Stepping Up to the Next Level

Canada's Cannabis Companies Preparing for Market Expansion

Investment Thesis: The cannabis market has attracted significant excitement – and capital – over the past 12 months, although many investors remain understandably cautious. We begin our coverage of the space with this report on the industry, which includes a discussion of the major demand drivers for the medical market, the regulatory landscape, and the opportunities in other markets (both in Canada and internationally). We provide brief overviews of the major players in the industry, including key differentiators and growth strategies. We are simultaneously initiating coverage on Emblem Corp. (EMC-TSXV), with a Speculative Buy rating and 12-month target price of $5.25/shr. For more details, please refer to our initiating report. From a public market investor's perspective, this is a very new industry, and while that always entails risk, we believe the return potential still makes it attractive for the following reasons:

- **The Medical Market has Grown Far Faster than Expected**: According to Health Canada data, almost 100K Canadians have registered with Licensed Producers (LPs) of medical cannabis, with last quarter's sequential growth of 31% equivalent to an annualized rate of almost 200%. This implies that the number of medical consumers could reach 450K as early as next year, approximately six years earlier than Health Canada had predicted. LPs have raced to expand production in order to catch up with demand, and an active wholesale market has developed as well. That rapid growth has been achieved despite the small percentage of physicians (less than 10%) that recommend cannabis for patients. As more product data becomes available, and more physician-friendly products are developed, we expect physician penetration to help drive increased patient use;
- **Market Potential Extends well Beyond Canada's Medical Market**: The current market capitalization of the major producers already dwarfs the annual value of today's medical market. However, the medical market represents a small slice of the potential for companies in this space. Canada's federal government is expected to introduce legislation this spring that would legalize the recreational (or adult-use) cannabis market. Investors should be aware that there is still uncertainty around the specifics of the forthcoming legislation, particularly the timing for implementation. However, early estimates suggest that this market could be 10x the size of the medical market, given the number of existing consumers of cannabis. Canadians spend over $20B annually on alcohol, thus there is the potential for the recreational cannabis market to develop into a multi-billion-dollar industry. Moreover, the opportunity in the pharmaceutical market is significant, as Canadians spend $30B/yr on drugs, and over three-quarters of all emergency room visits are pain-related. Finally, Canadian LPs are already looking abroad at opportunities to expand in the US, Europe, and South America, where cannabis use for medical and/or recreational purposes is becoming increasingly accepted; and
- **Licensed Producers are Growing Up and Out**: Over the past year, LPs have engaged branding partners (e.g., Canopy with recording artist Snoop Dogg, OrganiGram with the Trailer Park Boys), and expanded into clinics/education centres as a means of broadening awareness and driving patient growth. Recent financing activity has been hectic, as producers have announced aggressive expansion plans in preparation for the recreational market. Consolidation may be beginning, with Canopy Growth Corporation (WEED-T, NR) recently acquiring Mettrum Health, building on its industry-leading scale, while augmenting its brand portfolio and creating revenue/cost synergy opportunities.

Initiating Coverage of Emblem Corp. (EMC-TSXV, $3.60, Speculative Buy, PT $5.25): We view EMC as an attractive investment at current levels given our outlook for cannabis-based product demand, a balance sheet that supports rapid capacity expansion, and its vertically integrated model led by strong management. The Company is currently completing its Phase 2 expansion that should triple production capability to 2,100 kg, with commissioning expected by April 2017. We estimate that EMC has another $40M available to fund additional expansion to support expected demand from the recreational market. The Company's pharmaceutical division, led by Mr. John Stewart (former President/CEO of Purdue Pharma Canada and Purdue Pharma USA), is working to develop cannabinoid-based formulations, which should help drive market expansion.

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What is Cannabis and what is it Used For?

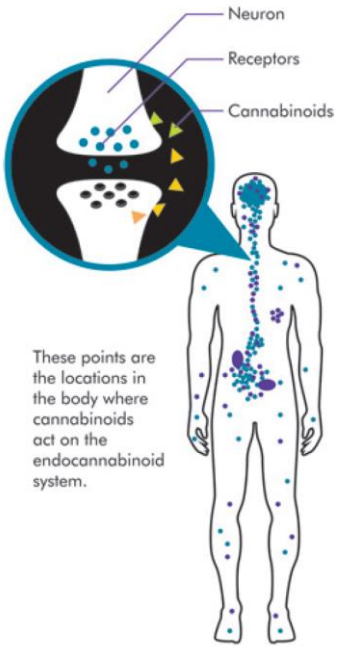
What is Cannabis? Cannabis is the species name for the plant, with the two most important varieties being cannabis sativa and cannabis indica. We summarize the key differences between the two plants in the exhibit below, and we note that the two plant types are often cross-bred to produce hybrids that combine various traits. Marijuana is produced from the flower and leaves of cannabis plants. Hemp (or industrial hemp) is a species of the sativa plant that is primarily grown for its fibre content for use in paper, textiles, clothing, etc.

Throughout this report, we use the terms cannabis and marijuana interchangeably. We similarly use the terms patient, consumer, and user interchangeably.

Cannabinoids are the Story: Cannabis contains hundreds of chemical substances, and over 100 compounds called cannabinoids. It is the cannabinoids that are responsible for the effects of cannabis. They combine with protein molecules on the surface of cells, called receptors. This system of receptors found in the human brain and throughout the body is referred to as the endocannabinoid system. Research indicates that cannabinoid receptors support a number of physical functions, such as modulating brain and nerve activity (including memory and pain), energy metabolism, heart function, the immune system, and reproduction.

Exhibit 1 – Sativa vs. Indica (left), the Human Endocannabinoid System (right)

Cannabis Sativa	Cannabis Indica
Mainly affects the brain. Energetic / uplifting impact. Plants are taller, skinnier. Typically high THC/low CBD.	Mainly affects the body. Heavy, body-centred impact. Plants are shorter, denser. Typically lower THC/higher CBD.
Potential Medical Applications - headaches/migraines, nausea, stimulating appetite, reducing depression.	Potential Medical Applications - pain and aches, anxiety and stress, reducing inflammation/spasms/seizures.
	



Source: Zamnesia.com, Herb.com, CanniMed Therapeutics Inc., Echelon Wealth Partners

Currently, the two most commonly used cannabinoids in medical applications are:

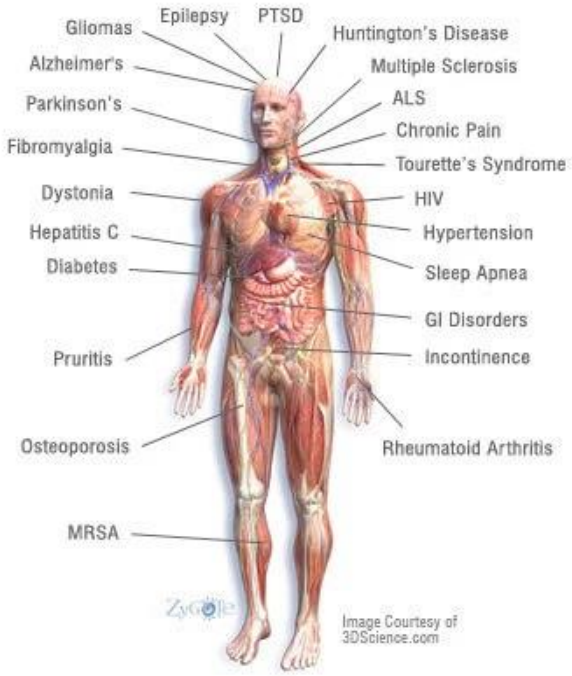
- **THC (delta-9-tetrahydrocannibinol)** – THC is the compound primarily responsible for the psychoactive effects of cannabis (i.e., it changes brain function, producing what people normally refer to as 'the high' from cannabis). It activates pathways in the central nervous system that work to block pain signals, and is believed to have potential applications in managing PTSD, as well as stimulating appetite in patients following chemotherapy. Advances in growing and production techniques mean that today's cannabis contains higher levels of THC, with more recent THC levels measured at 15% versus 3% in the 1980s. Some Canadian LPs report being able to grow cannabis with THC levels of 30%+. Resins extracted from the cannabis flower can have THC levels as high as 80% for solid concentrates known as shatter.

- **CBD (cannabidiol)** – CBD has potential therapeutic but no obvious psychoactive effects. It has shown potential applications in relieving convulsion and inflammation.

THC and CBD concentrations are usually expressed as a percentage of weight, and newer work suggests that the THC:CBD ratio itself can play a role in reducing the psychoactive impact of THC. Other compounds in cannabis – known as terpenes and flavonoids – may also have pharmacological properties, either in isolation or in combination with cannabinoids.

Health Canada does not consider Cannabis a Drug: Cannabis is not authorized for sale ***as a drug*** by Health Canada, under the Food and Drug Act (FDA). However, the following exhibit illustrates the numerous potential therapeutic uses for cannabis, although some critics argue that there is insufficient research supporting its use.

Exhibit 2 – Potential Therapeutic Uses of Medical Cannabis

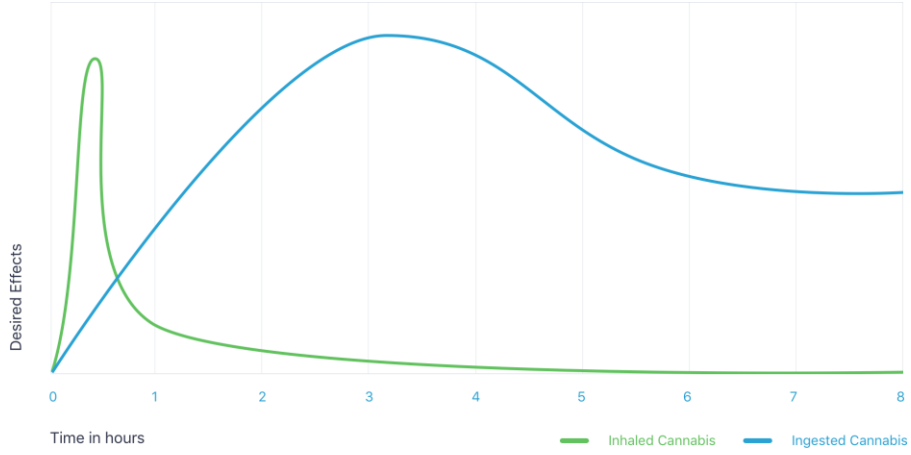


Source: Boston South Shore Natural Therapies

Consumption Options go Beyond Smoking: While cannabis is best known for being consumed as dry cannabis (i.e., smoking or vaporizing/vaping), it can be used as an ingredient in food products (such as brownies, cookies and chocolate, cooking oils and drinks), oils, ointments, tinctures, creams, and concentrates (e.g., butane hash oil, waxes and "shatter"). These products can be made with varying levels of THC and CBD.

The Delivery Method matters a great Deal: Unlike smoking or vaporizing cannabis, THC taken orally can require several hours to take full effect. The more immediate effects of smoking/vaporizing suggest that non-dried forms may make it more difficult to control consumption levels. However, the actual consumption of cannabis via edibles and oils is potentially safer than smoking.

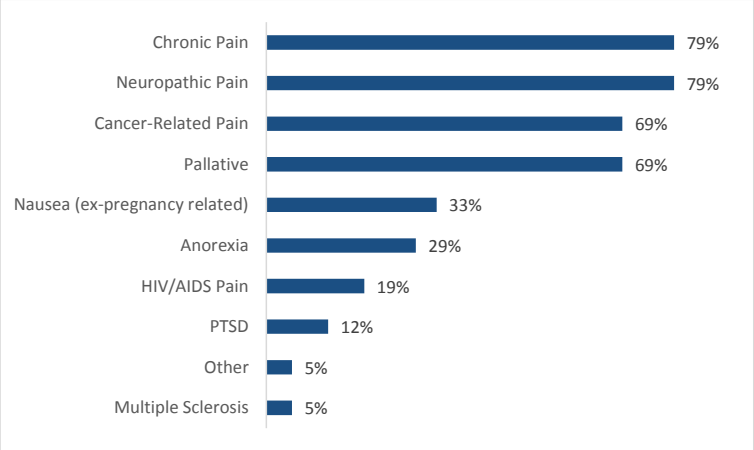
Exhibit 3 – Cannabis Impact over Time: Inhaled vs. Ingested



Source: Aphria Inc.

Pain Management Appears to be the Major Current Driver: A third-party survey commissioned by CanniMed Therapeutics (CMED-TSX, NR) indicated that physicians that prescribed medical cannabis did so primarily for some form of pain management, as illustrated in the exhibit below.

Exhibit 4 – Most Common Conditions for Prescribing Cannabis



Source: CanniMed Therapeutics, Echelon Wealth Partners

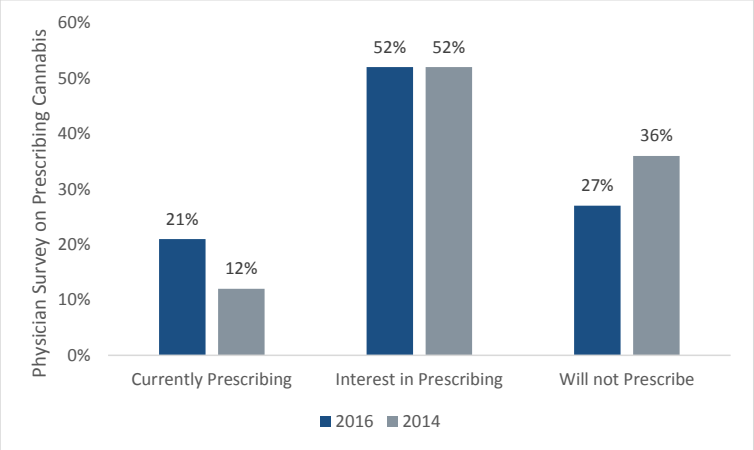
Demand Drivers: We view the following as the primary demand drivers for medical cannabis.

