



Healthcare Industry Update

Tuesday, July 3rd, 2018



THE ORIGIN RX

A lot can happen in two weeks

Over the last couple of weeks we've seen more hurdles cleared to bring cannabis to market in Canada and the US. In Canada, the Senate cleared the legislation for recreational cannabis and the Feds said it will be legal on October 17, 2018. That gives the provinces about four months to prepare, meaning development of legislation and systems for sale and consumption of cannabis. That's a few months behind the original target date of July 1, 2018, but in my opinion the date and fireworks belong to Canada Day, not Cannabis Day.

In the US, the FDA has approved the first medicine made from cannabis. Epidiolex, a cannabidiol oral solution, was approved to treat two rare and severe forms of epilepsy. In a press release by the FDA, they highlighted their support of this approval "because of the adequate and well-controlled clinical studies" which allow "prescribers to have confidence in the drug's uniform strength and consistent delivery that support appropriate dosing needed" for treatment. They also stress that CBD does not cause the "high" that comes from the THC component of cannabis.

The DEA has 90 days from the FDA's approval on June 25 to reschedule the medication, and it is widely expected that they will do so. Once rescheduled, US doctors will be able to prescribe it and pharmacies will be able to sell it. As an FDA-approved medicine, it must be sold in pharmacies, and not cannabis dispensaries in the 30 states where medical cannabis is legal. We're watching for guidance re pricing of the drug, which should be higher than CBD formulations available in dispensaries, as well as reimbursement. Epidiolex is expected to be commercially available in Q4 of this year.

While cannabis companies seem to dominate the healthcare landscape in Canada, some 15 life sciences companies completed IPOs in the US over the last two weeks, raising approximately \$1.5B. In fact, seven drug development IPOs in a week is a record for Nasdaq! Healthcare IPOs in the last two weeks that raised over \$100M include:

Tricida Therapeutics (\$222M) - with Phase 3 trials of treatment for chronic kidney disease completed, proceeds will be used to file for FDA approval. The IPO was priced above the range, and existing investors intended to buy \$45M of the offering

Translate Bio (\$122M) - first developer of mRNA therapeutics to treat diseases caused by protein or gene malfunction, is in Phase 1 with treatment for cystic fibrosis and has a deal with Sanofi to co-develop mRNA vaccines

Forty Seven (\$113M) - in Phase 1 with a CD47-blocking cancer vaccine as monotherapy, and combination immunotherapies planned

Eidos Therapeutics (\$106M) - in mid-stage clinical trials for transthyretin (TTR) amyloidosis, a progressive and fatal condition caused by the abnormal buildup of amyloid protein in the body

Aptinyx (\$102M) - two mid-stage studies of drugs to treat chronic pain in patients with diabetic peripheral neuropathy and fibromyalgia

Magenta Therapeutics (\$100M) - pipeline of therapies to improve various aspects of the bone marrow transplant process

It's worth noting that these companies are at various stages of clinical development - not all are late stage. Some speculate that this flurry of healthcare financing activity may be ahead of US mid-term campaigns and renewed attention to drug prices. But whatever the reason, these companies are working towards innovative therapies to treat unmet medical needs, so keep your rally caps on.

CATHY STEINER, PRINCIPAL





BIGGEST MOVERS

Recent News¹

Markets have been down the last two weeks with the TSX slightly decreasing by 0.2% and the NASDAQ decreasing by 2.4%. It's been a mixed bag in healthcare subsectors, which follow in this report. A selection of the largest share price movers in the healthcare space during the recent period is included below:

