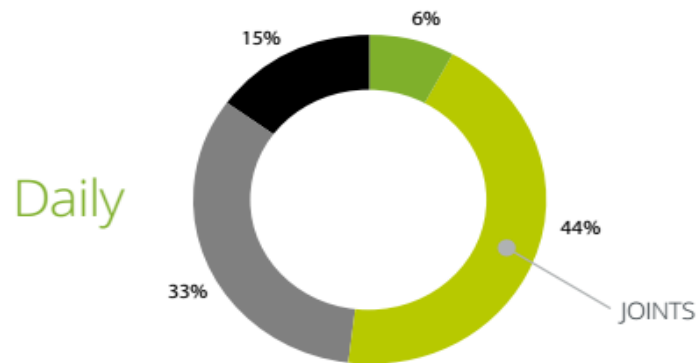
## CannaWafe Product (Advantages)

▷ **DESCRIPTION:** *Is an orally dispersible film retained at the site of application and rapidly releases the THC, Terpenes and Cannabinoids for local and/or systemic absorption. CTT Pharma-orodispersible films technology drug delivery system will work with any strain or species of cannabis and can be provided in various packaging configurations, ranging from unit-dose pouches to multiple-dose blister packages.*

▷ **BENEFITS:**

- Smoke-Free
- Convenient and Discrete (Administer anytime/anywhere)
- ***Dissolves in mouth within 10 seconds***
- ***Easy to dose Geriatrics and Pediatric populations as no fear of choking***
- Dosage Control (Limits addiction)
- Odorless
- **Fast Onset (Enters bloodstream quickly – bypassing lungs and/or stomach)**
- **Flexibility (Works with any strain of cannabis) and any pharmaceuticals**
- Easy and Clean Application (No rolling or handling of cannabis)
- Flavoured (Mint, Cannabis, Food, etc.)
- Serialized packaging
- Coloured ( Represent strength & dosage)

# Methods of Consumption



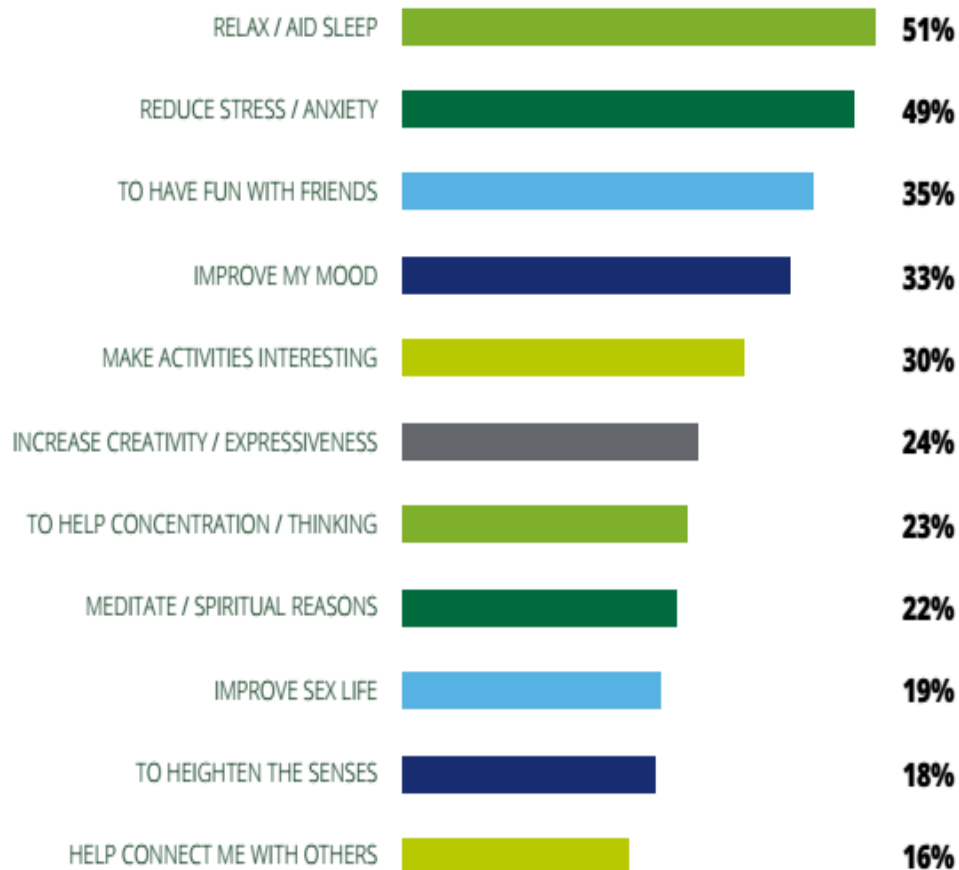
EDIBLES   SMOKING JOINT   SMOKING PIPE/BONG   VAPING

## Consumers by Frequency and Potential

	MALE	FEMALE	MILLENNIALS	GENERATION X	BOOMERS
DAILY	7%	6%	11%	6%	4%
WEEKLY	4%	4%	7%	5%	2%
MONTHLY	3%	3%	5%	4%	2%
OCCASIONALLY	8%	8%	11%	9%	6%
NOT AT ALL	77%	79%	67%	77%	86%

The survey was conducted between March 13th and April 3CTT, 2016 with a total sample of 5000 adult Canadians (19+) using RIWI's CTTIT™ methodology. Results are accurate to one decimal place. Values may not add up to 100% due to rounding