- **Regulatory Changes that have Eased Access** – We discuss this more thoroughly later in the report.
- **Gradually Improved Awareness/Acceptance** – Both patients and physicians are becoming increasingly aware – and accepting – of the potential medicinal benefits of marijuana. However, physician penetration remains low, with just over 9% of Canada's 75,000 physicians currently prescribing it. The policy of the College of Physicians and Surgeons of Ontario (CPSO), for example, specifically states that physicians should refrain from recommending cannabis to patients under the age of 25 "unless all other conventional therapeutic options have been attempted and have failed…"
- **Growing Demand for Pain Management Alternatives** – Approximately one in five Canadians suffer from chronic pain, which is currently primarily treated through the use of prescription opioid medications. Opioids are considered effective, but also pose risks of abuse and addiction, and physicians are under increasing pressure to rely on them less. In the US, studies indicate a significant decline (almost 25%) in opioid overdose mortality in states that allow the use of medical cannabis.

Physician Adoption has been Barrier to Growth: Approximately 7,000 physicians, or just over 9% of all physicians in Canada, currently prescribe medical cannabis to patients. In its report regarding the recreational market, the Federal Government-appointed Task Force noted that many physicians are reluctant to support the use of cannabis as a treatment, citing a lack of medical evidence supporting its value, and the proper training to recommend it appropriately. The CPSO states that "conclusive evidence regarding the safety and effectiveness of marijuana as a medical treatment is limited…" Similarly, while several major pharmacy chains have shown interest in dispensing cannabis for medical use, many pharmacists reportedly feel they do not have the clinical training or information required to properly advise patients on cannabis use. Several pharmacists' licensing authorities indicated that distribution through pharmacies should not be allowed until there is more clinical research demonstrating its therapeutic value, and until Health Canada has actually approved it as a drug.

However, third-party studies commissioned by CanniMed Therapeutics indicate that physician attitudes are changing. As illustrated below, the share of physicians (based on 200-physician surveys in 2014 and 2016) currently prescribing medical cannabis has increased, and the share of those that will not prescribe it has declined. It is worth noting that just over half of respondents indicated they would be interested in prescribing, but require more information before doing so. In other words, according to this survey, the number of physicians that are 'on the sidelines' is 2x the number that are currently prescribing, which represents a significant opportunity for the industry. There is some evidence of 'pull' marketing at work, with 78% of surveyed physicians reporting they had been approached by patients about cannabis in the last six months, up from 48% two years earlier.

Exhibit 5 – Physician Survey Results (2014, 2016 Comparison)



Source: CanniMed Therapeutics, Echelon Wealth Partners

We believe there are a number of contributing (and somewhat related) factors to the low penetration rate amongst physicians.

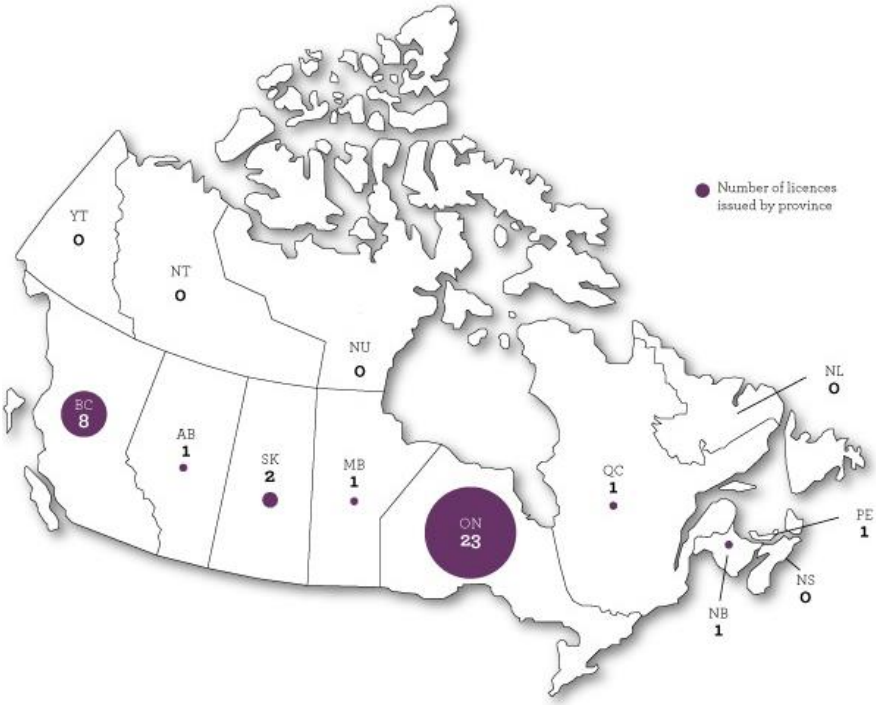
- **Limited Consumption Options** – Only recently have Canadian patients been able to obtain medical cannabis in oil form, so the vast majority of medical cannabis is smoked or vaporized ('vaped'). For physicians, this meant that recommending cannabis was tantamount to encouraging smoking, with its attendant health impacts. Moreover, this consumption method makes it difficult to accurately measure and monitor the impacts of different dosage levels. Medical cannabis can be consumed in a wide variety of formats, including edibles, lozenges, dermal patches, or oral/dermal sprays. The development of products that use cannabis oils – such as gel caps – should make cannabis more physician-friendly by ensuring consistent dosage levels and negating the need for smoking.
- **Lack of Research** – Because access was so restricted for so long, there has been limited formal, clinical research on the potential impact of cannabis use relative to traditional pharmaceuticals. To date, there has been but one Health Canada-approved, Phase II clinical trial conducted with dried marijuana (the CAPRI Trial, expected completion November 2017).

Market Potential: Medical Now, Recreational, and Pharma Tomorrow

Medical Market – Small but Growing Rapidly: There are currently 38 LPs authorized to sell cannabis. Licenses are specific to a facility address, so companies with multiple facilities such as Canopy Growth Corporation have multiple licenses. As shown below, the vast majority of LPs are located in Ontario, followed by British Columbia. Producers are otherwise under-represented (relative to population) in Quebec and Alberta.

As of early August 2016 (the latest data as of January 30, 2017), almost 1,600 applications for LP approval had been submitted, of which 419 are in process. The remainder have been returned as incomplete, refused or withdrawn. The licensing requirements and review backlog represent a significant entry barrier, which we believe gives incumbent producers a head start on expanding their production bases and developing their brands, while also creating urgency to do so, given the likelihood of new entrants.

Exhibit 6 – Licensed Producers by Province

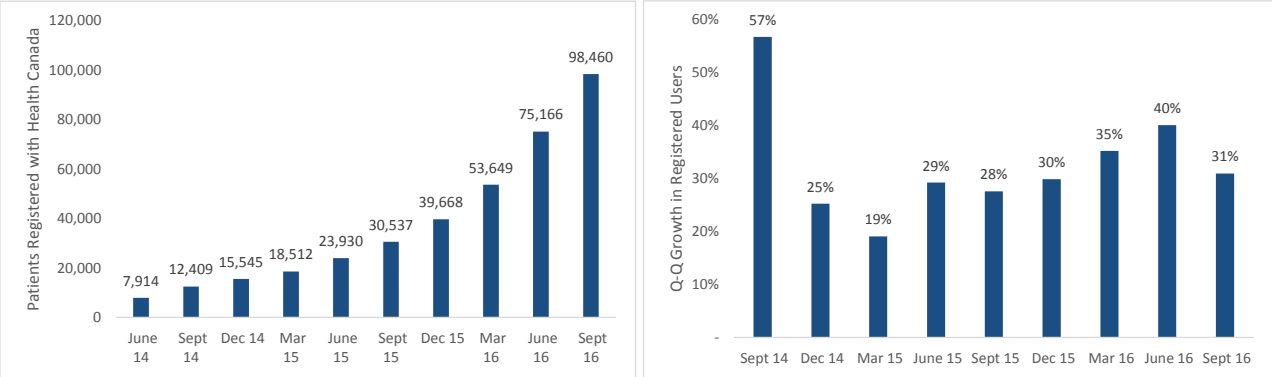


Source: Health Canada

As of the end of September 2016, almost 100,000 patients had registered with Health Canada for the use of medical cannabis. This represents an 8x expansion in just two years, although some industry sources have suggested that these figures may include some double counting. Assuming an average use of 0.9 grams/day at $8/gram, this patient count represents a current market value of almost $260M.

As shown below, q/q growth rates in the number of registered users have ranged from 19% to 57%. Most recently, the growth in calendar Q3 was 31% from the prior quarter, a slightly slower growth rate than in Q2. At this point we attribute that to q/q volatility, and note that it was still in line with the average growth rate of 32% over the measurement period.

Exhibit 7 – Registered Users (left); Q/Q Growth in Registered Users (right)

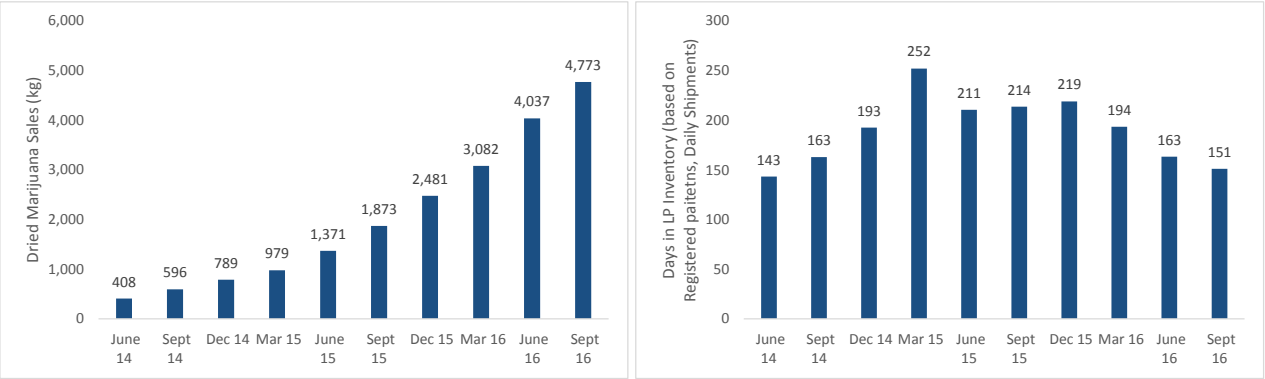


Source: Health Canada, Echelon Wealth Partners

That sequential growth of 31% in Q3 represents an annualized growth rate of almost 200%. In other words, at the current pace of growth, the number of patients is tripling each year. Obviously that pace must slow at some point as the market matures, and the base upon which growth occurs expands. Health Canada had previously forecast the number of users to grow to 450,000 by 2024, although if growth continues at the current pace, that level would be reached in H118. Assuming similar daily usage and pricing levels, this would be a $1.2B annual market at that user level.

Product is in Short Supply: Naturally, the growth in patient registrations has driven strong growth in volume sales (shown below), which has only been partially offset by a small decline in the average shipment per patient. While the number of LPs has increased, product is in increasingly short supply. We calculate Days in LP Inventory, based on the number of registered patients at quarter end, and the average daily shipment per user. On that basis, the number of Days in Inventory has declined from 252 in March 2015 to 151 as of late September.

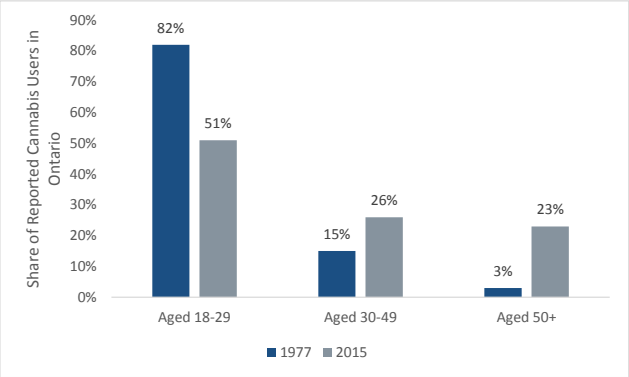
Exhibit 8 – Volume Sales (left); Days in Inventory (right)

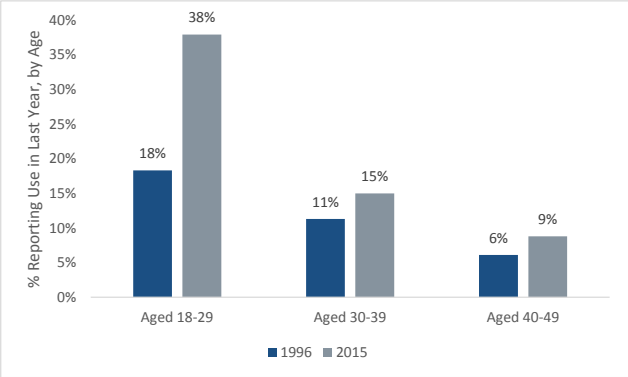


Source: Health Canada, Echelon Wealth Partners

Recreational Market: It is important to note that cannabis use is already very common. For example, the Centre for Addiction and Mental Health (CAMH) reports that 15% of Ontario adults used cannabis in 2015, up from 13% in the prior year, and up from less than 9% in 1996. This includes 38% of those aged 18 to 29, although the prevalence of use increased for other age groups as well, as shown in the exhibit on the following page.

Exhibit 9 – Share of Cannabis Users by Age Group (left); Prevalence of Use by Age Group (right)





Source: Centre for Addiction and Mental Health (CAMH), Echelon Wealth Partners (data is for Ontario)

Not only is cannabis use becoming increasingly common, but the demographic profile of users is also evolving (as shown above, right). Consumption is no longer largely confined to young adults, with those aged 30+ now representing almost half of all users. Finally, approximately 19% of users, or almost 300,000 people in Ontario alone, report daily use, with 52% reporting infrequent use (less than once per month).

So, cannabis use is already widespread, and that is in a market where access to legal supply is still far more challenging than access to alcohol is. By comparison, 80% of adults in Ontario report having consumed alcohol in the past year, with 9% of that group reporting daily consumption. We also find it interesting that amongst past-year consumers, cannabis users appear more likely to be daily consumers than are alcohol consumers (19% vs. 9%).

A report from Canada's Chief Public Health Officer estimates that Canada spends $20.5B annually on alcohol.