- **Foundation Medicine, Inc.** (NasdaqGS:FMI, **+34%**): Foundation Medicine is a molecular information company that develops, manufactures and sells genomic analysis diagnostics for solid and circulating cancers. Strong share price performance was due to the announcement that Roche Holding AG agreed to purchase the remaining US\$2.4 billion worth of shares at a price of US\$137 per share, which represents a 29% premium to the previous trading day's closing price on June 18
- **Sarepta Therapeutics, Inc.** (NasdaqGS:SRPT, **+32%**): Sarepta Therapeutics is a commercial-stage biopharmaceutical company focused on the discovery and development of precision genetic medicine to treat rare neuromuscular diseases. The recent share price increase was driven by positive results for an early trial of Sarepta's gene therapy, given to three patients with duchenne muscular dystrophy
- **Heron Therapeutics, Inc.** (NasdaqCM:HRTX, **+29%**): Heron Therapeutics is a commercial-stage biotechnology company that develops products using its proprietary Biochronomer polymer-based drug delivery platform. The share price increase over the period was mainly driven by the recent announcement that its HTX-011, a drug for postoperative pain management, received breakthrough therapy designation from the Food and Drug Administration (FDA)
- **WeedMD Inc.** (TSXV:WMD, **+15%**): WeedMD is a federally-licensed producer and distributor of medical cannabis and oils. WeedMD's share appreciation was driven by two recent announcements that that company started cannabis cultivation at its newly-licensed large-scale greenhouse and that it entered into an agreement to become a medical cannabis supplier for Shoppers Drug Mart
- **Arsanis Inc** (NasdaqGM:ASNS, **-76%**): Arsanis is a clinical-stage biopharmaceutical company focused on applying monoclonal antibody immunotherapies. Its recent drop in share price is primarily due to the announcement that it has discontinued its Phase 2 trial of ASN100, a treatment for pneumonia in high-risk mechanically ventilated patients, after determining that it was unlikely to meet its primary endpoints
- **Aquinox Pharmaceuticals Inc.** (NasdaqGM:AQXP, **-83%**): Aquinox Pharmaceuticals is a clinical-stage pharmaceutical company. Its share price plummeted primarily due to news that it planned to stop developing its main drug to treat bladder pain syndrome, Rosiptor. Over 12 weeks, it failed to achieve a statistically significant reduction in the mean change in daily bladder pain score compared to placebo in the female patients, which was the primary endpoint