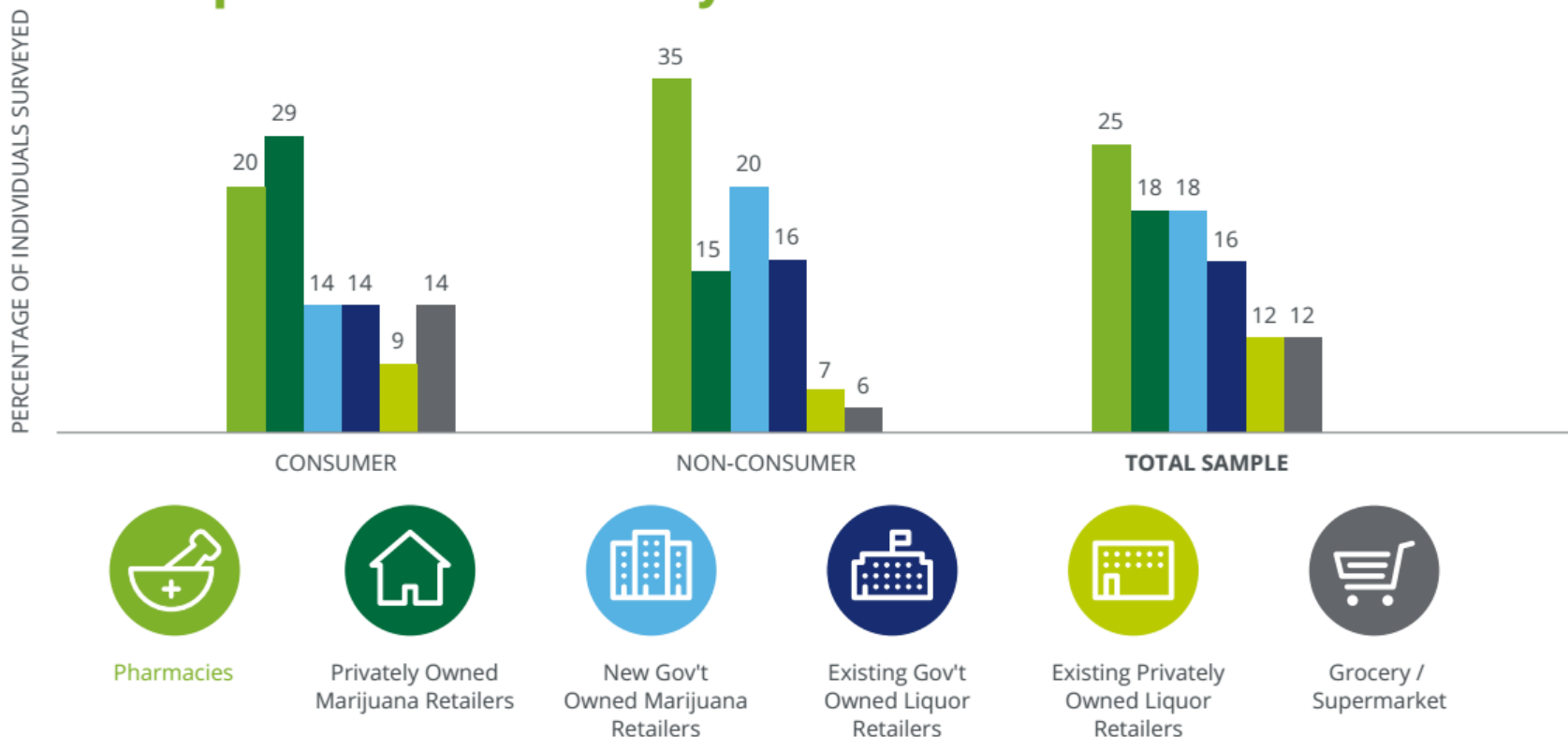
## Motivation to Consume



## Consumption with Alcohol

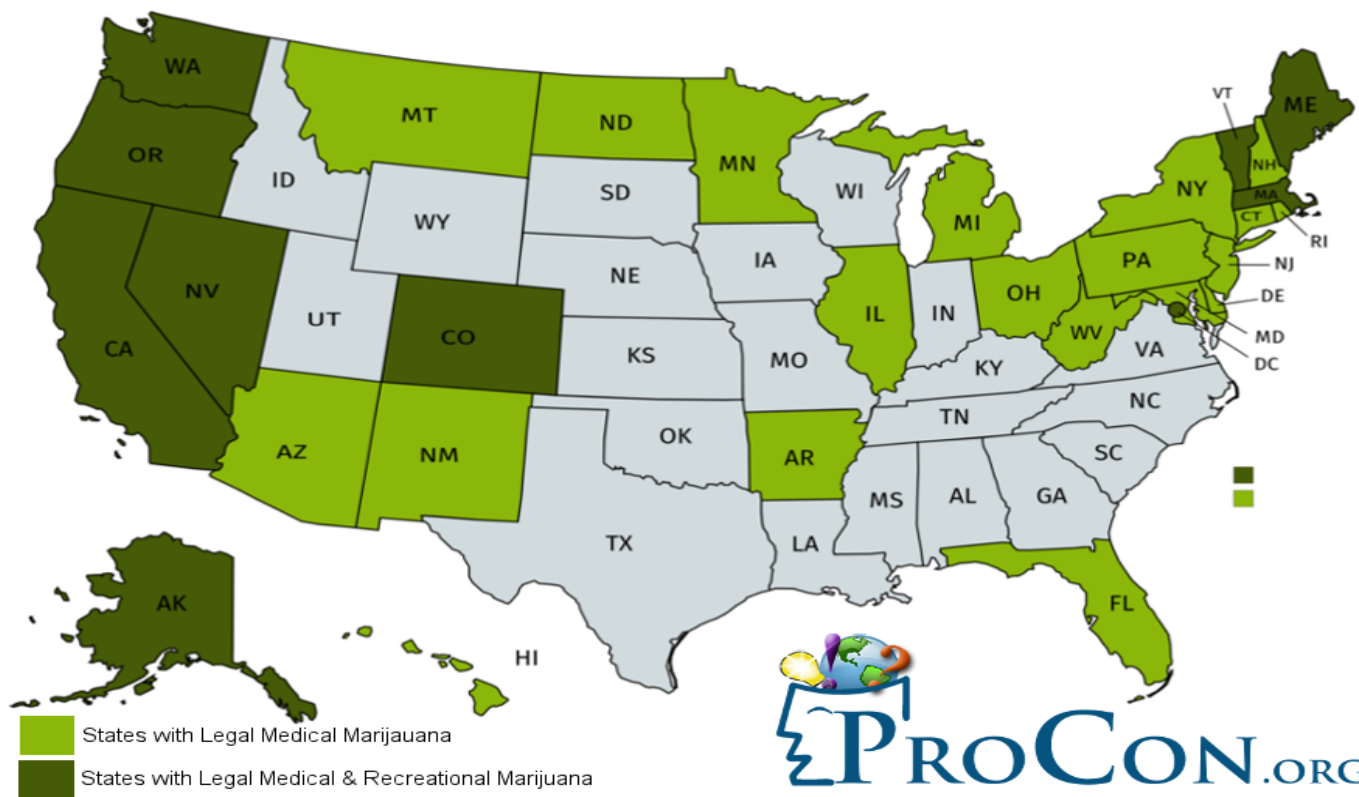


## Top Preferred Channel by Consumers and Non-Consumers



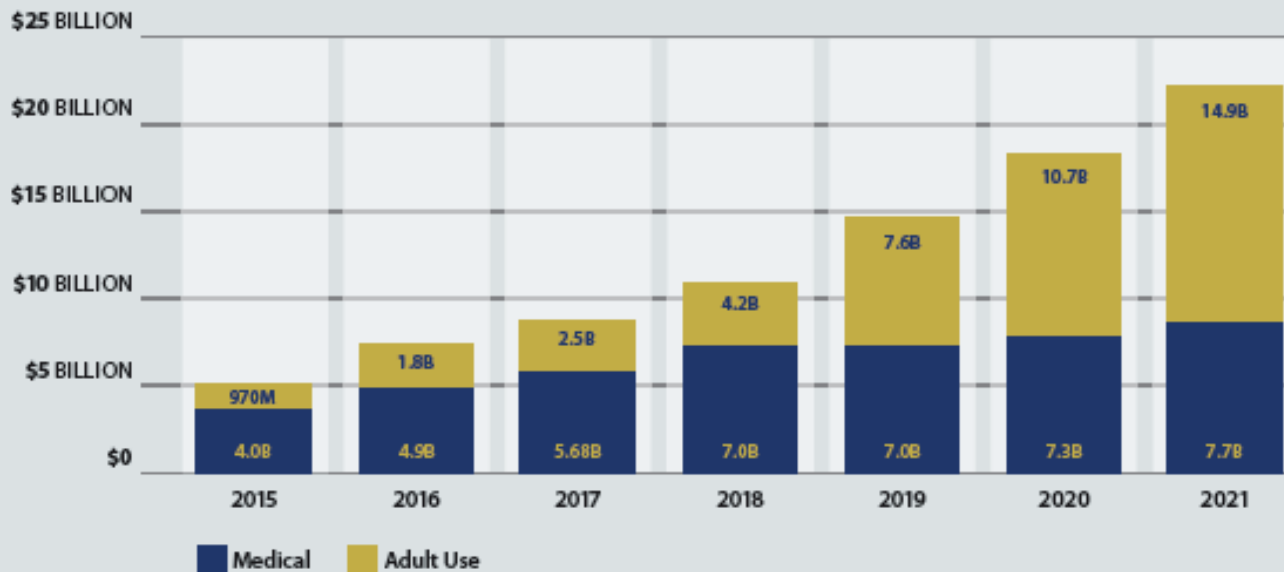


**29 Legal Medical Marijuana States & DC**  
**9 Legal Recreational Marijuana States & DC**



# North American Cannabis Spending

► North American Legal Cannabis Spending 2015-2021



A large, solid orange arrow pointing to the right.