Colorado is an interesting case study. Voters there approved an amendment to the state's constitution allowing recreational marijuana sales in late 2012, and the first stores opened in 2014. Nearly half of sales are now in the form of infused products (e.g., edibles and pills). In 2014 (year one of commercialization), 14% of adults in the state reported using within the prior 30 days, and 33% of then-current users (i.e., 4-5% of adults in CO) reported using daily. Current (prior-30-day) use had increased for all adults, with almost one-third of those aged 18-25 reporting use in 2014 (up 5%), and 12.4% of those aged 26+ reporting current use (up 4.8%). A November 2015 voter survey cited by the Boston Globe indicated that 53% of the state's voters believed legalization had been a net positive, and the state generated an additional US$135M in tax revenue in 2015, up from US$76M the prior year. CO has a population of approximately 5.5M, making Canada almost 7x the size at 36.5M.

Pharmaceutical Market: Pain management is already cited as one of the major current uses of medical cannabis. The development of pharmaceuticals based on cannabis could significantly expand the addressable market by ensuring consistent, quantifiable dosing, which should help physicians gain comfort in prescribing it.

Approximately $30B is spent on drugs annually in Canada, representing 16% of healthcare spending, making medication the second largest category after hospitals at 30%. Pain is the most commonly reported reason for seeking healthcare in Canada, representing 78% of emergency visits, and the Canadian Pain Society estimates that one in five Canadians suffer from chronic (non-cancer-related) pain. While it affects all age groups, prevalence increases to up to 65% of community-dwelling seniors, and 80% of older adults living in long-term care facilities. Moreover, the damage is beyond physical. More than 50% of Canadians awaiting care at Canadian pain clinics have severe levels of depression, and 35% report having suicidal thoughts. It is estimated that the annual cost of chronic pain, including healthcare spending and lost productivity, approaches $55-60B.

Prescription opioids are often prescribed to address chronic pain. Canada already has the second highest rate of opioid use in the world, after the US, with back pain and other musculoskeletal conditions being the primary reason for the initial prescription. Examples of opioids include fentanyl, hydrocodone/acetaminophen (e.g., Vicodin), morphine, and oxycodone. Opioids work by reducing the transfer of pain signals to the brain. While they are

considered effective, opioids are also considered addictive. Citing IMS Brogan, the Globe and Mail recently reported that doctors wrote 53 opioid prescriptions for every 100 people in Canada, in 2015. The provinces (ex-Quebec) spent a combined $93M treating opioid addiction in 2014. The latest concern is illicit fentanyl, smuggled into Canada and cut with other drugs before being sold on the street as heroin or fake OxyContin. Fatal overdoses in BC and Alberta reached a combined 418 in 2015, up almost 10x from 2012 levels. The Canadian Chiropractic Association estimates that deaths associated with prescription opioids now exceed 2,000 in Canada, annually, and now comprise 50% of all drug-related deaths.

Some, such as CAMH, note that regular use of cannabis can produce psychological and/or mild physical dependence. In its report on substance abuse amongst adults in Ontario, CAMH estimated that almost 15% of adults (up from less than 9% in 1996), or approximately 1.5M people, reported using cannabis during 2015. Approximately 45% of those users reported a moderate-to-high risk of cannabis-related problems. The same source reported that 23% of adults in Ontario had used prescription opioid pain relievers in the prior 12 months.

We believe that public health concerns and awareness around the dangers of opioids as the status quo for pain management will drive development of alternative approaches. This creates a significant market opportunity for cannabis-based products, and could drive substantial upstream demand for licensed producers.

The Medical Market: How did we get here?

The Current Regulatory Environment: In Canada, cannabis is still a controlled substance listed in Schedule II of the Controlled Drugs and Substances Act (the CDSA). Canadians can currently access cannabis for medical purposes under the Access to Cannabis for Medical Purposes Regulations (ACMPR), which were implemented in August 2016. The ACMPR is administered by Health Canada, which is responsible for licensing and oversight of LPs, and for the registration of individuals for limited personal production.

Under the ACMPR regime, patients have three options for obtaining cannabis for medical use:

1) **Sourcing from Licensed Producers (LPs)** – Patients can register with an LP such as Canopy Growth Corporation, Aphria (APH-TSXV, NR), or Aurora Cannabis (ACB-TSXV, NR). This requires that the patient obtain a medical document from a health practitioner. Amongst other requirements, the document must specify a period of use up to 12 months, and a daily quantity of dried marijuana, expressed in grams. Product must be delivered by mail/courier, as the ACMPR does not currently provide for retail sales.

Exhibit 10 – Sample Medical Document for Submission to LPs

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Sample Medical Document for the Access to Cannabis for Medical Purposes Regulations

This document may be completed by the applicant's health care practitioner as defined in the Access to Cannabis for Medical Purposes Regulations (ACMPR). A health care practitioner includes medical practitioners and nurse practitioners. In order to be eligible to provide a medical document, the health care practitioner must have the applicant for the medical document under their professional treatment. Regardless of whether or not this form is used, the medical document must contain all of the required information, (see in particular s. 8 of the ACMPR).

Patient's Given Name and Surname: _____

Patient's Date of Birth (DD/MM/YYYY): _____

Daily quantity of dried marihuana to be used by the patient: _____ g/day

The period of use is _____ day(s) _____ week(s) _____ month(s).

NOTE: The period of use cannot exceed one year

Health care practitioner's given name and surname: _____
Profession: _____
Health care practitioner's business address: _____

Full business address of the location at which the patient consulted the health care practitioner (if different that above): _____

Phone Number: _____
Fax Number (if applicable): _____
Email Address (if applicable): _____
Province(s) Authorized to Practice in: _____
Health Care Practitioner's Licence number: _____

By signing this document, the health care practitioner is attesting that the information contained in this document is correct and complete.

Health Care Practitioner's Signature: _____
Date Signed (DD/MM/YYYY): _____

Canada

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NOTE: The medical document can be submitted from the health care practitioner's office to the licensed producer by secure fax. If you choose to submit the medical document by secure fax, initial the statement below to acknowledge agreement.

I, the health care practitioner, acknowledge that the faxed medical document is now the original medical document and that I have retained a copy of this document for my records only.

Initial here: _____

Canada

Source: Health Canada

Licensed producers have developed online ordering platforms in order to facilitate purchases. Some have also established call centre operations to facilitate phone orders.

Exhibit 11 – Sample Online Ordering System

Source: Aurora Cannabis Inc.

Beyond purchasing from an LP, patients have two other options for sourcing medical cannabis.

2) **Personal Production** – Patients can register with Health Canada to grow their own cannabis. Once the patient has received its registration certificate from Health Canada, the patient can register with an LP to purchase starting materials (seeds or plants), as well as an interim supply of marijuana or cannabis oil while their personal production is established. In general, every 1 gram of dried marijuana authorized implies required production of five plants indoors, or two plants from outdoor growing.

3) **Designated Third-party Production** – Patients can designate a third party to produce for them, although that third party must be registered with Health Canada. This designate must submit a document issued by a Canadian police force that proves that the designate has not been convicted or received a sentence for a designated drug offence within the previous 10 years. A designated person can only produce for a maximum of two people, including him/herself.

Regardless of how cannabis is sourced, individuals are limited to a possession ceiling that is the lower of a 30-day supply or 150 grams of dried marijuana (or its equivalent, if in another form, such as oil).

The new regulatory regime is the result of a series of legal battles, particularly over the past several years.

Initially, Access required a Special Exemption from the Minister: Canadians have actually been able to access, possess and grow dried marijuana since 1999, but this required applying to the Federal Minister of Health for exemptions available under Section 56 of the CDSA. This exemption-based approach was challenged and determined to be deficient by the courts, and in 2001, the Federal Government introduced the Medical Marihuana Access Regulations (MMAR).

Commercial Operations Introduced with MMPR: Until 2013, the vast majority of patients approved to use medical cannabis either cultivated their own or sourced from a 'designated person'. Approximately 15% sourced cannabis from Health Canada, and that product was ultimately supplied by operations now owned by CanniMed Therapeutics. In June 2013, Health Canada replaced the MMAR with the Marihuana for Medical Purposes Regulations (MMPR). The new regulations replaced government supply and home-grown medical marijuana with commercial supply, allowing private companies to apply to become LPs. It was argued that this approach would ensure that supply of cannabis could be more effectively regulated, secure and sanitary relative to personal production. The MMPR became effective in April 2014, and it provided for access to dried marijuana only. Under the MMPR, patients were no longer required to obtain a license from Health Canada, and could instead rely on obtaining a 'medical document' (similar to a

prescription) from their physician, or nurse practitioner where allowed by provincial regulations. That document was to be submitted to the LP from which the patient wanted to purchase cannabis.

Federal Court Order Grandfathered Personal-use Production: In March 2014, the Federal Court of Canada issued an Interim Order in response to a motion brought regarding the Allard v. Canada case. In that case, the plaintiffs argued that the MMPR limited their access by eliminating the option of personal and designated-person cultivation allowed under MMAR. Under the Interim Order, applicants holding either a valid personal-use production license or a designated-person production license issued under the prior regulations were deemed exempt from the repeal of those regulations, and any other operation of the new regulations that was inconsistent with the old regime.

In other words, those already licensed to produce cannabis were allowed to continue producing (subject to the expiry date of their licenses) while the Federal Court decided the merits of the Allard case. The Interim Order also set a maximum for possession of dried cannabis at the lesser of whatever their license specified, or 150 grams. The Order applied only to existing MMAR licensees. Newly registered patients were still required to buy their cannabis from an LP.

Supreme Court Ruling in Smith Decision Opens Door for Cannabis Oil (Section 56 Exemptions): The MMPR provided for access to dried cannabis only. In June 2015, the Supreme Court of Canada, through what is now referred to as the Smith Decision, held that this restriction violated users' rights to liberty and security of the individual in a manner that was arbitrary and not in keeping with the principles of fundamental justice. The Supreme Court declared that the sections of the CDSA that prohibited possession and trafficking of non-dried forms of cannabis were no longer of force and effect.

This ruling meant that patients authorized to possess and use medical marijuana would no longer be limited to dried marijuana, allowing them to consume it in oil or other derivative form. Health Canada then began issuing exemptions (called Section 56 Exemptions) to LPs, allowing them to broaden production from dried cannabis to include cannabis oils, as well as fresh buds and leaves.

The Federal Court Rules the MMPR Unconstitutional in the Allard Decision: In February 2016, the Federal Court declared the MMPR invalid, as the regulations violated rights to liberty and security under Section 7 of the Charter of Rights and Freedoms because they failed to make medical marijuana reasonably accessible to Canadians. However, the Court suspended the operation of that declaration of invalidity for six months – meaning 'business as usual' – to allow the Federal Government time to enact a Charter-compliant regime. In March 2016, the Government indicated that it would not be appealing the Allard decision, and that it would draft legislative changes within the six-month time frame allowed by the Court.

New Regulations Restore Personal-use Production: The Access to Cannabis for Medical Purposes Regulations (ACMPR) were announced and came into effect last August, replacing the MMPR. The ACMPR effectively combined the MMPR with the Section 56 Exemptions relating to possession of oils/derivatives. It also established the process that patients must follow to obtain Health Canada authorization to grow their own cannabis, and acquire seeds and plants from LPs.

The new regulations are largely consistent with the MMPR, but restored the ability of patients to grow for personal use or designate a third-party grower to produce on their behalf. Patients that do grow at home (or their third-party designates) must register their production sites and provide proof of medical authorization to Health Canada to enable monitoring and auditing. Starting materials – plants and seeds – are to be obtained from LPs only. Personal production is limited by a formula that converts the daily dose into the maximum number of plants allowed for home growth (1 gram = 5 plants). Patients purchasing from LPs must still submit a medical authorization. The LP registers that patient as a client, and the client can then purchase cannabis either by phone or using the LP's online ordering system. In order to allow tracking of shipments, regulations permit only direct shipping of cannabis products to the patient, or to a caretaker or medical professional on the patient's behalf.

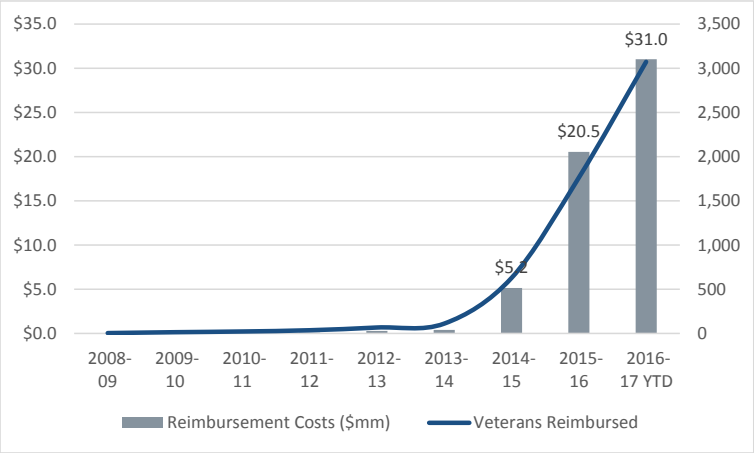
Dispensaries, Advertising still illegal: Under the ACMPR, all storefront sales of marijuana, often called dispensaries or compassion clubs, are still prohibited and are subject to law enforcement action, and individuals that are registered to produce for themselves cannot sell, provide or give cannabis to another person. Similarly, those designated to

produce for another person cannot sell, provide or give cannabis to anyone other than the registered person. Finally, it is still illegal for any company or individual to advertise cannabis to the general public.

Veterans Affairs Curbs Reimbursement: In November 2016, the Minister of Veterans Affairs Canada (VAC) announced a new policy for reimbursing the costs of medical cannabis for veterans. Under the new policy, the daily limit would be reduced from 10 grams per day to 3 grams per day of dried or fresh marijuana (or its oil equivalent). Moreover, the maximum rate that VAC would reimburse for would be $8.50 per gram, based on VAC's assessment of fair market value.