Note 1: For the period June 15th to June 29th, 2018

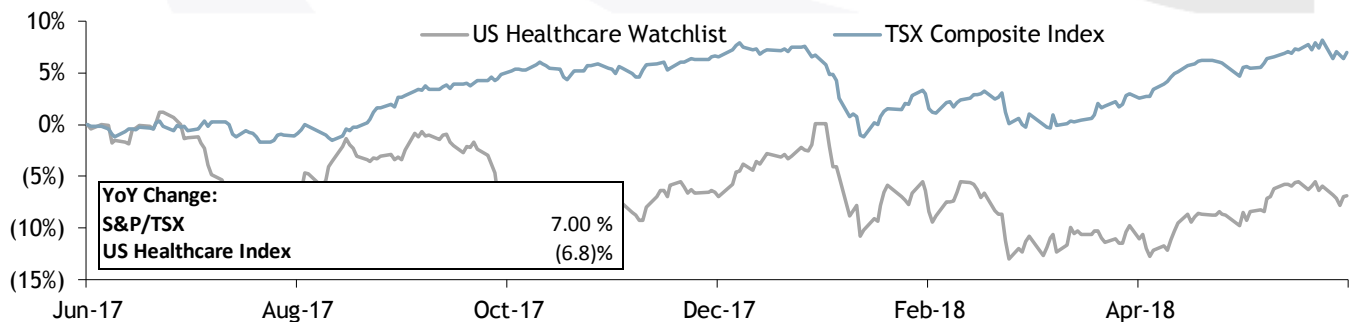


US HEALTHCARE WATCHLIST

News Scan¹

- The US Healthcare Watchlist Index lost approximately 6.8% over the last twelve months, while the TSX Composite Index gained 7.0% over the same period. Some events making news this month:
- On July 3rd, **Catalent Inc.**, a US drug contract manufacturer, announced that it has agreed to buy **Juniper Pharmaceuticals Inc** for US\$11.50 per share in cash, which represents a premium of 32% to Juniper Pharmaceuticals' closing price of US\$8.70 on July 2nd and values the company at US\$127.7 million
- On June 28th, **Amazon** announced that it will be buying online pharmacy, **PillPack**, for approximately US\$1 billion. This move gives the e-commerce giant the ability to ship prescriptions around the country and overnight. Currently, PillPack presorts medications and ships them to customers' homes in 49 US states, excluding Hawaii. It was rumoured that Amazon beat out **Walmart**, which was also allegedly in talks with PillPack
- On June 26th, **General Electric**, an American multinational conglomerate, announced its plans to sell off its healthcare business to reduce its debt balance and shift its focus on aviation, power and renewable energy. The company will sell 20% of its healthcare business immediately and subsequently distribute the rest to its shareholders over the next 12 to 18 months
- On June 25th, **GW Pharmaceuticals**, a British biopharmaceutical company, received US **FDA** approval for Epidiolex, marking the first US prescription drug made from marijuana, but without THC. The drug treats two rare forms of epilepsy
- On June 25th, **Merck**, a global biopharmaceutical company, announced that the US **FDA** accepted for standard review a new supplemental Biologics License Application (sBLA) for KEYTRUDA, Merck's anti-PD-1 therapy, as adjuvant therapy in the treatment of patients with resected, high-risk stage III melanoma. The sBLA is based on a significant benefit in recurrence-free survival demonstrated in the pivotal Phase 3 trial
- On June 25th, **AbbVie Inc.** announced that the **FDA** had accepted its request for priority review of a supplemental new drug application for Imbruvica, in combination with **Roche Holding AG's** drug, rituximab, as a new treatment option for an incurable form of blood cancer. Imbruvica is a cancer drug jointly developed and commercialized by units of AbbVie and **Johnson & Johnson**
- On June 22nd, **Eli Lilly and Company**, a global pharmaceutical company, announced that it had completed the acquisition of **ARMO Biosciences**, a late-stage immune-oncology company, for C\$50 per share in cash, totaling approximately C\$1.6 billion. With the acquisition, Eli Lilly adds a clinical immunotherapy asset, pegiloddecakin, to its current portfolio
- On June 20th, **Medtronic plc** announced that the **FDA** has granted 510(k) clearance of Kyphon HV-R Bone Cement for fixation of pathological fractures of the sacral vertebral body using sacral vertebroplasty or sacroplasty. This clearance allows Medtronic to treat fragility fractures beyond vertebral compression fractures caused by osteoporosis, cancer or benign lesions
- On June 19th, **Roche Holding AG**, a Swiss multinational healthcare company, announced that it will acquire the remaining stake of **Foundation Medicine**, an American provider of various molecular information products, for US\$2.4 billion. The offer is equivalent to US\$137 a share which represents a 29% premium to Foundation Medicine's June 18th closing price

Relative Performance Index



Note 1: For the period June 15th to June 29th, 2018

US Healthcare Watchlist Constituents: Johnson & Johnson, Pfizer Inc., Roche Holding AG, Novartis AG, Merck & Co., Inc., AbbVie Inc., Amgen Inc., Medtronic plc, Gilead Sciences, Inc., Bayer AG, Abbott Laboratories, Bristol-Myers Squibb, GlaxoSmithKline plc, Eli Lilly and Company, AstraZeneca PLC, Celgene Corporation, Allergan plc, Boston Scientific Corporation, Mylan N.V., Teva Pharmaceutical Industries, Mallinckrodt Public Limited Company, Endo International plc