**\$55.1B by 2025**

Global forecast for the medical marijuana market

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**17.1% per year**

Forecasted Annual Growth Rate

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**39.6% of Revenue**

Chronic Pain Management is the largest Revenue Share and continues to grow with Cancer being #1 area

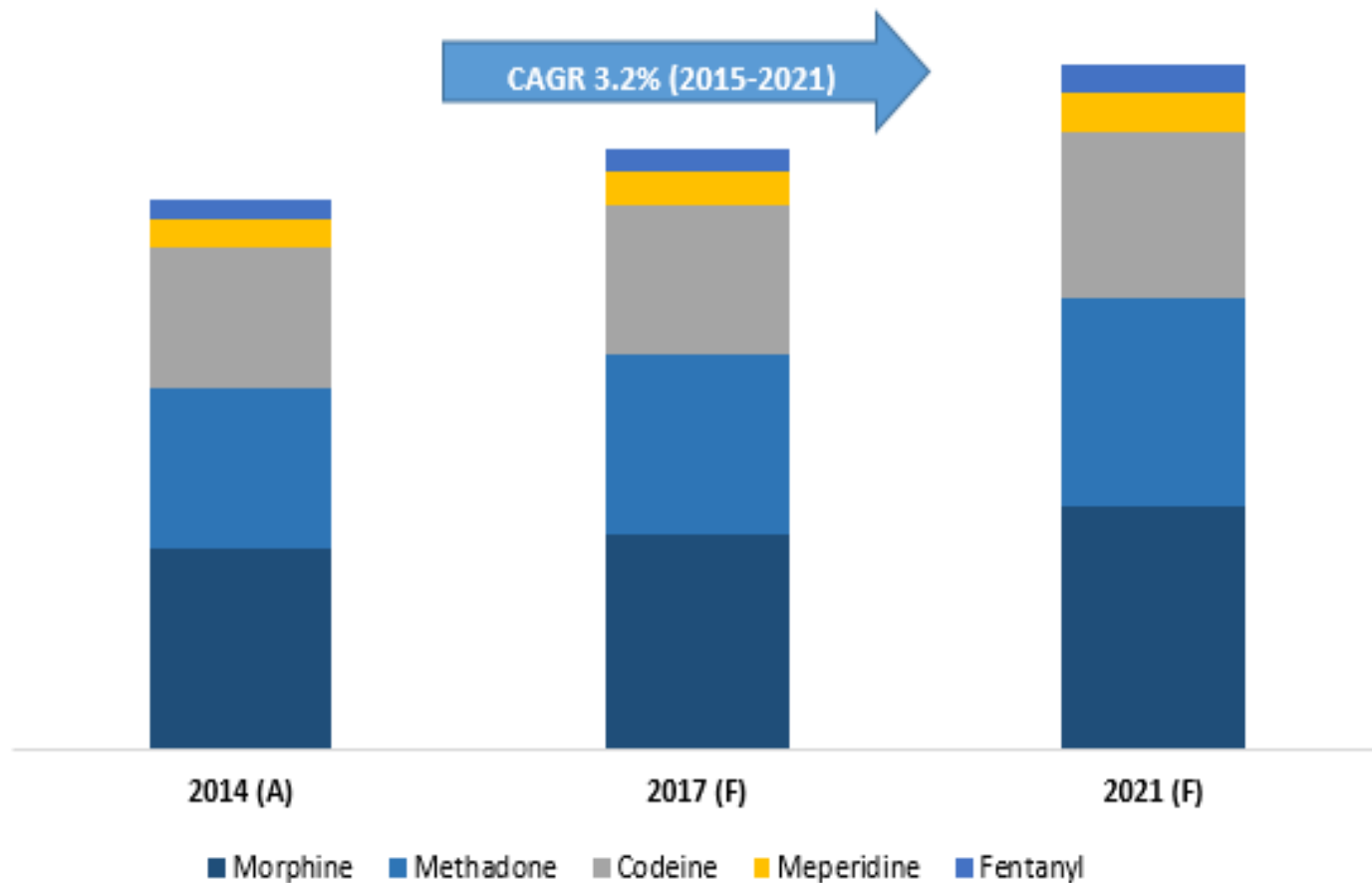
# Pain Management

- ☐ Medical efforts to treat pain address a large market.
- ☐ Breakthrough pain is a worldwide problem with serious health and economic consequences.
- ☐ In the United States: medical economists estimate that the effects of pain result in approximately \$100 billion of costs annually, including costs associated with an estimated 515 million lost work days.
- ☐ According to the National Institute of Health, approximately 40 million Americans are unable to find relief from their pain.
- ☐ More than 30 million Americans suffer chronic pain for which they visit a doctor; approximately one million cancer patients suffer from severe pain at any given time.

## Importance of Pain Management

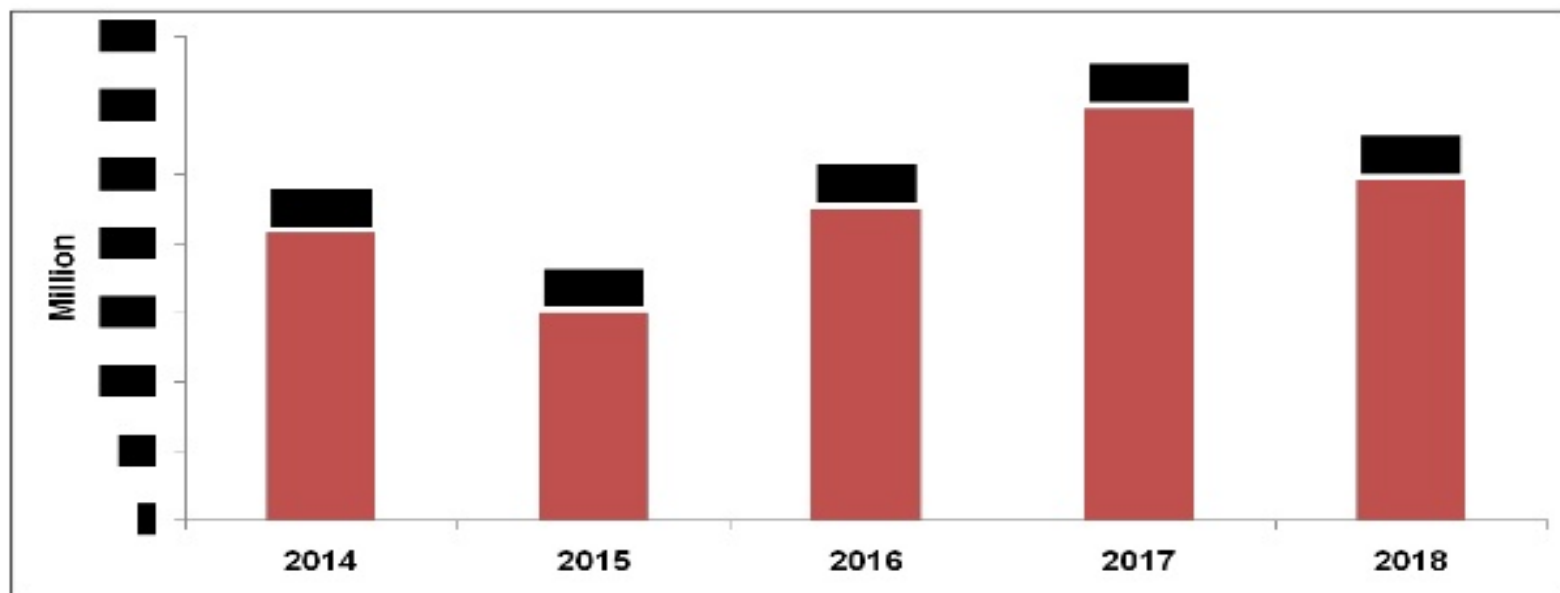
- ☐ Pain control merits a high priority not only for those with advanced disease but also those whose condition is stable and life expectancy is long.
  - Causes unnecessary suffering
  - Weakens will power and body
  - Impinges on work, leisure, role in society and family
  - Diminishes hope

## Global Opioid Market, Revenue By Products, US\$ Million, 2014, 2017 and 2021



## United States – Pain Management Patient Population (2005 – 2018)

United States – Forecast for Pain Management Patient Population (Million), 2014 – 2018