VAC began reimbursing cannabis for medical purposes in 2007. As shown in the next figure, the costs of reimbursement have dramatically increased, and based on costs in H117 of $31M, are set to triple y/y. The trajectory is quite striking. VAC attributes the rapid increase in spending to growth in the number of healthcare professionals that are authorizing cannabis for medical purposes, and growth in the number of veterans accessing this benefit.

Exhibit 12 – Veterans Reimbursement for Cannabis for Medical Purposes



Source: Veterans Affairs Canada, Echelon Wealth Partners

The Recreational Market: Cannabis for the Rest of Us

Recreational use of cannabis is not yet legal in Canada. However, Canada's Federal Government has committed to legalizing the recreational (or non-medical, or adult-use) cannabis market. The question now is the specific form that it will take, and the timelines around implementation.

New Liberal Government to Introduce Legislation this Spring: In October 2015, the Liberal Party of Canada won a majority government. As part of its platform, it committed to the legalization of recreational cannabis in Canada. During its December 2015 Speech from the Throne, the government committed to "legalize, regulate and restrict access" to cannabis. In April 2016, the government announced that it would introduce legislation legalizing the recreational use of marijuana by the spring of 2017. It followed in June 2016 by mandating a new nine-member Task Force on Cannabis Legalization and Regulation with making recommendations on the design of a new legislative and regulatory framework, based on input from various stakeholders. The report became publicly available in December 2016.

The government's stated principal objectives include:

- Protection of Youth – By keeping cannabis out of the hands of children and youth. This also requires enforcement measures that punish serious cannabis offences, particularly sales and distribution to youth;
- Keeping profits out of the hands of criminals, and organized crime in particular; and
- Easing Enforcement Burdens & Criminal Consequences – This includes reducing the burdens on law enforcement and the legal system, and preventing Canadians from entering the criminal justice system for simple cannabis offences.

The first two objectives were described as paramount. The challenge will be preventing trafficking to youth in a manner that does not make illicit trade so lucrative as to attract criminal involvement.

The Task Force Recommends Tobacco-like Advertising Restriction, Alcohol-like Distribution: In its November 2016 report, the Task Force noted that a departure from prohibiting cannabis is long overdue, although modern science is only beginning to understand cannabinoid pharmacology. Stakeholder feedback included an online public consultation that generated nearly 30,000 submissions, as well as studies of other jurisdictions that have legalized cannabis for non-medical purposes (Colorado, Washington State, Uruguay).

The Task Force recognized the following with respect to cannabis in Canada:

- **Cannabis is Widely Available in Canada** – Canada exports cannabis to international (illicit) markets. Cannabis stores (i.e., dispensaries) and wellness clinics (compassion clubs) have continued to operate, despite activities that violate the CDSA;
- **Offences Continue, Despite Potential Consequences** – Notwithstanding serious criminal penalties for possessing, producing and selling cannabis, half of all police-reported drug charges (almost 50,000 in 2015) are cannabis-related;
- **Cannabis Use is Prevalent, Particularly Amongst Youth** – 10% of adult Canadians (aged 25+) report having used cannabis at least once during the past year, and over one-third report using it at least once in their lifetime. Moreover, 21% of those aged 15 to 19, and 30% of those aged 20 to 24 report having consumed cannabis in the prior year;
- **Canada has made International Drug Control Commitments** – While Canada is a sovereign country, it is party to U.N. drug control conventions established in 1961, 1971, and 1988. Nonetheless, cannabis is the most widely used illicit drug in the world, and there is growing agreement that outright prohibition is not working;
- **The Science of Cannabis is still Early Stage** – There is little scientific evidence with respect to the long-term effects of cannabis use, relative to the work done on alcohol and tobacco.

We view the following as the key Task Force recommendations, with the subsequent exhibit providing more detail.

- **Minimum Age** – The Task Force recommended that a minimum age be set at a level high enough to discourage and delay cannabis use amongst young people, without setting it so high that the status quo (lucrative illicit market, criminal penalties for young people) continues. To that end, it recommended a minimum age of 18, while it would ultimately be up to the provinces, should they want to harmonize the minimum age with their respective requirements on alcohol.
- **Tobacco-like Advertising** – Advertising should be limited in much the same way as it is for tobacco products. The sale of edibles should be allowed, but with strict packaging and labelling requirements.
- **Alcohol-like Distribution, but no Co-location** – Retail sales should require dedicated storefronts, and be regulated at the provincial/territorial level along the same lines as alcohol, with the decision on whether that is done with a government-run model or a private enterprise model left to individual provinces. However, there should be no co-location with tobacco and alcohol products, where possible.
- Personal cultivation should be allowed, with limitations on volumes. Sales and possession limits should be set at 30 grams per person.

The Task Force also noted that tax revenue generation should be a secondary consideration. Moreover, the regulatory committee should be flexible enough to adapt to the results of new data and research, as required.

The Task Force's recommendations along various objectives are summarized in the exhibit below.

Exhibit 13 – Highlights of Task Force Recommendations

Objective	Recommendations
Minimizing Harms of Use	Set a national minimum age of purchase of 18 (while acknowledging rights of provinces and territories to harmonize it with their minimum age of purchase of alcohol). Comprehensive restrictions on advertising and promotion of cannabis, similar to those on promotion of tobacco products. Restrictions to apply to any medium (print, broadcast, social media, etc.). Limited promotion allowed in areas accessible by adults. Plain packaging that includes company name, strain name, price, THC and CBD levels, warnings and other labelling requirements. Packaging of edibles to be in standardized, single servings, with maximums set for THC content per serving and per product. Commitments to using resulting government revenue from cannabis to fund administration, education, research and enforcement. The federal government should work with provincial and territorial governments to establish a tax regime that includes equitable distribution of revenue.
Establishing a Safe & Responsible Supply Chain	Federal-level regulation of production of cannabis and derivatives. Licensing and production controls should encourage a competitive market that includes small producers. Implementation of a Seed-to-Sale tracking system to prevent diversion and enable recalls, where necessary. Taxes should be set high enough to limit consumption growth, while low enough to enable effective competition with the illicit market. Minimum prices should be used to prevent predatory pricing, where necessary. Variable tax rates or minimum prices should be used to discourage the purchase of higher THC content products. Sales of edibles should be allowed, but with strict packaging and labelling requirements. CBD and other compounds derived from hemp or other sources should also be regulated. Provincial/Territorial-level regulation of wholesale distribution, as well as retail sales (in close collaboration with municipalities). Dedicated storefronts, with well-trained staff. Retail sales should involve no co-location with alcohol or tobacco, wherever possible. Consumers should have access to a direct-to-consumer mail-order system. Personal cultivation to be allowed, but limited to four plants per residence, with a maximum height of 100 cm per plant.
Enforcing Public Safety & Protection	Implementation of penalties that limit criminal prosecution for less serious offences, and create exclusions for "social sharing", while maintaining criminal offences for illicit production, possession and tracking, including trafficking to youth. Consider separate legislation ("Cannabis Control Act") to house all provisions, regulations, sanctions and offences relating to cannabis. A 30 gram/person limit for personal possession of non-medical, dried cannabis in public, with corresponding sales limits. Extension of current restrictions on public smoking of tobacco to the smoking of cannabis products and to cannabis vaping products. Allow for dedicated places to consume cannabis (e.g. cannabis lounges).
Medical Access	Maintain a separate framework for medical access, pending more research. Evaluate the medical access framework in five years. Review the role of designated persons under the ACMPR, with the objective of eliminating this category of producer. Apply the same tax system for medical and non-medical cannabis products. Promote pre-clinical and clinical research on the use of cannabis and cannabinoids for medical purposes to facilitate submissions of cannabis-based products for market authorization as drugs.

Source: Health Canada, Echelon Wealth Partners

The International Market: Opportunities that Dwarf Canada

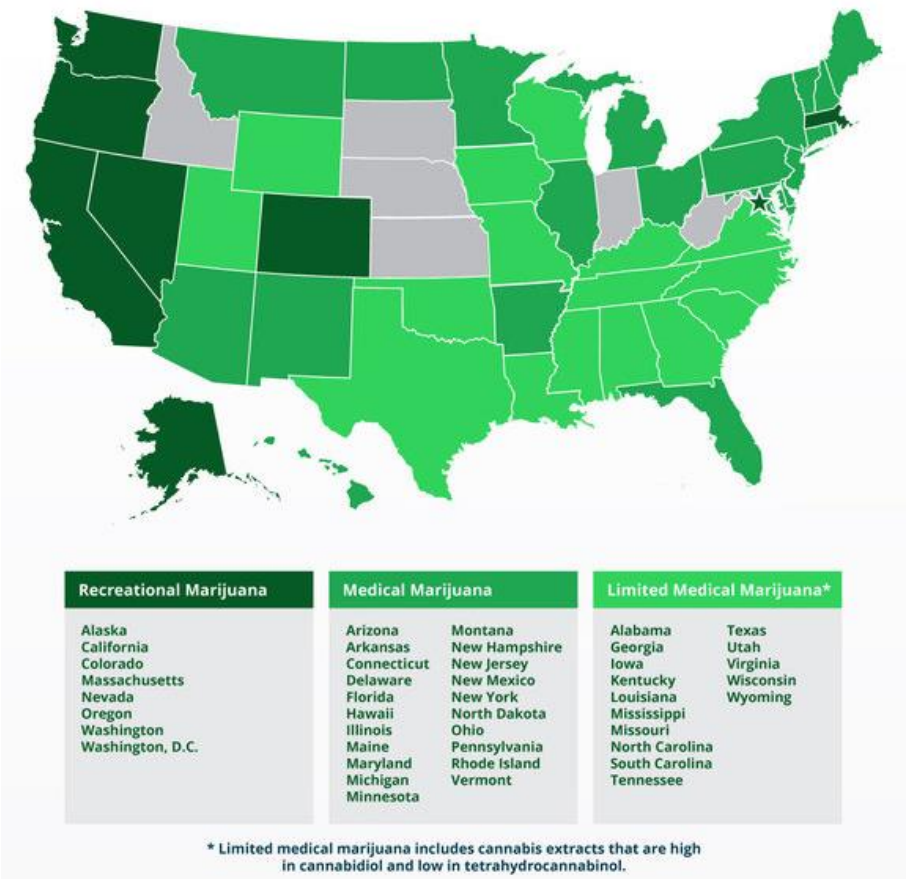
The US Market: In August 2016, the Drug Enforcement Agency (DEA) announced that cannabis would remain a Schedule I substance in the near term, although the DEA would increase its availability for research purposes. The federal prohibition still represents an industry barrier, most notably by severely limiting cannabis companies' access to federally regulated banks, as well as preventing interstate shipment of products. However, individuals can still possess and consume cannabis if they are in compliance with the relevant state laws. As shown in the exhibit below, many states now allow access to medical cannabis.

The US market is naturally far larger than Canada's. Over 1M Americans have registered for access to cannabis-based products for medical purposes, and retail sales are expected to climb from US$4-5.5B in 2017, to US$6.1-11.0B in 2020. Approximately 8.5M American seniors were prescribed opiates in 2014. Opiates were also responsible for over 60% of all overdose deaths in the US in 2014, prompting the Centers for Disease Control and Prevention (CDC) to declare the situation as an epidemic. The opportunity for growth in pain management applications alone is considerable.

Moreover, the number of states allowing recreational or adult-use of cannabis is expanding. In November 2016, voters in California, Nevada and Massachusetts voted to legalize cannabis consumption, joining other states such as Colorado, Oregon and Washington, as well as the District of Columbia.

The states where it has been legalized for recreational use represent an aggregate population of 68M+ people.

Exhibit 14 – US Cannabis Status by State



Source: National Conference of State Legislatures, updated for 2016 Presidential Election

Some Canadian LPs are already making inroads in the US. CanniMed has a facility in Michigan that it believes could support annual production of 50,000 kg, if/when cannabis is rescheduled to a Schedule II controlled substance. Aphria has made an investment in an Arizona-based producer. Moreover, an increasing number of companies – private and publicly traded – are looking to Canadian capital markets for funding to support growth.

The European Market – Germany Opening Up: As in Canada and the US, there is increasing pressure for improved access to cannabis. An estimated 22M adults in the European Union report having consumed cannabis in the past year.

European Union members set their own national drug policies, although they are also parties to the UN Convention that defined THC as a Schedule IV illicit drug. Physicians in Germany, Italy and the Netherlands now allow some access to cannabis for medical purposes, and Spain has decriminalized it.

Germany's lower house of parliament recently passed legislation allowing the use of cannabis for medical purposes. Patients will require a physician prescription, and cannabis use will still be limited to exceptional cases, but the legislation also provides for health insurance reimbursement. The new law covers both dried marijuana and extracts, and is expected to be effective this March.

Germany's formal medical market is essentially undeveloped. Only approximately 1,000 people (in a country of 80M+) are authorized to use cannabis, with approval granted only through a 'special exemption'. By comparison, Health Canada reports that there were almost 100,000 registered patients in Canada as of September 30, 2016. Pending the establishment of state-supervised production capacity, Germany will have to import its cannabis requirements. Germany not only represents a much larger population base (80M vs. 36.5M in Canada), but the average age is notably higher (46.4 years vs. 40.4 years), making it a particularly interesting market for potential pain management applications tied to aging.

Amongst publicly traded LPs, we note that Canopy Growth Corporation and PharmaCan Capital Corp. (MJN-TSXV, NR, also known as Cronos Group) are already positioned to export product to Germany. Canopy Growth obtained approval to do so in July 2016, and in December 2016, it acquired MC Pharma, the German-based pharmaceutical distributor that had placed Canopy products in German pharmacies. PharmaCan Capital completed its first wholesale shipment of product to Germany in October 2016.

Not only does Germany represent a significant market opportunity, but this development is also an important reminder that the market opportunity for Canadian LPs extends well beyond our borders.

Major Producers are Growing Up and Out

Following Canopy's acquisition of Mettrum, Canada now has four major licensed producers of cannabis. The table below highlights some of the key differences between them, which is followed by more detailed profiles of each producer.