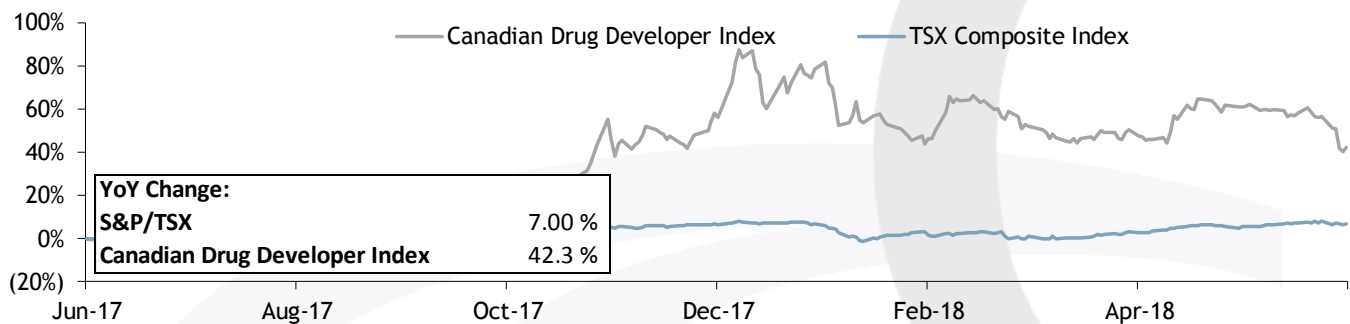


CANADIAN DRUG DEVELOPERS

News Scan¹

- Last twelve-month performance of the Canadian Drug Developers Index was an impressive 42.3%, significantly outperforming the TSX Composite Index which only gained 7.0% over the same period. In the news this month:
- On June 26th, **Skyhawk Therapeutics**, a developer of small molecule therapeutics, announced the closing of a C\$40 million equity investment round alongside its recently announced C\$60 million strategic collaboration with **Celgene**, bringing total new capital to over C\$100 million. The proceeds will be used for the development of Skyhawk's innovative STAR technology, a platform to build molecule drugs that correct mutations in RNA. The company expects its first oncology drug to be in the clinic by the end of 2019
- On June 21st, **InMed Pharmaceuticals**, a pre-clinical stage biopharmaceutical company, announced the closing of C\$14.95 million bought deal financing including full exercise of underwriter's over-allotment option. The company stated that proceeds will be mostly used to finance its proprietary biosynthesis manufacturing technology and develop INM-750 for the treatment of Epidermolysis Bullosa
- On June 19th **Trillium Therapeutics Inc.**, an immune-oncology company, announced that it had entered into a sales agreement with **Cowen and Company**, a diversified financial services firm. This sales agreement allows Cowen and Company to sell common stocks of Trillium for proceeds of up to US\$25 million. It is stated that Trillium intends to use the net proceeds of the offering for ongoing research and development activities, working capital and general corporate purposes, and investments in other development programs

Relative Performance Index



For the period June 15th to June 29th, 2018

Canadian Drug Developers Constituents: ProMetic Life Sciences Inc., Clementia Pharmaceuticals Inc., Aurinia Pharmaceuticals Inc., Arbutus Biopharma Corporation, Resverlogix Corp., Aquinox Pharmaceuticals Inc., Zymeworks Inc., ImmunoVaccine Inc., InMed Pharmaceuticals Inc., Sierra Oncology, Inc., Tetra Bio-Pharma Inc., Oncolytics Biotech Inc., Cardiome Pharma Corp., Acerus Pharmaceuticals Corporation, ProMIS Neurosciences Inc., Aeterna Zentaris Inc., Trillium Therapeutics Inc.