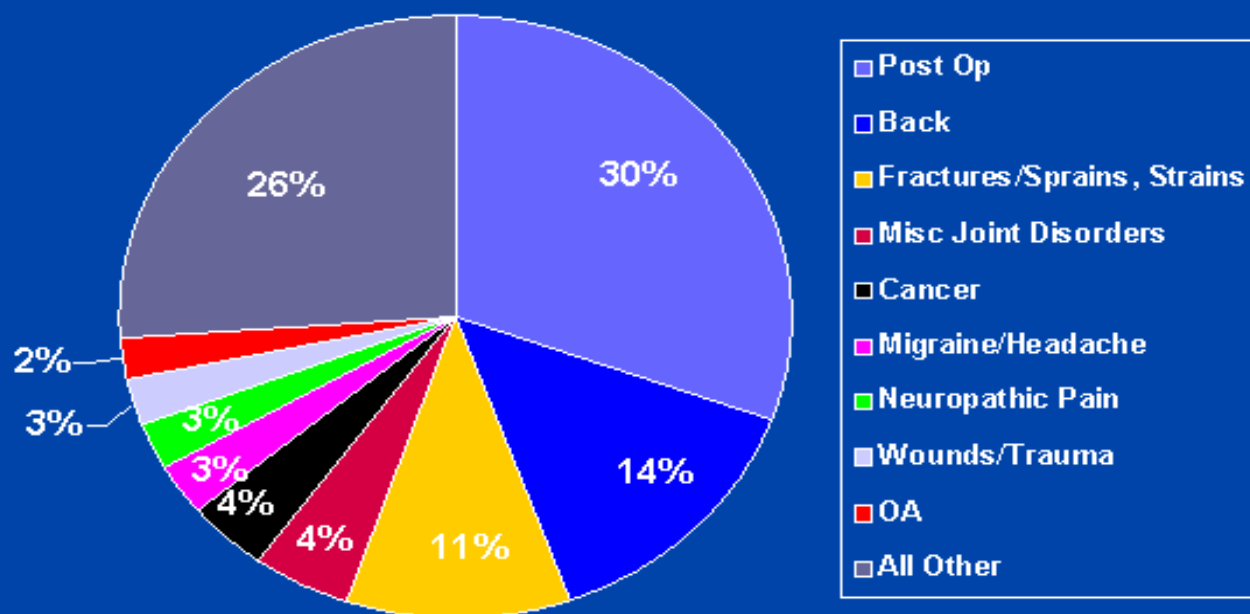


Source: Available in the Report



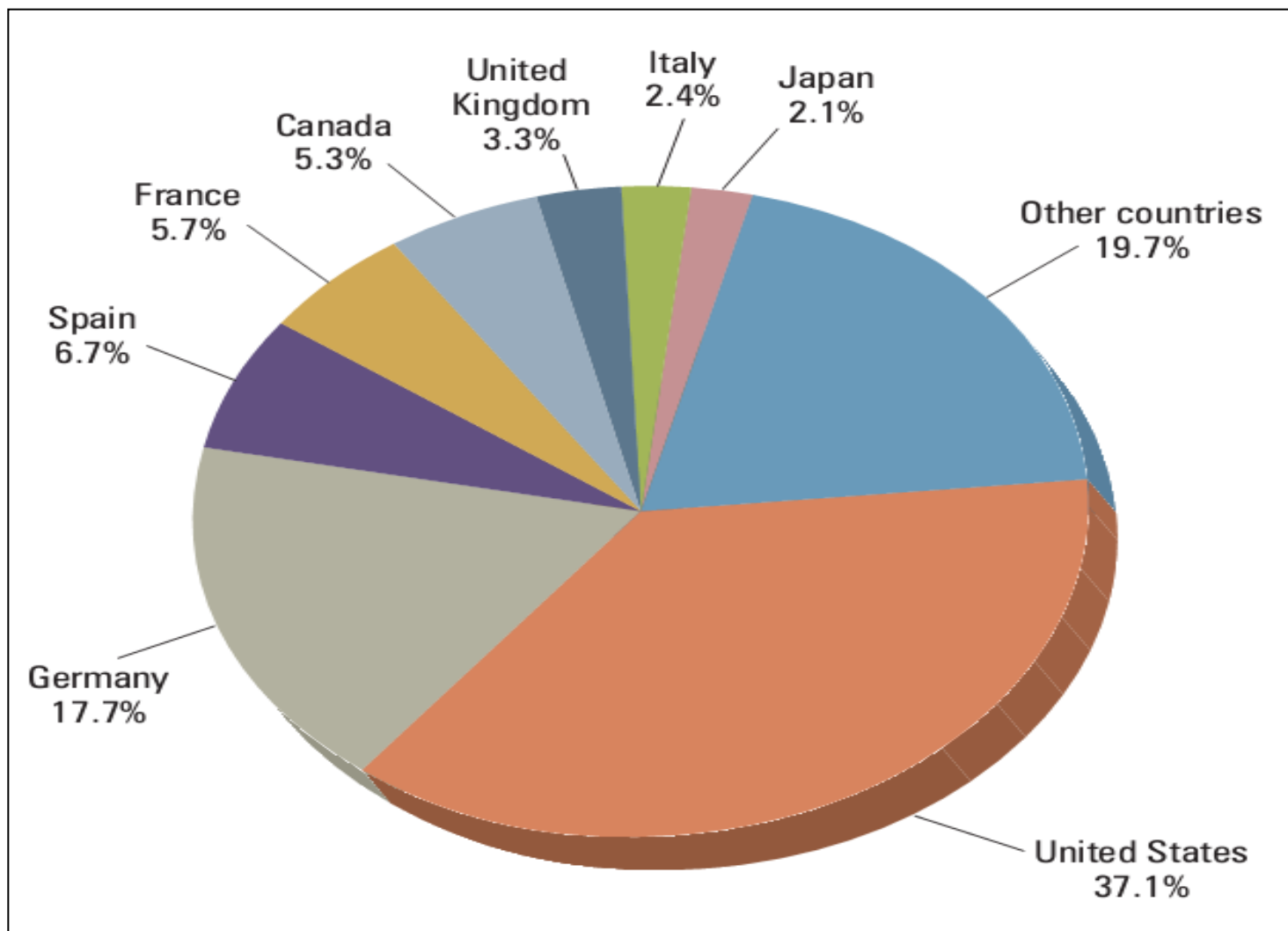
# Opioid Market Profile

## Drug Use



Source: IMS NDTI, 12/02

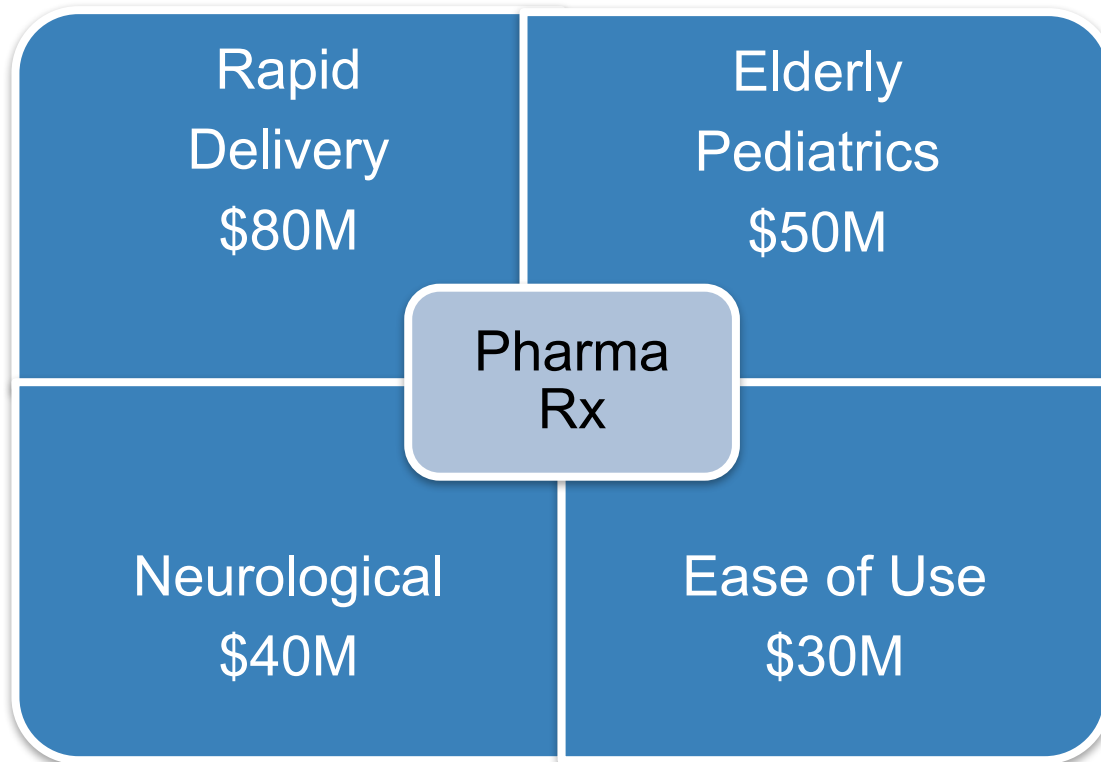
## Opioids sales Global Market (2018)