Exhibit 15 – Major Producer Highlights

	Canopy Growth Corporation (GCG-TSX)	Mettrum Health Corp. (recently acquired by Canopy)	Aurora Cannabis Inc. (ACB-TSXV)	Aphria Inc. (APH-TSXV)	OrganiGram Holdings (OGI-TSXV)
Corporate HQ, Facility Locations	Smiths Falls, Ontario (near Ottawa)	Bowmanville, Ontario	Edmonton, Alberta	Leamington, Ontario (near Windsor)	Moncton, New Brunswick
Stated Market Position, Priorities	Objective is to be dominant supplier of legal marijuana, across all value and premium markets.	Objective to be cash flow positive while maintaining market share.	Low-Cost Producer	Low-Cost Producer	Low-Cost Producer of Premium Organic Products
Current Licensed Annual Production Capacity (kg)	14,500	5,600	5,500	3,600	1,500
Fully-Funded Expanded Annual Production Capacity (kg)	19,000	18,000	27,000	18,000	17,200
Potential Annual Production Capacity (kg)	30,500	25,000	70,000	39,000	26,000
Production Type	Indoor (Tweed Farms, Bedrocan) and Greenhouse (Tweed)	Indoor	Indoor	Greenhouse	Greenhouse
Licensed Since	November 2013	November 2013	February 2015	November 2014	April 2014
Commercial Operations / Shipping Since	May 2014	January 2014	January 2016	December 2014	September 2014
Referral Source(s)	Tweed Main Street (formerly MedCann Access).	Bodystream, Apollo Applied Research	CanvasRx - Canada's largest medical counselling network. Acquired in August 2016, 19 locations in ON/AB.	MassRoots, CannWay Pharmaceuticals, investment in Canabo Medical Network	NA
Key Branding Partner(s)	Snoop Dogg	Live Nation (Molson Amphitheatre in Toronto).	NA	Tokyo Smoke	Trailer Park Boys
Downstream Initiatives	CDSA Dealer's License received in December 2016, allows for analytical testing of cannabis.	Hemp-based products offered through Mettrum Originals.	Proposed investment in Radient Technologies (RTI-TSXV)	Supply agreements in place to support development work by Bodhi Research, Tetra Bio-Pharma.	TGS to act as consultant to develop commercial-scale extract production facility, and license 225 cannabis products.
International Expansion Initiatives	Germany, Brazil, Australia.	Authorized for limited exports to Australia to support horticultural study by Victorian Government.	Aurora Sky Facility location near Edmonton Airport should aid exports.	Investment in Copperstate Farms (Arizona-based producer)	NA
Last Financing	December 2016 - closed $60 million bought deal prospectus offering at $10.60 per share.	September 2016 - $17.3 million bought deal prospectus offering at $2.65 per share.	January 2017 - Announced $60M bought deal at $2.25/unit (1/2 warrant, 2 years at $3.00/shr)	November 2016 - closed $40.3 million bought deal prospectus offering at $4.00 per share.	December 2016 - closed $40.3 million bought deal prospectus offering at $3.55 per share.

Source: Company Reports, Echelon Wealth Partners

Common Trends amongst Producers: We see the following as the dominant trends among Canada's LPs.

- **Equity Financings to Support Expansion** – All of the companies listed in the table above recently completed equity financings, with expansion CAPEX being named as the primary use of proceeds. In multiple cases, producers completed an equity financing well before having spent the proceeds of the prior financing. Debt financing options are currently very limited for cannabis producers, and until/unless that changes, equity financing will be key to funding expansion.
- **Consolidation might be Beginning** – In January 2017, Canopy Growth Corporation acquired Mettrum Health Corp. in an all-stock transaction for $335M in stock. Management cited the increased production scale, brand portfolio, and revenue/cost synergies as the primary drivers of the transaction. This is easily the largest such transaction to date, and begs the question: who is next? We believe this aspect of the industry is still 'early days', with many companies focused on organic growth for the time being.

- **Marketing through Branding Partners & Referral Networks** – Late last year, OrganiGram (OGI-TSXV, NR) announced an exclusive brand development agreement with the Trailer Park Boys. This followed Canopy's announced partnership with Snoop Dogg. These branding agreements could prove to be significant, once the recreational market opens up.

  On the referral clinic front, Aurora Cannabis acquired CanvasRx, Canada's largest medical counselling network. Other producers have similarly acquired or invested in networks of clinics or education centres that offer assistance to patients in selecting product, positioning these centres as a major referral source for licensed producers. Many of these centres help patients obtain product from both the LP that owns or operates them, as well as third-party producers. Care will have to be taken to ensure that patient product needs trump near-term revenue opportunities.

- **Beachheads in International Markets** – On a global basis, the regulatory environment for cannabis products for medical and recreational purposes is opening up, however slowly. There could be opportunities for Canadian LPs to export product to other markets and/or establish production facilities in other countries. Canopy has already made inroads in Germany, Brazil and Australia, giving it toe-holds in three other continents. Other producers have invested in the US market.

- **Product Safety/Quality Concerns Raised** – Over the past few months, Mettrum, OrganiGram and Aurora Cannabis have all announced product recalls (in Aurora's case, it noted that its recall was related to product purchased from another LP and resold to its customers).

Canopy Growth Corporation– Growing in All Directions: Canopy was Canada's first publicly traded medical marijuana company, and the first to graduate from the TSX Venture to the TSX. It obtained its first license from Health Canada in November 2013, and began shipments in May 2014. It then expanded its product breadth to include cannabis oils in February 2016. The Company is headquartered in Smiths Falls, Ontario, which is south of Ottawa. Canopy's stated objective is to be the dominant supplier of legal marijuana across all value and premium product markets. The $335M acquisition of Mettrum in January 2017 is a major step in that direction. Priorities include market share growth, moving downstream into value-add cannabis-based products, and international expansion.

Production: Canopy operates four production facilities located in Ontario using a combination of indoor and greenhouse growing methods. The Company is currently licensed for annual production of 14,500 kg of dried cannabis and 6,700 kg of cannabis oil, representing over 7M millilitres of finished cannabis oil. Ongoing expansions efforts could add another 16,000 kg of annual production capacity. That does not include Mettrum's operations (which we cover separately) and Vert Medical, a late-stage production license applicant that Canopy acquired in November 2016.

Snoop Dogg as Branding Partner: In February 2016, Canopy announced an agreement with recording artist Snoop Dogg under which they will partner on select content and brand strategy on an exclusive basis in Canada. In October 2016, the Company announced the launch of three product varieties under the *Leafs by Snoop* brand.

Exhibit 16 – Indoor Production (left), Snoop Dogg (centre), Leafs by Snoop (right)

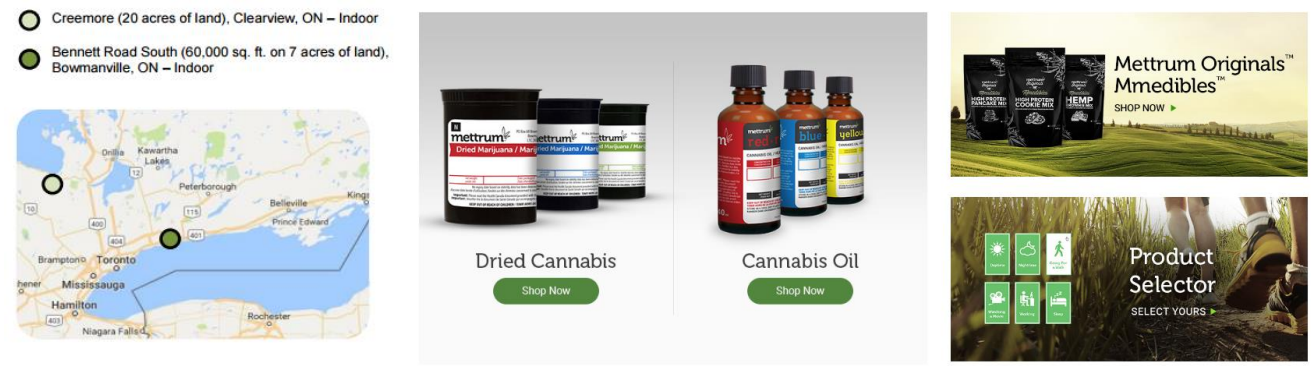
Source: Company Reports

International Expansion: Canopy has been particularly active in this regard. The Company has a small interest in AusCann, in return for which Canopy is to provide expertise and advisory services for AusCann's development in Australia. It has entered into a joint venture (JV) for the export of proprietary cannabis varieties to Brazil, and completed its first export in November 2016. In July 2016, it obtained the approvals required to begin exports for sale to patients in Germany – the first known export of dried cannabis by a Canadian LP to a major G7 country – and it followed by acquiring its German-based distribution partner in December 2016.

Moving Downstream: In December 2016, one of the Company's facilities was granted a CDSA dealer's license, allowing it to undertake analytical testing of cannabis and its related components. The Company also announced the formation of Canopy Health Innovations (CHI), a private company formed to act as WEED's cannabis research incubator. Canopy Growth Corporation retains a right-of-first-refusal on licensing and commercializing IP developed by CHI.

Mettrum Acquisition Expands Market Position: In January 2017, the Company acquired Mettrum Health for $335M in stock. Mettrum is a licensed producer of medical cannabis (dried and oils) and industrial hemp-based products. The Company currently produces approximately 16 strains from a genetic library of over 60 strains, which it refers to as the Mettrum Spectrum™. It received its first license in November 2013, and began selling in January 2014. Prior to its acquisition by Canopy, Mettrum was working towards an annual capacity target of 25,000 kg by March 2018.

Exhibit 17 – Facility Locations (left), Products (centre), Online Ordering System (right)



Source: Company Website

Production: Mettrum's Creemore facility in Clearview, Ontario, is licensed for annual production and sales of up to 2,000 kg of dried marijuana, 1,500 kg of cannabis oil, and 200 kg of cannabis resin. The Company's Bowmanville facility is licensed for annual production of 1,600 kg of dried marijuana, 1,600 kg of cannabis oil, and 100 kg of cannabis resin. Both facilities are also authorized to sell specific amounts to other LPs. The Company has a third facility – Mettrum North (also in Bowmanville) – and has announced plans to sell it to Cannabis Care Canada for $7M, while entering a three-year supply agreement. Mettrum's current Phase II expansion is expected to take capacity to 18,000 kg by March 2017, and it has already started work on its Phase III expansion to take annual capacity to 25,000 kg by March 2018.

Acquisition of Hemp Business brought Value-added Products: In April 2015, Mettrum acquired its hemp business, renaming it Mettrum Hempworks. It sells 30 SKUs of hemp-based food and personal care products, offered in over 2,000 stores under the Mettrum Originals brand. Products include flour, cooking mixes, lip balm, and oils. In May 2016, it entered into a three-year agreement with Live Nation (LYV-NYSE, NR), giving Mettrum Originals exclusive name and marketing rights for the lawn at the Molson Amphitheatre in Toronto. The agreement also gives Mettrum Health the rights to sample and sell Originals' products at the venue.

Aurora Cannabis Inc.: Aurora is the only Alberta-based licensed producer, with its corporate head office in Edmonton, Alberta. The Company received its first license to produce and sell cannabis in February 2015, and began shipments in January 2016. In January 2017, it announced the receipt of Health Canada approval to begin selling oils, although it had been authorized to produce oils since February 2016. Aurora recently acquired the largest cannabis counselling network in Canada, and has begun construction of what it expects to be the largest, most advanced cannabis production facility in the world (Aurora Sky) at the Edmonton International Airport, which would bring total annual capacity to 70,000 kg. Aurora was the first LP to construct a purpose-built facility, the first to launch a mobile app for the purchase of legal cannabis, and the first to introduce same-day delivery.

Production: The Company currently operates a purpose-built indoor growing facility near Cremona, Alberta, northwest of Calgary, in the foothills of the Rocky Mountains. Its current annual capacity is 7,000 kg, and in December 2016, the Company announced that it had commenced construction of Aurora Sky, a 650,000-square foot hybrid greenhouse facility. Phase I (of II) would add 20,000 kg of capacity. Management expects the facility's proximity to the airport will allow Aurora to leverage existing infrastructure, and facilitate potential export opportunities where legally available. In January 2017, the Company announced a $60M bought deal private placement to help finance capacity expansion.

CanvasRx Acquisition provides Powerful Referral Source: In August 2016, Aurora acquired CanvasRx, Canada's largest medical counselling outreach network, for $10.3M upfront in cash and stock, with up to $26.8M in additional consideration payable based on milestones over the next three years. Management estimates that one in four new legal patients in Canada are referred by CanvasRx. CanvasRx operates 19 locations in Ontario and Alberta, from which it helps register patients with their licensed producer of choice, in return for a referral fee of $25/month/patient. Sixteen of those nineteen locations operate under the Canadian Cannabis Clinics (CCC) banner. As of late November, CanvasRx had served over 13,000 patients, representing 30% growth in the three months following its acquisition by Aurora. In addition to the referral source, management expects CanvasRx to provide Aurora with valuable aggregate patient data that will aid in future product development. CCC and CanvasRx are undertaking what they believe to be the largest observational study of medical cannabis of its kind in Canada (1,000 patients). Over a three-year period, the study is designed to identify the effects (beneficial and adverse) of inhaling cannabis, by smoking and vaping. Its pro forma full quarter revenue contribution for the period ending September 30, 2016, was just over $0.7M.

Exhibit 18 – Cremona Facility (left), Aurora's Mobile App (right)

Source: Company Website

Positioned as Low Cost Producer: Citing its location in Alberta, the Company notes that given its costs for overhead, taxation, power and water, it believes it is one of the lowest cost-per-gram producers in Canada.

Investment in Downstream Development: In December 2016, the Company announced a Memorandum of Understanding (MoU) with Radient Technologies (RTI-TSXV, NR) that contemplates a potential partnership in the Canadian market. The agreement would include a $2.0M investment by Aurora in RTI via a convertible debenture. Radient operates a 20,000-square foot facility in Edmonton that extracts natural ingredients for multiple applications, including food and beverage, nutrition, pharmaceuticals, and cosmetics.