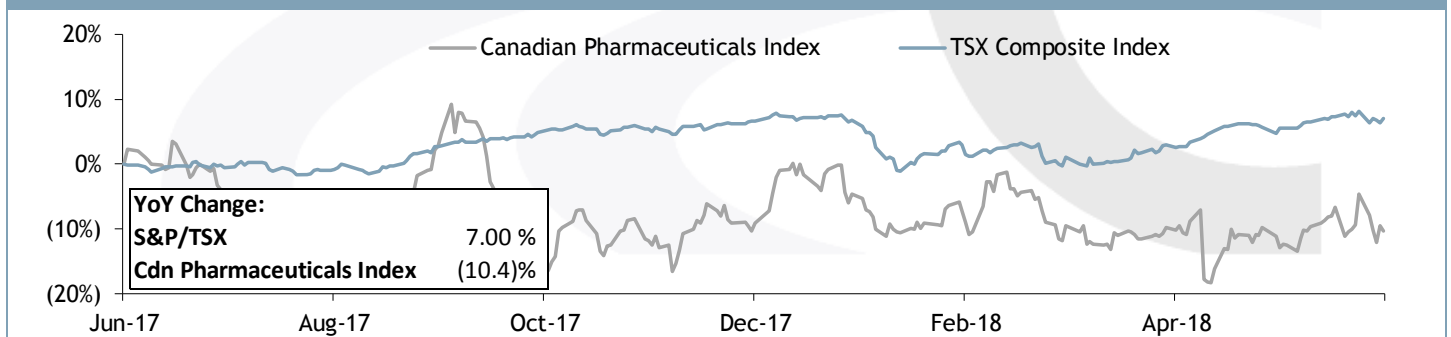


CANADIAN PHARMACEUTICALS

News Scan¹

- The Canadian Pharmaceuticals Index experienced a decline of approximately 10.4% over the last twelve months, while the TSX Composite Index gained 7.0% over the same period. Recent news highlights include:
- On June 28th, **Acerus Pharmaceuticals Corp.** announced the closing of a \$6.6 million bought deal financing, issuing 22,041,705 units of the Company at a price of \$0.30 per Unit, which includes 2,875,005 units issued in connection with the exercise in full of the over-allotment option granted by the Company
- On June 28th, **Exzell Pharma**, a Canadian OTC and prescription pharmaceutical company, announced that **Health Canada** approved EsopH, its oral therapy for stomach acid and induced heartburn packaged in single-dose drinkable liquid sachets. The approval creates a safe option for patients seeking a therapeutic alternative for Gastroesophageal Reflux Disease
- On June 27th, **Pivot Pharmaceuticals**, a biopharmaceutical company based in Vancouver, announced that it will file an Investigation New Drug (IND) application with the US **FDA** and a Clinical Trial Application (CTA) with **Health Canada** to begin human clinical trials of PVT-005, a drug candidate for the treatment of Female Hypoactive Sexual Desire Disorder (HSDD)
- On June 25th, **Waverley Pharma**, a Canadian pharmaceutical company, announced that its wholly-owned subsidiary in Barbados, **Waverley Pharma International Inc.** has acquired two generic oncology products, temozolomide and capecitabine, from **Reliance Life Sciences Private (RLS)** for an undisclosed amount. RLS will continue to manufacture both products, and the binding contracts with the **UK National Health Service** for the supply of the products will be transferred to Waverley. The acquisition well positions Waverley for the launch of WAV-101 and 102, two injectable generic chemotherapy drugs, once the company receive approval from the EU
- On June 19th, **Theratechnologies Inc.** announced that it had completed its previously announced bought deal offering of 5.75% convertible unsecured senior notes in an aggregate principal amount of US\$57.5 million. Theratechnologies intends to use the proceeds to fund payments due, the approval and commercialization of its antiretroviral Trogarzo in Europe and other jurisdictions, and for other general corporate purposes, including potential acquisitions
- On June 18th, **Ortho Dermatologics**, a division of **Valeant Pharmaceuticals**, announced that it had received a complete response letter (CRL) from the **FDA** regarding the company's new drug application for DUOBRII, a lotion in the treatment of plaque psoriasis. The CRL did not specify any deficiencies related to the clinical efficacy or safety of the drug, and the letter only noted questions regarding pharmacokinetic data

Relative Performance Index



For the period June 15th to June 29th, 2018

Canadian Pharmaceuticals Constituents: Valeant Pharmaceuticals International, Inc., Knight Therapeutics Inc., Concordia International Corp., Aralez Pharmaceuticals Inc., Theratechnologies Inc., Zomedica Pharmaceuticals Corp.