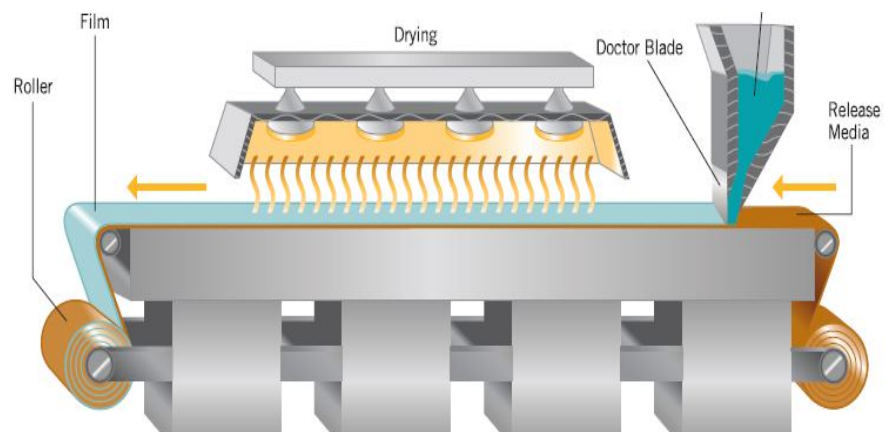


## Pharma Rx

### Potential CTTMX Product Sales Canada



# Pilot Scale Manufacturing Facility





Wafer Cassette



Single wafer



Wafer Aluminum Pouch  
packaging



# CLINICAL STUDIES

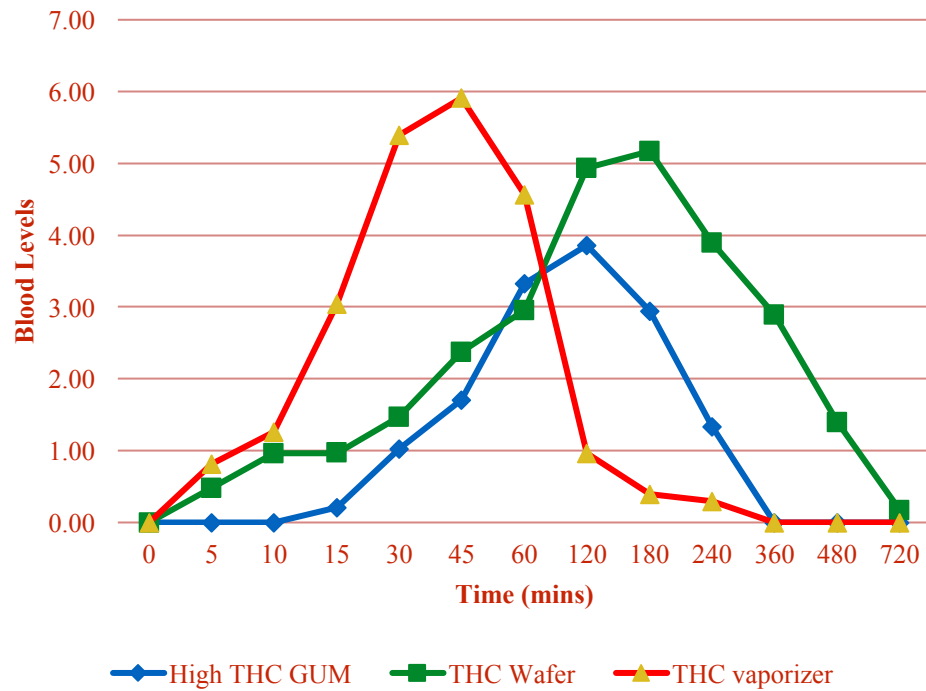
## **Cannabis THC-Wafer** CLINICAL STUDIES- HUMAN

The purpose of this study was to determine in a randomized, crossover manner, the efficacy (effect, or bio-availability) of a Cannabis wafers containing THC/CBD medication (pain relieving agents). The secondary objective was to assess the safety, tolerability and the side effects of various doses with the onset of action.

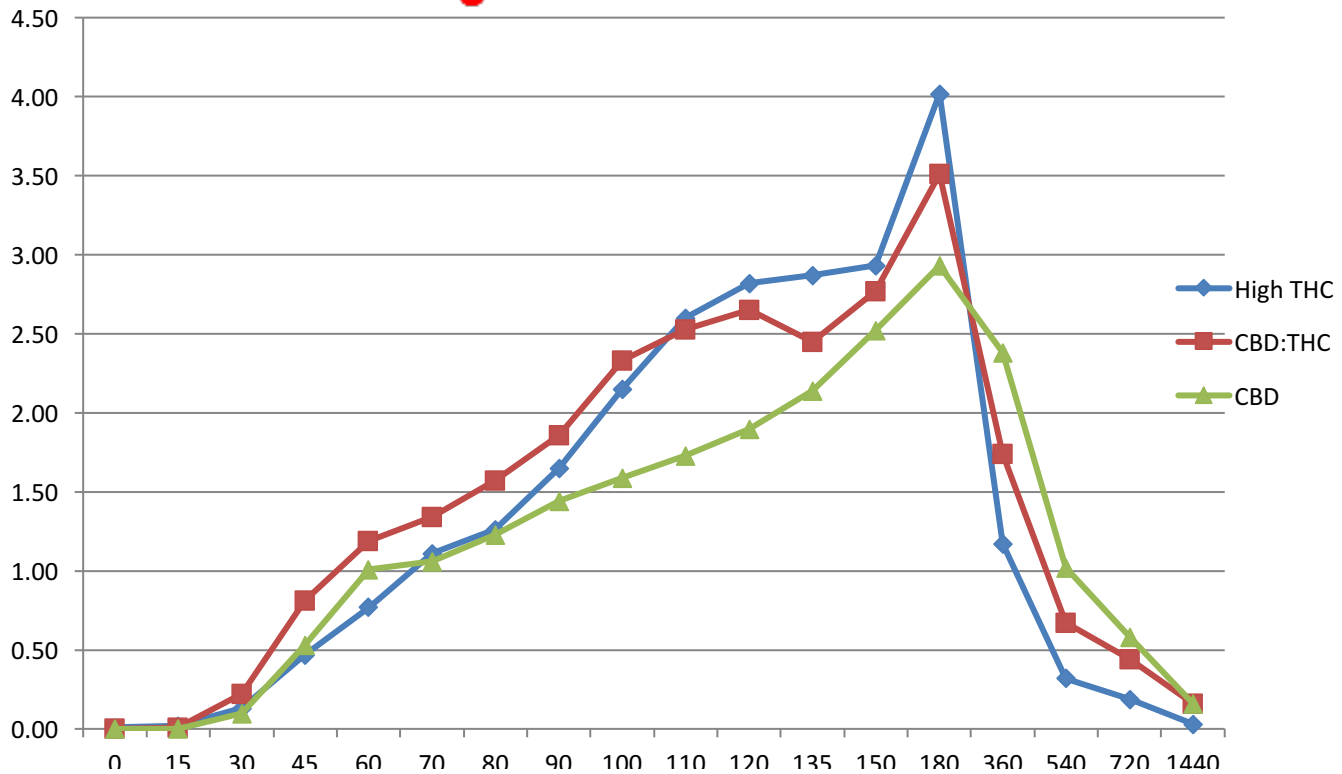
The study was a opened label, randomized, crossover, and dose ranging comparative study of Wafer, Vaporizer and THC wafers administered on different days in 13 healthy subjects (7 men and 6 women).

The wafer was only 1.5-2 cm and approximately 0.05 mm thick. The wafer is made from the FDA approved non-medical ingredients used in several pharmaceutical formulations, The trials were conducted in University of Spain Medical Center.