OrganiGram Holdings Inc.: OrganiGram is a licensed producer of medical marijuana, operating from Moncton, New Brunswick. It received its initial license in April 2014, and began shipments in September 2014. The Company is working on a fully funded build-out to annual capacity of 17,000 kg by December 2017, and an eventual annual capacity target of 26,000 kg by spring 2018. OrganiGram is licensed to ship to both retail customers and other LPs. The Company is one of only two licensed producers based in Atlantic Canada, and is one of only three organic producers of medical marijuana and cannabis oil in Canada.

Production: The Company's main facility (35 English Drive) is currently licensed for annual production of 1,500 kg of dried cannabis (with sales up to 1,200 kg), and 500 kg of cannabis oil. In October 2016, the Company acquired an adjoining 10-acre property (320 Edinburgh Drive), which included a 136,000-square foot building.

Exhibit 19 – Existing Moncton Facility (left); Adjoining Property & Expansion Plan (right)

Source: Company Reports

Trailer Park Boys as Branding Partner: In November 2016, the Company announced its selection as the exclusive cannabis producer, partner and brand developer for Trailer Park Boys. The agreement is for an initial five-year term, and includes a combination of cash, royalties and non-monetary compensation. OrganiGram is to work with TPB Productions to develop a product portfolio and branding to target the recreational market in Canada.

Exhibit 20 – Branding Partner: Trailer Park Boys

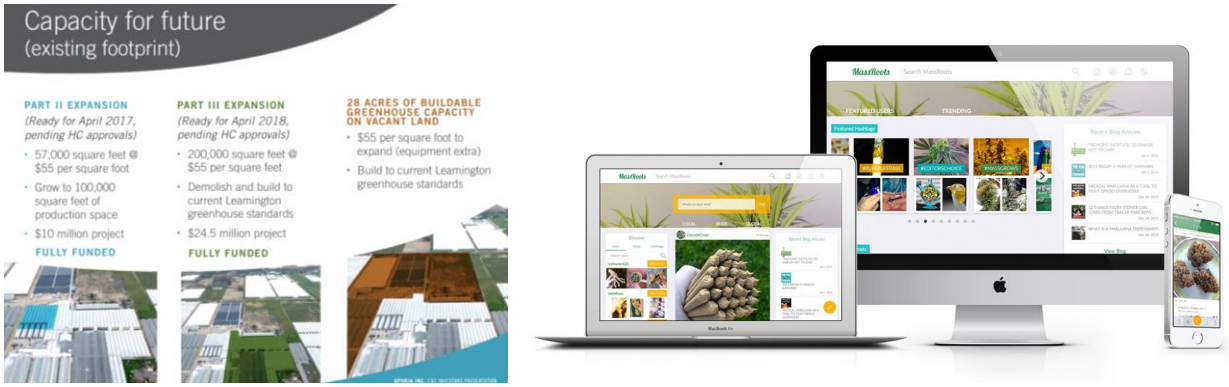
Source: Company Reports

Downstream Expansion with US Partner: In September 2016, OrganiGram entered an exclusive development and distribution agreement with TGS International, an affiliate of The Green Solution. TGS is to provide consulting services on OrganiGram's development of an extract production facility in Canada, as well as provide an exclusive license to 225 unique cannabis products in Canada. The Green Solution operates a 300,000-square foot production/processing facility, as well as 13 medicinal and/or adult-use retail locations in Colorado, with another two facilities in Illinois.

Aphria Inc.: Aphria produces and sells medical marijuana through its subsidiary, Pure Natural Wellness. It obtained its first license in November 2014, and sells to both individual patients and other LPs on a wholesale basis. The Company is based in Leamington, Ontario, near Windsor. Management believes it is fully funded to expand annual production capacity from 7,500 kg to 21,000 kg by September 2017 (its Part III Expansion). The Company has also announced plans to eventually expand to 39,000 kg (Part IV Expansion) by December 2017, with plans to be operational in April 2018 pending Health Canada approvals. Aphria currently sells product to both individual patients and other LPs, and oil sales now represent more than 10% of revenue. Aphria is also the first publicly traded LP to report positive earnings in consecutive quarters.

Production: The Company's Leamington greenhouse facility is currently licensed to produce up to 3,600 kg of dried marijuana (with sales up to 2,800 kg), and up to 450 kg of cannabis oil. The Company has also announced plans to acquire 200 acres for $6.2M to develop a second site.

Exhibit 21 – Expansion Plan Highlights (left); MassRoots as Referral Partner (right)



Source: Capital IQ, Company Filings, Echelon Wealth Partners estimates.

Aphria owns 17% Major Referral Clinic: Following an $8.4M investment made in December 2016, the Company owns almost 17% of Canabo Medical (CMM-TSXV, NR), one of the largest medical cannabis referral networks in Canada. CMM operates 10 clinic locations, with multiple operations in Ontario, and additional locations in Nova Scotia, Newfoundland, and Alberta.

Agreement with Social Media Platform to Drive Referrals: In October 2016, Aphria announced an agreement under which MassRoots is to build brand awareness amongst its Canadian user base in return for per-patient referral fees. MassRoots is positioned as 'the social platform for marijuana' and has over 900,000 users.

Downstream Expansion via Supply Agreements: In September 2016, the Company announced an agreement with Bodhi Research Inc. under which Aphria will provide cannabis oil for Bodhi's study of the impact of medical cannabis in managing concussions and post-concussive syndrome. In November 2016, Aphria announced a similar agreement with Tetra Bio-Pharma (TBP-CSE, NR) to supply dried cannabis as an active agreement for TBP's prescription-controlled inhalation product.

International Expansion via Investment in Arizona-based Producer: In October 2016, the Company announced an agreement with Copperstate Farms LLC under which Aphria will share its greenhouse growing knowledge in return for an ownership stake in Copperstate, a licensed producer based in Arizona. Including a separate investment by APH, it owns a 10% membership in the parent company, and a 5% membership interest in the operating subsidiary.

Branding Agreement with Premium Lifestyle Brand: In September 2016, Aphria announced a licensing agreement under which it will produce Tokyo Smoke-branded cannabis in Canada. Tokyo Smoke is a premium lifestyle brand offering coffee, clothing, and cannabis. Its flagship store is in Toronto, and it intends to expand its cannabis presence to the US in 2017. In January 2017, Aphria announced that Tokyo Smoke would release four branded cannabis strains in Q117.

Emblem Corporation: Emblem is a licensed producer of medical marijuana, with operations in Paris, Ontario, and its corporate head office in Toronto. We recently initiated coverage on EMC with a Speculative Buy rating and 12-month target price of $5.25/shr. We visited the operations in January 2017. For additional details, please refer to our initiating coverage report.

The Company is working to develop three verticals, including marijuana production, healthcare services (through GrowWise), and pharmaceuticals. It is currently producing at an annualized rate of approximately 660 kg. The Company was originally incorporated as KindCann Holdings Limited in October 2014, changed its name to Emblem in September 2016, and completed its qualifying transaction in December 2016.

Exhibit 22 – Expansion Plan to 21,100 kg Capacity

Source: Company Reports

Production: Emblem operates a purpose-built indoor facility in Paris, Ontario. The Company's fully funded Phase 2 expansion plan should triple annual capacity to 2,100 kg with commissioning expected in April 2017. The Phase 3 and 4 expansion plans could take annualized capacity to 21,100 kg.

Healthcare Division: GrowWise: Emblem owns a 50% interest in GrowWise, which operates 10 education centres in Canada where patients can receive advice on the use of medical marijuana from qualified Canadian medical practitioners. Physicians can direct patients to these centres for more information, which should also give physicians greater comfort in prescribing medical marijuana. These centres direct potential patients to LPs, including Emblem. Emblem has the option of acquiring the unowned 50% interest from White Cedar during the 15-day period prior to July 26, 2019, at a price equal to half of the net book value at that time. As of late November, GrowWise had registered over 700 patients.

Pharmaceuticals: Emblem is working to develop pharmaceutical formulations that use cannabinoids as the underlying active ingredient, and expects to submit multiple pharma formulations for Health Canada approval by Q417. This business is headed by Mr. John Stewart, who is the former President and CEO of Purdue Pharma Canada and Purdue Pharma USA. Purdue is one of the largest privately held pharmaceutical companies in the world, and we believe Mr. Stewart brings a wealth of experience in drug development to the Company.

Recent Financings Support Growth: Following financings in December 2016 and January 2017, we estimate that Emblem has approximately $40M available to fund capacity expansion. Our estimates assume that Phase 3 takes capacity annual capacity to 11,600 kg, with commissioning expected in Q218. We do not yet include the Phase 4 expansion in our formal estimates as it is not yet fully funded, although it is expected to add another 9,500 kg in annual capacity, bringing total company capability to 21,100 kg. We note that Emblem has in-the-money options and warrants outstanding that would generate gross proceeds of $36.5M if fully converted, which should be sufficient to fund Phase 4.

More Companies You Should Know

CanniMed Therapeutics: CanniMed is a producer of pharmaceutical-grade cannabis. In December 2016, CanniMed completed a $69M IPO (including overallotment) at $12.00/shr, joining Canopy Growth Corporation as the only cannabis companies with a TSX Exchange listing. Golden Opportunities Fund, a retail venture capital fund based in Saskatchewan, owns almost 19% of the stock, and would own just over 20% on a fully diluted basis, assuming full exercise of warrants and convertible debentures (it did not transact either way in the offering).

Based in Saskatoon, Saskatchewan, CanniMed was the first company to receive a license to produce from Health Canada, and it was the sole supplier to Health Canada under the cannabis regime that existed before the introduction of production by licensed producers. CanniMed cultivates and sells pharmaceutical-grade cannabis products in traditional pharmaceutical formats (oils and gel caps), operating two bio-secure production facilities with a combined footprint of 247,000 square feet. Its facility in Saskatchewan can support annual production of up to 7,000 kg, while the facility in Michigan could eventually support over 50,000 kg of annual production. On a YTD basis through Q316 ending September 30, it produced revenue of $6.6M, up 54% from $4.3M in the prior year. YTD sales reflect 657 kg of dried marijuana equivalent. CanniMed is particularly strong in oil production, with an approximate 70% share of the market.

Exhibit 23 – CanniMed Dried Marijuana and Oils

Source: Company Reports

Supreme Pharmaceuticals (SL-CNSX, NR): Through its 7 ACRES subsidiary, SL is a licensed producer, and is somewhat unique for its focus on wholesale supply to other LPs. It received its license in March 2016, and its first harvest was in August 2016. The Company's existing Health Canada license is for production only, and it has applied for the amendment required to be licensed to sell. SL operates a 342,000-square foot hybrid greenhouse facility in Kincardine, Ontario. The Company completed a $15.0M non-brokered financing at $0.40 per unit in August 2016 (full warrant, $0.50 for three years), with the proceeds to be used to fund the Phase I expansion that will take annualized capacity to 10,000 kg by June 2017. Once fully operational, management believes the existing facility could support annual production of 50,000 kg.

Cronos Group/Pharma Can Capital (MNN-TSXV, NR): Cronos Group is a licensed producer with two operating facilities (Peace Naturals Project in Ontario, The Zone Produce in B.C.) licensed to produce a combined 2,600 kg. The Company also holds a portfolio of minority interests in other LPs (including Whistler Medical Marijuana, Hydropothecary, and Abcann Medicinals) and two ACMPR-applicants. MNN was also the vendor of Vert Medical to Canopy Growth Corporation. Cronos acquired the 75% it did not own in Peace Naturals in September 2016 for $8.8M in cash and holdbacks payable. Peace Naturals is licensed for production and sale, while The Zone Produce had its Health Canada inspection in late September 2016, and is awaiting the results of its application for a sales license. MNN recently announced a three-year agreement under which Peace Naturals will be the exclusive North American supplier to Pedanios GmbH, a German-based pharmaceutical wholesaler. The Company's first exports were made in October 2016.

Emerald Health Therapeutics (EMH-TSXV, NR): EMH is a licensed producer of medical cannabis and cannabis oils. The Company is based in Victoria, B.C. While its revenue to date has been modest, management expects improvement

following the Health Canada approval to produce and sell cannabis oils in September 2016. The Company has launched three oil products to date, and expects to launch a fourth during H117. Its Phase 1 expansion contemplates a production footprint of 50,000 square feet, with that doubling to 100,000 square feet with Phase 2, and 1.0M square feet for Phase 3. At 100,000 square feet, management expects annual production capacity to reach 10,000 kg, generating $50M in revenue at a 25% EBITDA margin.

THC BioMed Intl. Ltd. (THC-TSXV, NR): THC is a licensed producer of medical marijuana, having obtained its initial production license in February 2016. In October 2016, its license was amended to allow sales, including to other LPs, and in December 2016, the license was expanded to include the sale of starting materials (plants) to patients. As it only recently obtained its license to sell, revenue to date has been nominal. The Company is based in Kelowna, B.C. THC is focused on providing scientific and biotechnology support services to LPs.

Canabo Medical: Canabo operates medical clinics under the Cannabinoid Medical Clinic (CMClinic) banner. These clinics evaluate cannabinoid treatments for patients suffering from chronic pain and disabling illnesses. The operating business was formed in March 2014, and its qualifying transaction was completed in November 2016. As of late December, the Company operated 10 clinics in Canada with 30+ licensed physicians, with another 6 locations planned for opening during 2017.

The Company does not actually produce or sell cannabinoid products or medical marijuana at its clinics. Patients referred to a CMClinic undergo an initial medical examination to determine the need and suitability for prescription cannabinoids or medical marijuana. Its staff then advise patients on the regulatory requirements and accessing product from LPs. Revenue comes from provincial reimbursement of initial visitation fees and urine tests. Clinics will not receive any incentive from LPs for any referrals following consultation, but Canabo will offer sale of retail products for consumption and preparation of cannabis, such as vaporizers and patient kits.

For the nine-month period ending July 31, 2016, Canabo had revenue of $1.3M, representing y/y growth of 187% from less than $0.5M in the prior year. Approximately two-thirds of revenue came from medical consultation fees, with the bulk of the rest coming from research revenue. Aphria owns an approximate 17% stake in Canabo following an $8.4M investment at $1.40/shr in December 2016.