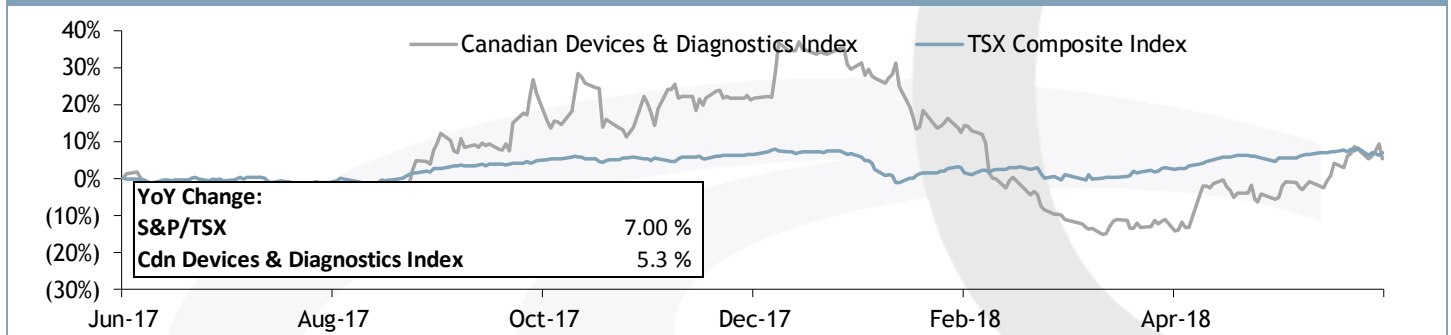


CANADIAN DEVICES & DIAGNOSTICS

News Scan¹

- The Canadian Devices & Diagnostics Index gained approximately 5.3% over the last twelve months, lagging the TSX Composite Index which gained 7.0% over the same period. Newsmakers for June 2018:
- On June 28th, **MediCapture**, a global provider of medical video recorders, announced that its new MVR Pro HD medical video recorder is part of a series of advanced recorders that will launch throughout 2018. The recorders will offer hospitals and surgery centers unique features that will elevate how surgical procedures are recorded and stored for post review
- On June 27th, **Roche Diagnostics Canada**, a division of **Hoffmann-La Roche**, a Swiss multinational healthcare company, formally submitted a Class III medical device license application to **Health Canada** for its Harmony test. The test is currently available in 100 countries with 1.4 million tests done to date. With a potential Canadian license granted, pregnant Canadian women would benefit from the first Health Canada-approved non-invasive prenatal test
- On June 27th, **Kent Imaging**, an Alberta-based developer of medical technology, and **SerenaGroup**, a global healthcare management company, announced a strategic partnership to jointly improve tissue assessment in wounds with the use of Near Infrared Imaging technology using Kent's KD203 device. The device is intended for use by healthcare professionals as a non-invasive tissue oxygenation measurement system that reports oxygen saturation, relative oxyhemoglobin level, and relative deoxyhemoglobin level in superficial tissue
- On June 19th, **ChroMedX Corp.**, a medical technology company that developed the HemoPalm Handheld Blood Analyzer Platform, announced its expansion into a Medtech incubator/accelerator platform and launch as **Relay Medical Corp.** Relay Medical will develop multiple products and projects concurrently as well as vet strategic acquisitions that are complimentary to current infrastructure assets

Relative Performance Index



For the period June 15th to June 29th, 2018

Canadian Devices and Diagnostics Constituents: CRH Medical Corporation, TSO3 Inc., Titan Medical Inc., Opsens Inc., Neovasc Inc., ChroMedX Corp., Profound Medical Corp., Covalon Technologies Ltd., Spectral Medical Inc., Hamilton Thorne Ltd.