## Blood Levels Comparison Vaporizer, Wafer and Gum

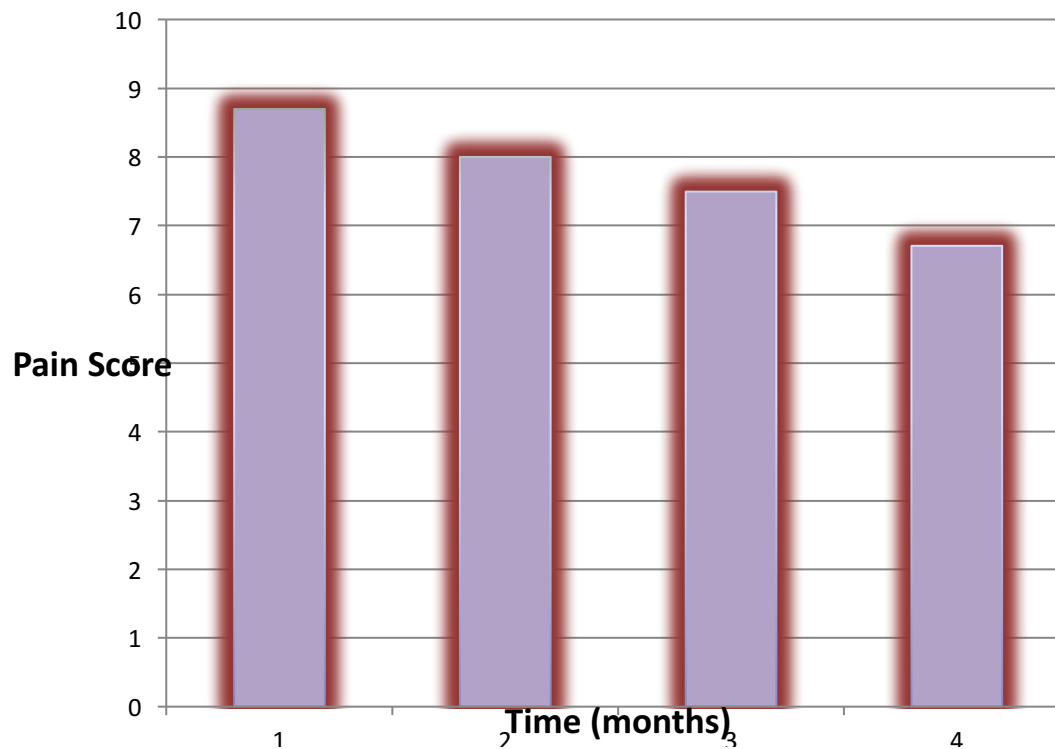


## High THC vs THC:CBD vs CBD

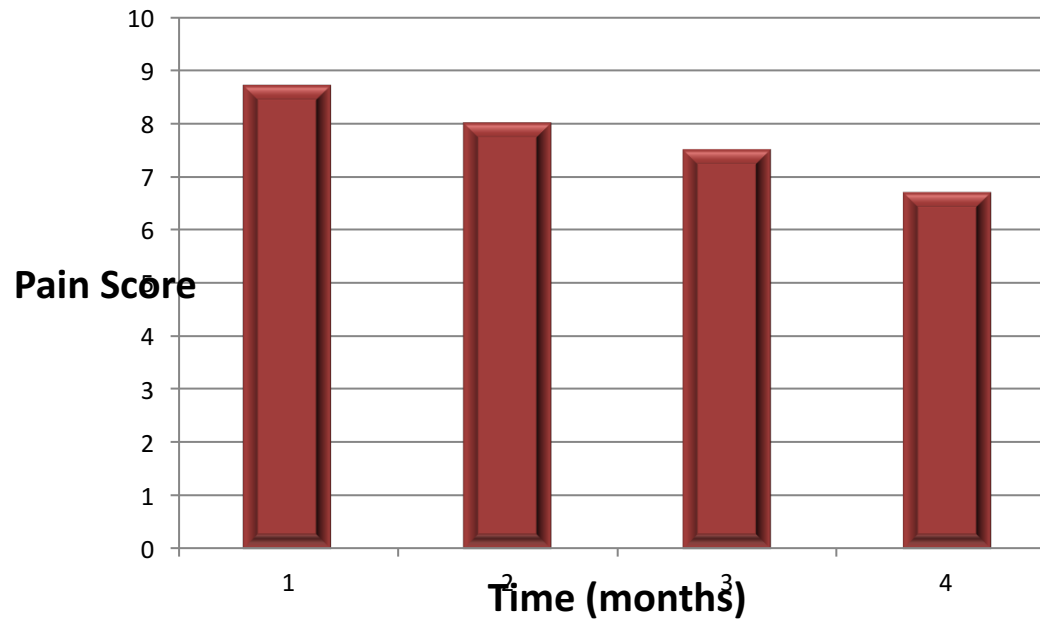




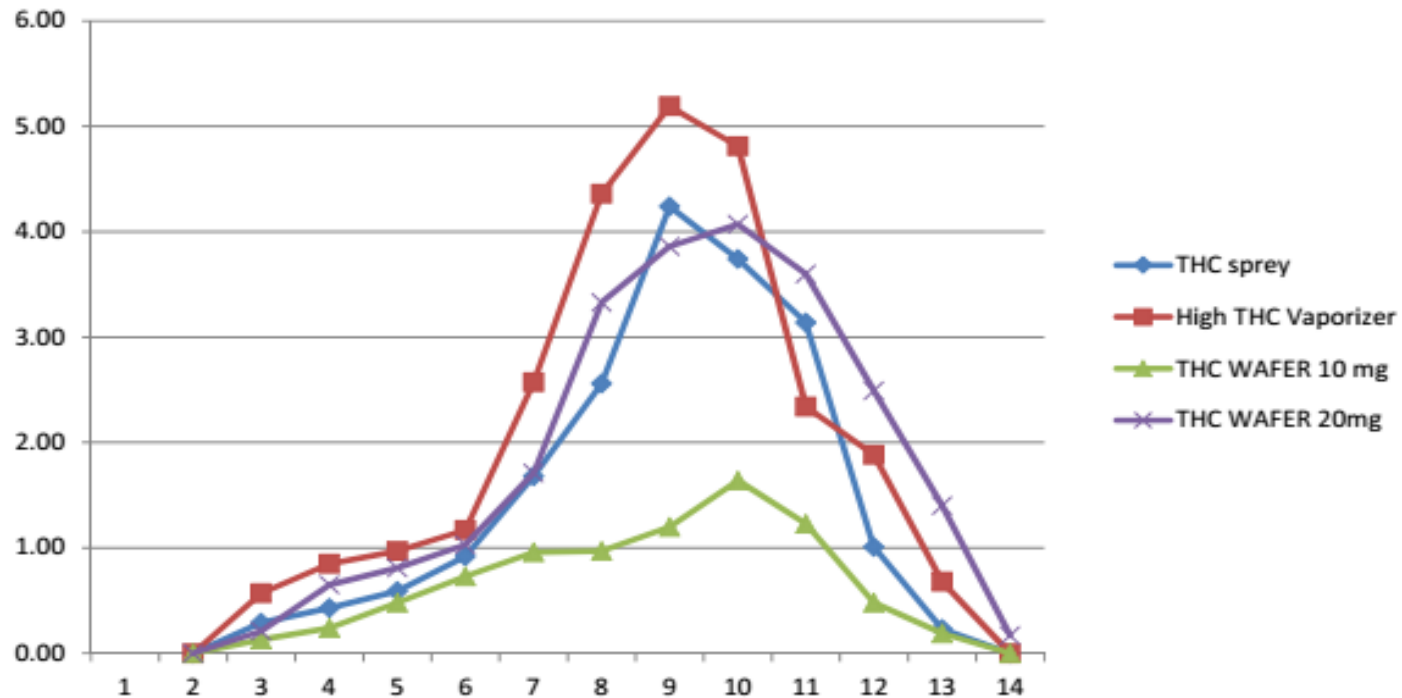
## Decrease in Pain Score (High THC 20 mg, 3 times Daily)