Metrics to Watch (Out For)

Gross Margins & Biological Assets: IFRS accounting standards require that inventory be treated in a way that can cause confusion. Marijuana plants that have not yet been harvested are considered Biological Assets, and are shown separately on the balance sheet at their estimated fair market value at the point-of-harvest, less costs associated with sale, such as trimming, drying, testing, fulfillment, and shipping. For example, as shown in the exhibit below, Canopy reported Biological Assets totalling $13.7M for its Q217 ending September 30, 2016. Once those plants are harvested, the Biological Assets are transferred to the Inventory line on the Balance Sheet, and the estimated fair market value at the time of that transfer becomes the deemed cost of that Inventory.

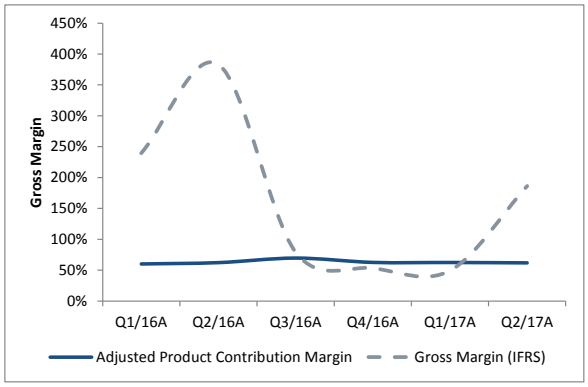
As plants grow, a corresponding gain is recognized in Cost of Sales on the Income Statement in order to reflect the estimated change in fair market value. The resulting gain is non-cash, and can be extremely volatile q/q. This treatment can produce a reported gross margin that actually exceeds 100%.

For example, WEED's reported gross margin was 186% in Q217, ultimately because the increase in the estimated value of the plants it was still growing exceeded its revenue from the sale of product in the quarter. In order to address this, a number of producers report some form of adjusted gross margin that better reflect their production costs. In the case of WEED, that is referred to as Adjusted Product Contribution, which came in at 62% in the quarter. As shown below, this metric has historically been far more stable than the gross margin it has to report under IFRS.

We view the supplementary margin metrics reported by producers as more informative than the IFRS-based gross margin. We note that the calculation methodologies may differ from LP to LP, so care must be taken when comparing gross margins across companies, though these metrics can be used to evaluate trends within a company.

Exhibit 24 – The Impact of Fair Value Changes on Reported Margins for Canopy

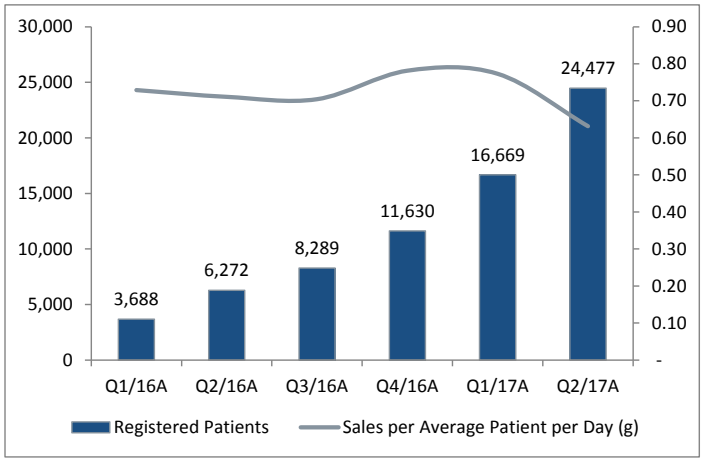
Canopy Q2/17A Current Asset Breakdown ($mm)		Canopy Q2/17A Revenue / Cost of Sales ($mm)		
Cash & Equivalents	$45.4	Revenue		$8.5
Restricted Short-Term Investments	$0.3	Unrealized Gain on Changes in FV	($12.5)	
Accounts Receivable	$1.6	Inventory Expenses to Cost of Sales	$2.7	
HST Recoverable	$0.3	Other Production Costs	$2.8	
Biological Assets	$13.7	Cost of Sales (Recovery to Cost of Sales)		($7.3)
Inventory	$27.6	**Gross Profit**		**$15.8**
Prepaid Expenses and Other Current Assets	$1.0	Gross Margin under IFRS		186%
Current Assets	**$89.9**	Adjusted Product Contribution Margin		62%



Source: Company Reports, Echelon Wealth Partners

Registered Patients – Some report, some do not: Several producers report the number of registered patients that were registered with the LP at the end of each period. This metric allows investors to evaluate trends in patient growth and in volume sales per patient. As shown below, Canopy's volume sales growth can be primarily attributed to growth in the number of registered patients, while its volume sales per patient have been relatively steady (with the exception of a slight dip in the last quarter).

Exhibit 25 – Patient Growth Drives WEED Volume Growth

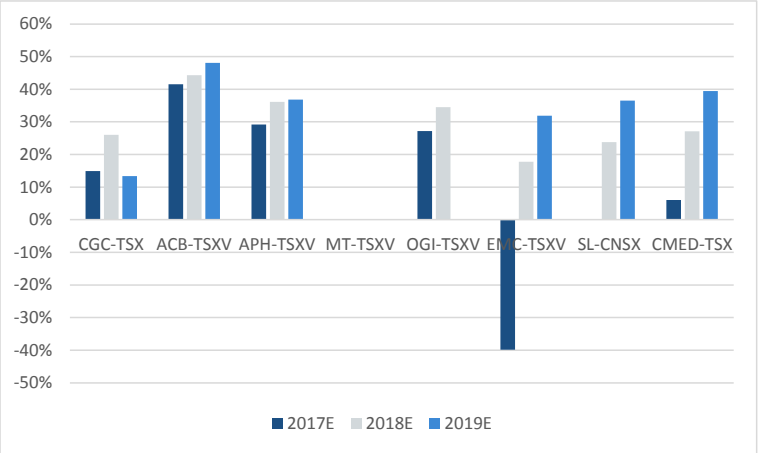


Source: Company Reports, Echelon Wealth Partners

As some LPs do not report registered patients, these calculations can only be made for several producers. Moreover, some LPs also operate referral clinics that direct patients to both that producer and *other* LPs. To the extent that both the referring clinic and the LP count the same individual as a registered patient, there is the risk of double counting in the industry. We therefore view this metric as useful for evaluating trends within a company, but less so for comparing companies to each other.

EBITDA Margins Poised to Improve: Ultimately, we view this as the key metric to watch for in the peer group, as EBITDA is likely to be the metric that producers are valued on by investors, as well as potential acquirers. At present, many producers are not yet generating positive EBITDA. While gross margin performance has generally been strong to date, the SG&A investments that have been required to support current and future growth have been significant. As revenue growth continues, and assuming scale economies/operating leverage materialize as expected, we should see significant improvement in EBITDA. This is illustrated by the margin improvement that current consensus estimates imply, as shown below.

Exhibit 26 – Significant EBITDA Margin Improvement



Source: Company Reports, Capital IQ, Echelon Wealth Partners

Putting Context around Valuation

Comparable Table Adjusted for FYE, Financings: We present out comparable company table in the next exhibit. As the peer group have varying fiscal year ends, we have adjusted consensus estimates to present them all on a calendar year basis, to enable peer-to-peer comparisons. We use fully diluted share counts, and have included the impact of recent financings on share counts and cash balances.

Exhibit 27 – Comparable Companies

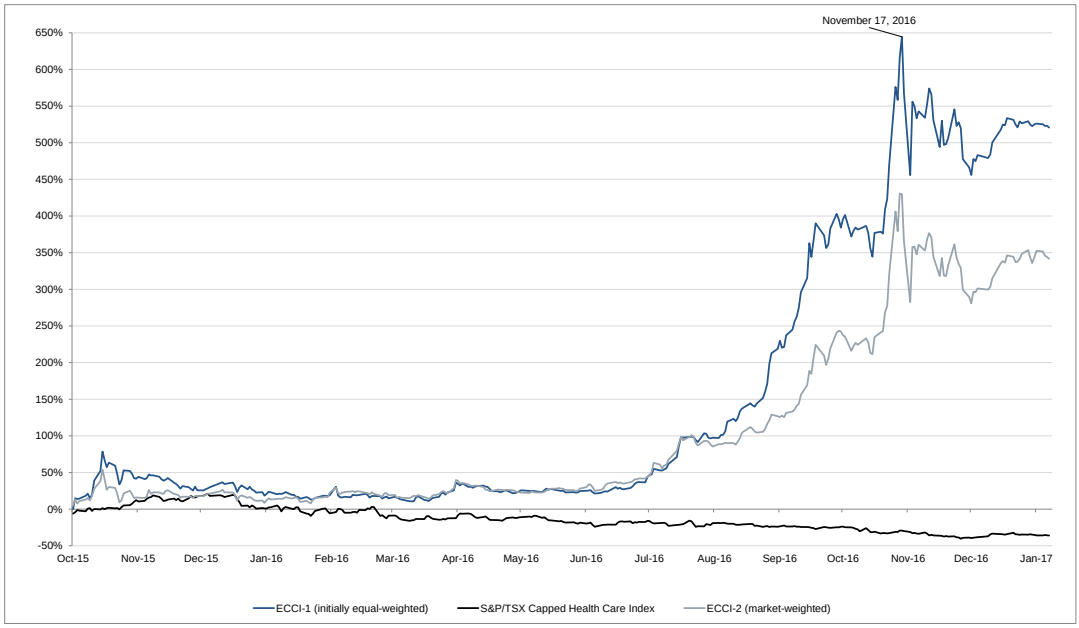
								Consensus 2018E				Consensus 2019E				Enterprise Value / Production Capacity ($000s per kg)			
Ticker	Company	Last Price	52-Week High	52-Week Low	FD Mkt. Cap. ($mm)	Net Cash ($mm)	FD EV ($mm)	EV / Sales	EV / EBITDA	P/E	P / CFPS	EV / Sales	EV / EBITDA	P/E	P / CFPS	Licensed	Fully-Funded	Potential	EV / Registered Patient ($000s)
TSX:WEED	Canopy Growth Corporation	$10.52	$17.86	$2.40	$1,411.2	$94.4	$1,316.8	4.2x	16.1x	43.2x	8416.0x	2.8x	21.1x	nmf	nmf	$73	$42	$24	$54
TSXV:ACB	Aurora Cannabis Inc.	$2.28	$3.95	$1.56	$874.2	$117.3	$756.8	2.6x	6.0x	8.3x	nmf	1.7x	3.6x	5.0x	nmf	$138	$28	$11	$71
TSXV:APH	Aphria Inc.	$5.50	$7.79	$1.04	$676.3	$83.3	$593.0	6.4x	17.8x	30.6x	220.0x	4.6x	12.5x	nmf	nmf	$165	$33	$15	nmf
TSXV:EMC	Emblem Corp.	$3.60	$4.60	$2.52	$424.5	$31.5	$393.1	13.2x	74.4x	360.0x	nmf	7.0x	22.1x	nmf	nmf	$629	$34	$19	nmf
CNSX:SL	Supreme Pharmaceuticals Inc.	$1.78	$2.05	$0.30	$409.0	$12.4	$396.5	7.6x	31.8x	44.5x	118.7x	3.1x	8.4x	nmf	nmf	nmf	$40	$8	nmf
TSXV:MJN	Cronos Group	$1.80	$2.00	$0.14	$312.2	$1.8	$310.4	7.0x	29.6x	32.7x	90.0x	3.9x	13.3x	nmf	nmf	$119	nmf	nmf	$91
TSXV:OGI	OrganiGram Holdings Inc.	$2.79	$4.49	$0.62	$311.8	$57.8	$254.0	5.6x	16.2x	28.5x	nmf	nmf	15.8x	nmf	nmf	$169	$15	$10	nmf
TSX:CMED	CanniMed Therapeutics Inc.	$12.10	$13.18	$10.28	$296.3	$29.5	$266.8	4.2x	15.3x	25.9x	nmf	2.2x	5.7x	9.4x	nmf	$38	$22	$4	$16
TSXV:EMH	Emerald Health Therapeutics, Inc.	$1.28	$1.90	$0.14	$113.7	$15.2	$98.6	18.3x	nmf	nmf	nmf	nmf	nmf	nmf	nmf	nmf	nmf	nmf	nmf
CNSX:THC	THC Biomed Intl Ltd.	$0.76	$1.50	$0.10	$78.8	$0.2	$78.6	nmf	nmf	nmf	nmf	nmf	nmf	nmf	nmf	nmf	nmf	nmf	nmf
TSXV:CMM	Canabo Medical Inc.	$0.74	$1.28	$0.66	$29.7	$8.4	$21.3	nmf	nmf	nmf	nmf	nmf	nmf	nmf	nmf	nmf	nmf	nmf	nmf
							Average (Raw)	7.7x	25.9x	71.7x	2211.2x	3.6x	12.8x	7.2x	nmf	$190	$31	$13	$58
							High	18.3x	74.4x	360.0x	8416.0x	7.0x	22.1x	9.4x	nmf	$629	$42	$24	$91
							Low	2.6x	6.0x	8.3x	90.0x	1.7x	3.6x	5.0x	nmf	$38	$15	$4	$16
							Adjusted Average	**6.9x**	**21.1x**	**34.2x**	**169.3x**	**3.3x**	**12.8x**	**nmf**	**nmf**	**$133**	**$31**	**$12**	**$62**

Source: Capital IQ, Company Filings, Echelon Wealth Partners.

Cannabis Stocks have performed extremely well since the last Federal Election: We present below two indexes we have created for measuring the aggregate performance of Canadian-listed cannabis stocks. The first (ECCI-1) is based on an initial, equal weighting of the stocks included in the peer group, while ECCI-2 is weighted by market capitalization. In general, the index spiked during the October 2015 election. The group then retreated somewhat before holding flat until summer 2016, at which point both indexes began an accelerated climb. Both peaked around

mid-November 2016, and have since slightly retreated. On a net basis, the ECCI-1 and ECCI-2 have produced cumulative returns of 521% and 342%, respectively.