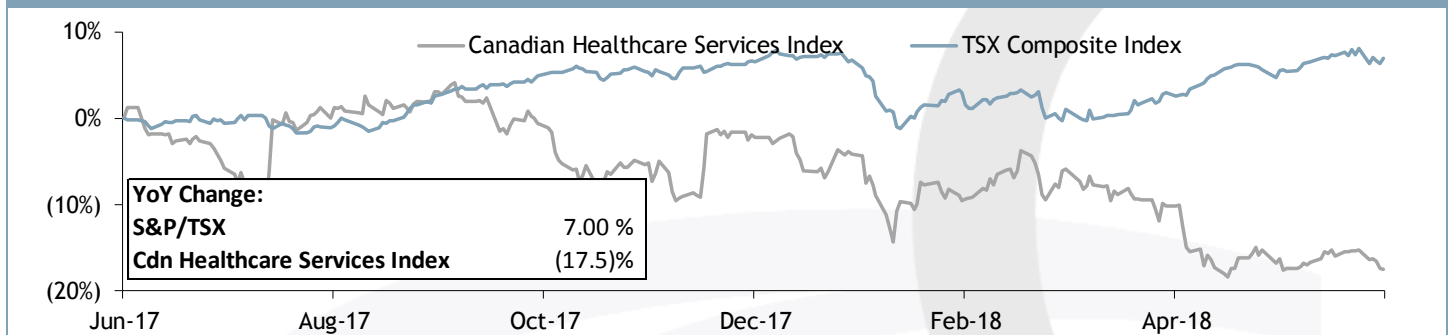


CANADIAN HEALTHCARE SERVICES

News Scan¹

- Last twelve-month performance of the Canadian Healthcare Services Index decreased 17.5%, while the TSX Composite Index increased 7.0% over the same period. In June, the following occurred in the Canadian healthcare services space:
- On July 3rd, **BEACON**, a Canadian mental health care provider, expanded its digital services to provide easy to access and affordable mental health care across Canada. As the nation's only digital mental health care provider, BEACON is the first platform to offer personalized treatment, with the option for clinical diagnosis by a registered psychologist to Canadians
- On June 26th, **Revera Inc.**, a Canadian-based operator in the senior living sector, acquired **Signature Senior Lifestyle**, a UK developer and operator of luxury elderly care and nursing homes, for an undisclosed amount. Both parties have worked together since 2015, when Revera partially funded a management buyout. Signature Senior Lifestyle currently develops and operates luxury care-homes and has a portfolio of 10 open homes with an additional three under construction, as well as a pipeline of other projects in London and the Home Counties area. With the acquisition, Revera hopes to increase its presence in the UK, as the UK senior living market growth accelerates with the over 85 age group projected to nearly double by 2036
- On June 26th, **Markham Stouffville Hospital** announced the opening of Canada's first Alongside Midwifery Unit (AMU), a dedicated birth centre to be operated by midwives starting on July 9, 2018. Patients will also have access to obstetricians, neonatal and an aesthetic care, and diagnostic imaging

Relative Performance Index



For the period June 15th to June 29th, 2018

Canadian Healthcare Services Constituents: *Sienna Senior Living Inc., Extencare Inc., Medical Facilities Corporation, Akumin Inc, Centric Health Corporation*