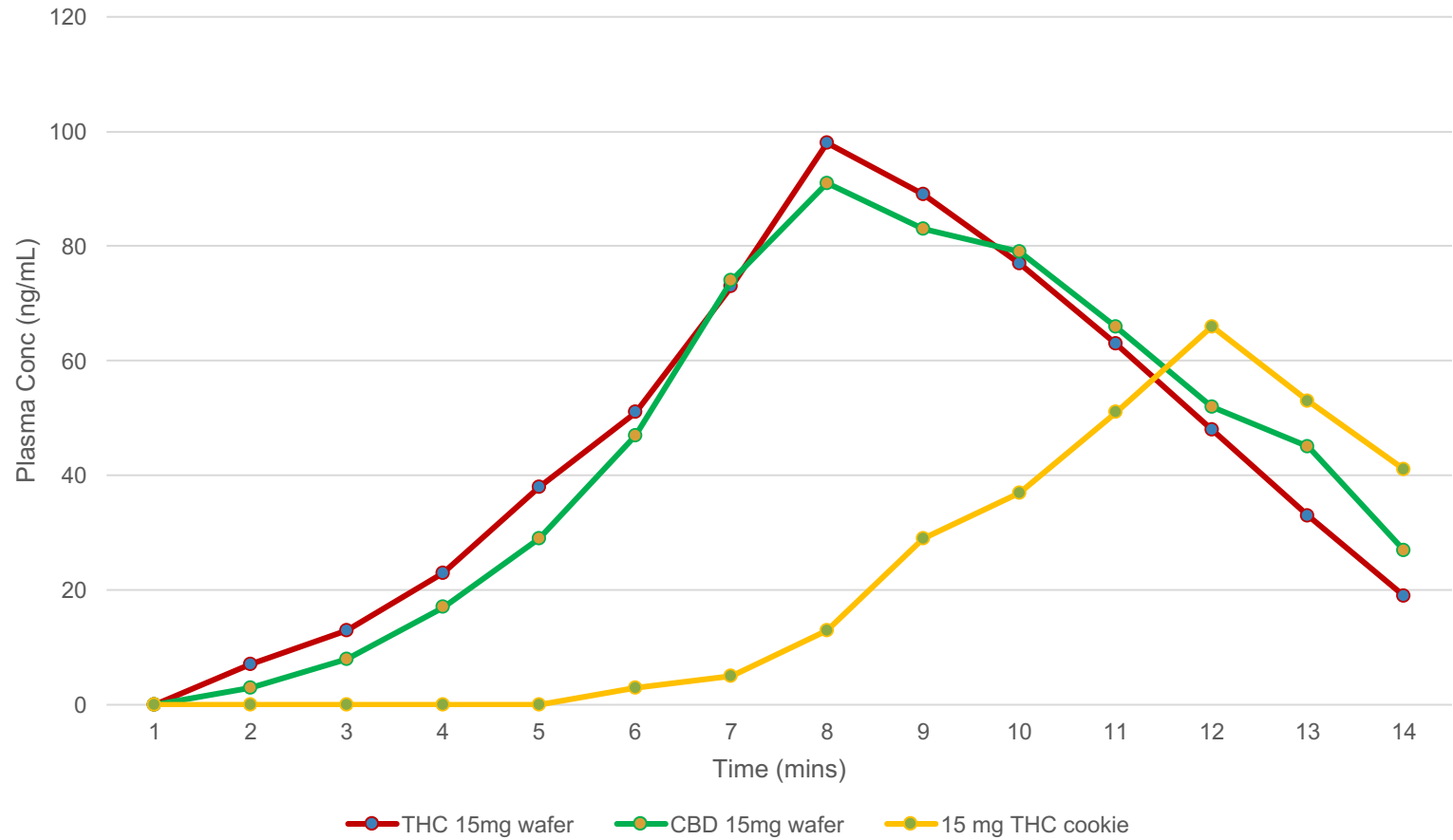
## Decrease in Pain Score (THC:CBD 1:1) 3 times Daily



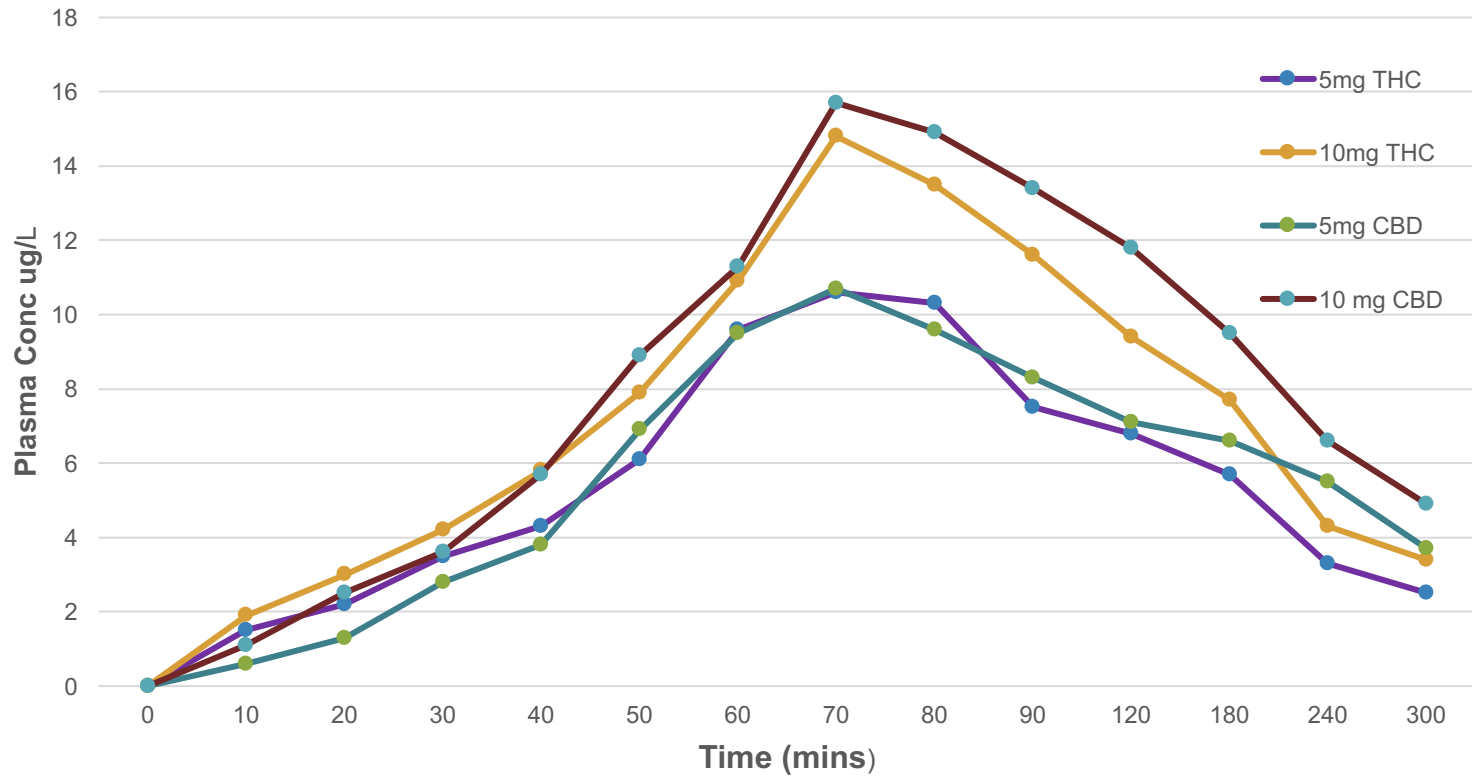
## Comparison: Vaporizer, Spray and Wafer