Exhibit 28 – Historical Performance

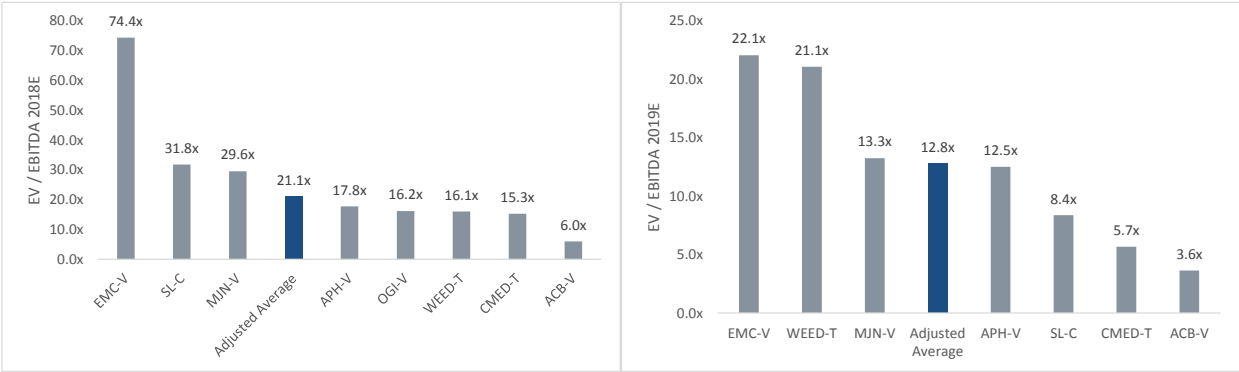


Source: Capital IQ, Company Filings, Echelon Wealth Partners

Traditional Multiples Vary Considerably: We believe investors should focus on EV/EBITDA multiples. We would ordinarily encourage reference to price/cash flow multiples as well, but there are noticeably few cash flow estimates published for marijuana companies thus far, particularly as we look further out into 2019. We nonetheless report them, along with EV/Sales, for investor reference. EV/EBITDA is also the multiple that eventual acquirers – both within the industry, and new entrants – will likely focus on in forming offers. As calendar 2017 is underway, and we doubt that investors are looking at cannabis companies for their EBITDA performance this year, below we focus on the current multiples paid for the peer group based on estimates for calendar 2018 and 2019, as well as the adjusted average for the group, which excludes the highest and lowest multiples.

The group trades at an average of 21x EV/EBITDA based on 2018 estimates, and 13x EV/EBITDA based on 2019 estimates. We also note that the range of multiples is considerable (from 6x to 74x in 2018, 4x to 22x in 2019). As analyst coverage and investor awareness improve, we expect these multiples to become a more reliable benchmark. As with the comparable table presented earlier, these multiples are based on current consensus estimates.

Exhibit 29 – EV/EBITDA Across Peers (2018E, 2019E)

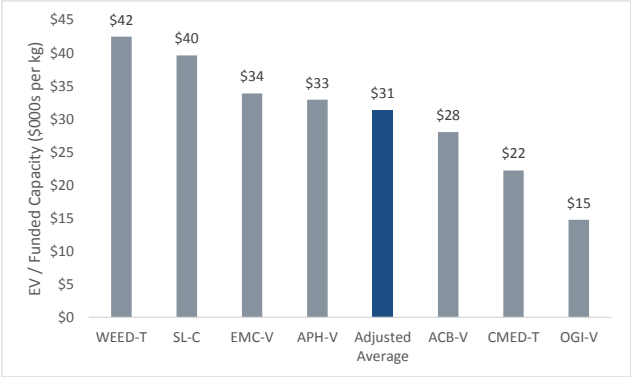


Source: Capital IQ, Company Filings, Echelon Wealth Partners

Consider Alternative Valuation Metrics: In the comparable table shown earlier, we also provided a handful of industry-specific valuation metrics that we think are worth considering, including Enterprise Value relative to certain capacity metrics. In our view, the EV/fully funded capacity is the most useful of these. Current licensed capacity levels give no credit or realistic perspective on growth potential, while potential capacity estimates do not reflect the potential dilution required to build it out.

As shown below, the group trades at an average EV/fully funded capacity of $31,000/kg of production capacity that can be fully funded out with its current balance sheet. To put that into context, assuming a realized price of $8/gram that implies revenue of $8,000/kg of capacity. As with the EV/EBITDA ratios shown earlier, the range of multiples is considerable.

Exhibit 30 – EV/Fully Funded Capacity Across Peers ($000s per kg)

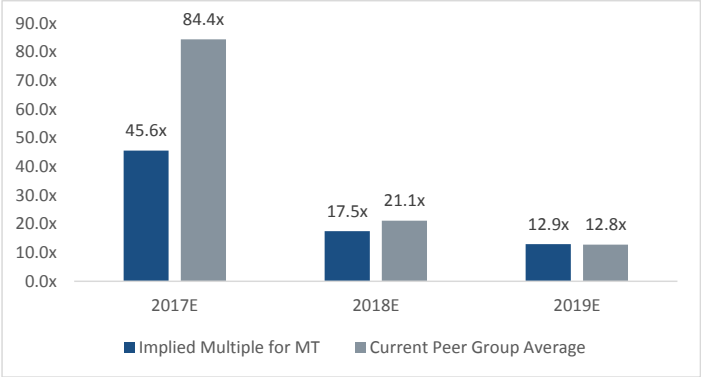


Source: Capital IQ, Company Filings, Echelon Wealth Partners estimates

This industry-specific metric is useful as a reference tool, but ultimately production capacity has real value to investors only if it can generate EBITDA. We therefore still view EV/EBITDA as the valuation metric that investors should focus on.

Implications of Canopy's Acquisition of Mettrum: In January 2017, Canopy Growth Corporation acquired Mettrum Health Corp. in an all-stock transaction that initially valued Mettrum at $8.42/shr. As shown below, that initially implied an equity value for Mettrum of $420M (given subsequent share price movements, this had fallen to $335M by the time of closing), and an enterprise value of $399M. Based on the most recent consensus estimates for EBITDA, that implies that Canopy is paid approximately 17.5x 2018 EBITDA, and 12.9x 2019 EBITDA. These levels are essentially in line with the current peer group multiples. We note that Echelon Wealth Partners provided a fairness opinion with respect to this transaction.

Exhibit 31 – Mettrum's Acquisition Price in Line with Peer Group Multiples



Source: Capital IQ, Company Filings, Echelon Wealth Partners estimates

Cannabis Production & Processing

How is Cannabis Grown? Producers often start with mother plants, which are stored in 'mother rooms' and exposed to near constant lighting in order to prevent them from flowering. In order to ensure genetic quality, producers take cuttings from these mother plants to produce clones. The cuttings are potted (see below, left) and allowed to grow. At Canopy Growth's Tweed facility, these plants spend approximately one week in the clone stage, one week in the vegetation stage, and another ten weeks in the flowering stage. Once ready for harvest, the buds are removed, tested for safety, and cured before packaging.

Exhibit 32 – Potted Cuttings (left), Growing Room (centre); Cannabis Bud (right)

Source: Business Insider, Canopy Growth Corporation, Leafly

Greenhouse versus Indoor Production: Canadian LPs rely on either indoor grow rooms, or greenhouse facilities. For indoor growing purposes, many LPs use facilities that have been converted from some other use. For example, Canopy's Tweed facility in Smiths Falls, Ontario, was previously the famed Hershey Chocolate production facility. During our site visit in January 2017, we noted signage and other elements that have been retained, as an homage to the facility's history. Canopy also has a greenhouse facility located in Niagara-on-the-Lake, Ontario.

These methods have their pros and cons. Indoor growing allows for more control over the growing environment, but that control typically comes with higher CAPEX and OPEX requirements. Greenhouse growing can be lower cost, in part because sunlight is basically free, but critics argue that the resulting production quality may be less consistent. Canopy Growth is somewhat unique for using both methods (see below). Aphria relies on greenhouse growing, while other publicly traded LPs typically use indoor growing.

Exhibit 33 – Tweed Farms Greenhouse Facility (left); Tweed Indoor Facility (right)

Source: Canopy Growth Corporation

Cannabis Oil Production: Most cannabis is still consumed in dried form, but many LPs are expanding production and sale of cannabis oils, which can be consumed directly and/or be used as an ingredient in other products (e.g., edibles). The majority of LPs use CO_2 extraction. In CO_2 extraction, the extraction machine essentially freezes and compresses CO_2 gas into a cold liquid state. The liquefied gas is passed through the dried cannabis input, pulling all of the terpenes out of the plant material for deposit in collection receptacles. The resin is then diluted in oil, such as medium chain triglyceride (MCT). Once the extraction process is complete, the pressure is reduced, allowing the CO_2 to safely evaporate, or it can be recaptured and recycled.

The exception to this is CanniMed, which uses a food-grade alcohol process that management claims produces a more purified final product, with greater dose flexibility. Food-grade alcohol is pumped through compressed cannabis flower material (note: CMED reports using only cannabis flowers, while other producers may include leaves, trimmings, etc.), extracting the cannabinoids into a resin. The resin is then diluted in olive oil.

Exhibit 34 – CO_2 Extraction Equipment (left); CMED's Process (right)

Source: Cannabis Business Executive, CanniMed Therapeutics

Production Standards: Licensed Producers must adhere to strict quality control (QC) imposed by Health Canada. Active ingredient content levels must be clearly labelled. LPs must ensure that Good Production Practices (GPP) are followed by facilities, and that products do not contain unacceptable levels of contaminants.

A number of LPs have announced plans to expand into the pharmaceutical market in some form, either through investments and supply agreements, or internally. This may require some upgrading of equipment and processes over time. In North America, pharmaceutical companies must adhere to manufacturing standards referred to as Good Manufacturing Practices (GMP). GMP standards are used by the pharmaceutical industry to ensure that drugs are consistently produced, and meet specified quality standards. These standards cover manufacturing processes and their validation, operator training, record keeping, storage, and transportation. In Canada, a branch of Health Canada called the HFBI ensures compliance and enforcement through facility inspections.

At present, CanniMed is believed to be the only LP that meets GMP standards. Although GPP requirements are stringent, GMP standards are more so.

Exhibit 35 – Production Quality Standards

Source: CanniMed Therapeutics

Primary Investment Risks

While not an exhaustive list, we view the following as the primary risks that investors should consider with regards to companies in this industry.

Evolving Regulatory Requirements: Beyond the immediate medical market, the industry is looking toward several major growth opportunities, each of which has an associated risk.

The Recreational Market: Many producers are counting on the development of a recreational market to absorb the production capacity they are building. While it is clear that the recreational market in Canada will be legalized, the exact form and timing of that legislation has yet to be announced. The Task Force has made a number of recommendations to the Federal Government, but those are recommendations only, and the eventual form of the legislation could differ materially. Specifically, the restrictions eventually imposed on advertising and labelling will influence the marketing strategies of producers, and could impede market penetration.

Pharmaceuticals: A number of producers have stated plans to expand downstream into the development of pharmaceuticals based on cannabis. While we agree that the growth potential is significant, the product approval processes are also demanding. This could limit the number of products that are developed, and slow their time-to-market.

International Growth: For those producers that have developed toe-holds in other markets, their growth plans are vulnerable to changing regulatory requirements outside of Canada.

Valuation: Valuing companies in a new, rapidly growing industry presents challenges. By the standards of other industries, the current multiples based on traditional metrics (EV/EBITDA, price/cash flow) are very high. Moreover, because operating histories are limited, there is little evidence to argue whether these multiples are high or low on a historic basis. However, growth has been rapid to date, and appears set to continue for at least the immediate future. All else equal, we believe higher growth opportunities warrant higher valuation multiples.

Barriers to Growth in Medical Market: With respect to the medical market, patients require prescriptions in order to obtain medical marijuana, but many general practitioners are reluctant to prescribe it, citing the lack of efficacy research and liability issues. Until physicians are more comfortable prescribing cannabis-based products, this could slow growth in the medical market. However, we note that part of the impetus for companies to expand into the pharmaceutical market is to develop products that physicians should be more comfortable prescribing. Moreover, the eventual opening of the recreational market may reduce the relative importance of the medical market.

Forecasting Risk: Most of the companies in this space are newly formed, and have only recently begun generating revenue. They have limited historical financials to draw upon for comparison purposes. Current consensus estimates imply significant revenue and EBITDA growth, based on assumptions around the timing of facility expansions, pricing, and the opening of the recreational market. The probability of significant estimate revisions – in either direction – is very high. Moreover, many companies will require further equity financing, which could be dilutive.

Competition: The industry is so young that competition between producers has been modest compared to what it will be once the industry matures. The only current LP that was producing before 2013 was CanniMed. Many producers are wisely focused on developing their brands in order to develop a strong following that differentiates them from competitors. We expect that competition will intensify over time, as incumbents try to build/maintain market share while new entrants take advantage of a growing market and easy access to capital markets. We expect that some will fail to keep up with the pack. There is also the risk of overbuilding production capacity in the rush to grab market share, which could pressure prices.

Access to Capital: To date, these companies have primarily relied on equity financing to support their growth, as traditional lending has been limited. Until these companies gain better access to debt and/or producers become cash generators, they will require further equity financing.

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Company: Emblem Corp. | EMC: TSXV

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Supreme Pharmaceuticals Inc.	SL-CNSX	5
Cronos Group	MJN-TSXV	
OrganiGram Holdings Inc.	OGI-TSXV	5
CanniMed Therapeutics Inc.	CMED-TSX	
Emerald Health Therapeutics Inc.	EMH-TSXV	5
THC BioMed	THC-CNSX	
Canabo Medical Inc.	CMM-TSXV	5
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Buy	The security represents attractive relative value and is expected to appreciate significantly from the current price over the next 12 month time horizon.
Speculative Buy	The security is considered a BUY but in the analyst's opinion possesses certain operational and/or financial risks that are higher than average.
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