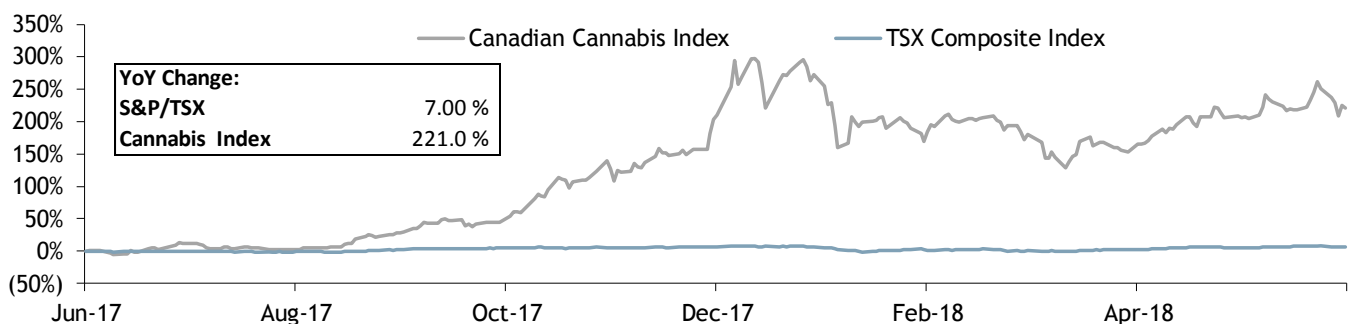


CANNABIS

News Scan¹

- The ACMPR has issued 112 cultivation licenses. Last twelve-month performance of the Cannabis Index was approximately 221.0% dwarfing the 7.0% gain of the TSX Composite Index over the same period. Highlights of cannabis news for June 2018:
- On June 28th, **Aphria Inc.** announced that it closed its offering for aggregate gross proceeds of C\$258,750,794. The net proceeds are expected to be used to finance its recently announced state-of-the-art Extraction Centre of Excellence, its capacity increase at **Aphria Diamond**, as well as the construction of additional cannabis production facilities globally
 - On June 21st, **Aphria** announced that its Malta-based subsidiary, **ASG Pharma**, a high-capacity EU GMP-certified lab, received its first import license for medical cannabis issued by the **Malta Medicines Authority**
- On June 28th, **Cannavated Beverages**, a wholly-owned subsidiary of **Koios Beverage**, announced that it has entered into an exclusive licensing agreement with **CanCore Concepts**, Colorado-based developer of cannabis-infused beverages sold under the Keef Cola brand, for a line of cannabis-infused beverages. The licensing agreement allows Keef Brands to include the Cannavated nootropic formula in Keef's line of cannabis beverages
- On June 27th, **CannTrust** announced the opening of its Niagara Perpetual Harvest Facility, the first such facility in Canada. The 450,000 square feet hydroponic facility is estimated to output 50,000 kg annually, bringing CannTrust's annual capacity to 100,000 kg once the full expansion is completed. To date, the company has invested close to C\$40 million in the facility
- On June 26th, **Aurora Cannabis Inc.** announced that it signed a loan with the **Bank of Montreal** for up to C\$250 million. This loan includes a C\$150-million term loan and a C\$50-million revolving credit facility, as well as a C\$45 million term loan only available for shortly after the legalization and C\$5 million in other credit instruments
- On June 25th, **Harvest One Cannabis** announced that it signed a binding share sale agreement with Australian-based **MMJ PhytoTech** for the purchase of Israeli-based pharmaceutical company, **PhytoTech Therapeutics**, for C\$1 million in cash and \$7 million in shares. With this acquisition, Harvest One enters the pharmaceutical market
- On June 25th, **Cronos Group**, a global vertically-integrated cannabis company, announced that it has entered into a strategic partnership with **Delfarma**, a privately owned pharmaceutical wholesaler. Under the five-year exclusive distribution agreement, Cronos will supply Peace Naturals branded cannabis products to Delfarma for distribution within Poland
 - On June 19th, **Cronos Group** announced that **Cronos Australia** has been granted a cannabis manufacture license by the **Australian Office of Drug Control**, which permits manufacturing of cannabinoid-based products in Australia
- On June 20th, **Canopy Growth Corp.** announced that it had completed its C\$500 million convertible senior notes offering. It plans to use the proceeds to support expansion initiatives and general corporate purposes, including working capital needs
- On June 20th, **Tilray**, BC-based cannabis grower, filed for an IPO on the Nasdaq. In the anticipated IPO, the cannabis grower intends to raise US\$100 million, and it plans to use funds to expand its production facilities in Ontario and Portugal
- On June 20th, **WeedMD** announced that it had signed a supply agreement with **Shoppers Drug Mart** to become its medical cannabis supplier. The company stated that it expects the products will be strictly sold only online
- On June 19th, **Neptune Technologies & Bioresources**, a wellness products company, announced that it had entered into an agreement with **Canopy Growth**, to supplement Canopy's extraction, refinement, and extract product formulation capacity

Relative Performance Index



For the period June 15th to June 29th, 2018

Cannabis Index Constituents: Canopy Growth, Aurora Cannabis, Aphria, MedReleaf, CannTrust Holdings, CanniMed Therapeutic, Cannabis Wheaton Income, OrganiGram Holdings, The Supreme Cannabis Company, The Hydrothecary



Origin Merchant Partners

220 Bay Street, Suite 1500

P.O. Box 23

Toronto, Ontario

M5J 2W4

OMP Healthcare Team:

Cathy Steiner

Principal

T: 416-775-3602

Cathy.Steiner@originmerchant.com

Jim Osler

Principal

T: 416-800-0784

jim.osler@originmerchant.com

Jim Meloche

Principal

T: 416-800-0873

Jim.meloche@originmerchant.com