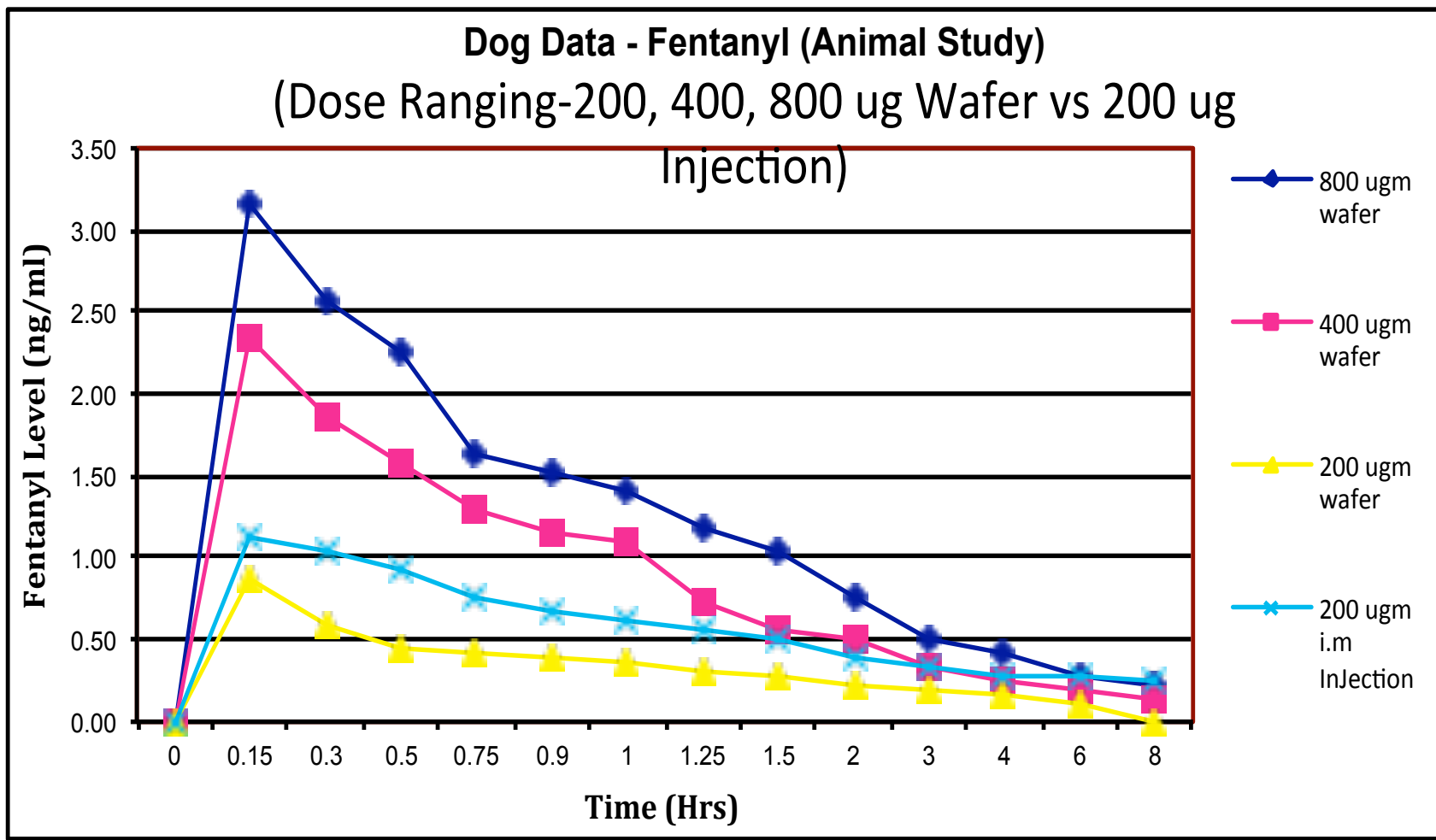


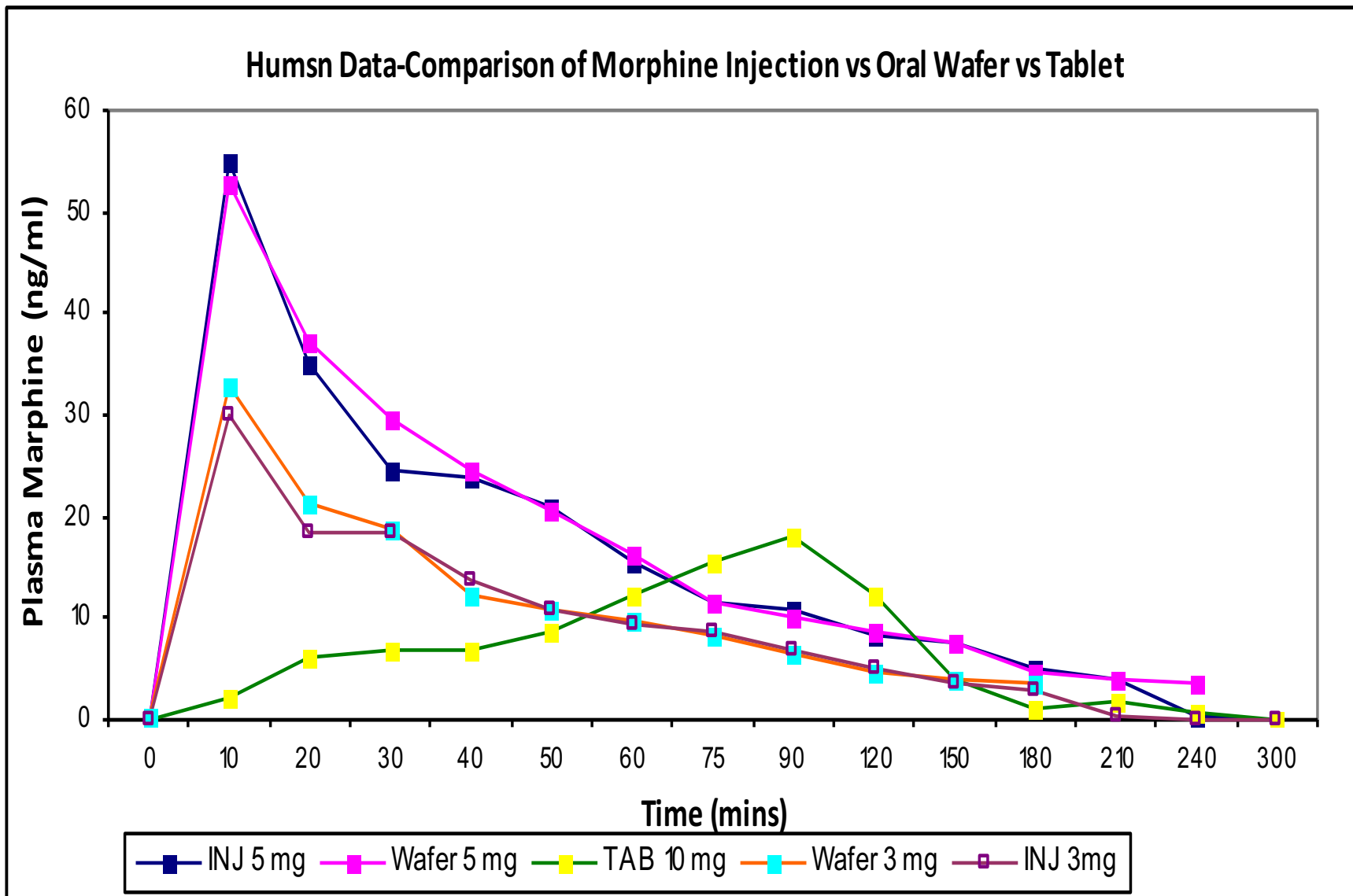
### Comparison Oral THC and CBD Wafers with THC Cookie



### 5mg THC+5mg CBD and 10mg THC+10mg CBD







## CONCLUSIONS

- The dose ranging studies indicated the bioavailability is comparable to i.v. injection or vaporized dosing as the Peak plasma concentrations were achieved P<sub>max</sub> or (C<sub>max</sub>) within 10 minutes.
- no serious adverse events observed during the trials even using higher doses of THC and CBD. The heart rates, respiratory rates and blood pressure remained normal during the entire study period and patients tolerated the taste and drug well.
- These observations conclude this novel drug delivery system is commercially viable for treatment of pain management, and other neurological disorders, like epilepsy, PTSD, breakthrough cancer and post-surgical pain in humans.



## Why Invest in CTT

- Expert Technology, team and market size
- Experienced professional team with proven track records and results in all our verticals
- US Cannabis sales reached \$5.4B in 2015, \$6.7B in 2016. Projected to reach \$20.2B by 2021.
- To be legalized in Canada, July 1<sup>st</sup>, 2018
- CTT's customers are looking for new delivery systems to generate sales interest
- Medical experts are embracing lower dosages with quicker absorption producing more effective and safer results – reduces stress on liver, stomach, etc.
- Oral Cannabis products on the market today are sugar based and move through the GI tract and takes long to show effect.
- CTT Fast Dissolving Wafers provide an effective direct delivery in the mouth with rapid onset of action within 5-10 minutes after dosing
- International Patented Technologies provides a high royalty stream with low capital and annual expenditure commitments.

Thank you

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