



Healthcare Industry Update

Wednesday January 31st, 2018



THE ORIGIN RX

Today we share our outlook for the impact of some big trends on healthcare in 2018.

2018 should be a big year for drug deals! US tax changes will be favourable for major acquisitions by drug-makers, after a relatively slow year for deals in 2017. Interest in blockbuster biologics will continue, where a course of therapy can run hundreds of thousands of dollars and generate billions in revenue. In fact, 2018 is in merger mode out of the gate, with the acquisition of Juno Therapeutics by Celgene for US\$9 billion. Juno's CAR-T therapy for cancer treatment will follow Novartis' and Gilead's (via their 2017 acquisition of Kite Pharma), but this product is expected to be differentiated. Also, Juno's technology is anticipated to add meaningfully to Celgene's pipeline and drive future revenue growth. In further activity, Sanofi announced the acquisition of Belgian biotech Ablynx for US\$4.8 billion to expand their rare blood disorders franchise and strengthen their R&D strategy. But don't get the impression that M&A will be limited to biologics; we expect it to be a common theme in the sector for 2018.

Blockchain - it makes absolutely everything better! It's not just for some 1,383 cryptocurrencies and Kodak anymore! Big brains at academic institutions, as well as companies like IBM and others are working to find relevance for blockchain in healthcare. Consider having patient data stored anonymously in a distributed network instead of centralized within a healthcare organization. They say patients own their medical data; maybe blockchain will make it so, enabling patients to access and share their health records easily. The regulators will no doubt have to weigh in heavily to safeguard confidentiality and security, no small effort to be sure. Look for the emergence of blockchain healthcare companies; just don't look for sales revenue in 2018.

Reefer Madness! The 24 stocks in the Canadian Marijuana Index have an aggregate market cap of about \$26 Billion. Canopy Growth, Canada's largest cannabis producer, was recently trading at a market cap of 96 times last quarter annualized revenue. And I thought Amazon was looking a tad pricy, with a market cap approaching 6 times last quarter annualized revenue. Notwithstanding the unknowns around the pending regulatory and pricing framework, investors are euphoric about Canadian cannabis, writing checks for more than \$2B and counting. Expect something to trigger a recalibration of value, although it's hard to say when that will happen. This year will be a big one for weed mergers, like Aurora reaching a deal to buy CanniMed (finally!). Look for continued consolidation to build scale, or to differentiate from the rest of the pack with strategies ranging from product positioning to geographic expansion to food & beverage to cannabinoid drug development. And I'm thinking blockchain and cannabis have got to come together, maybe as a potential system for supply chain management or use of cryptocurrency as a form of payment.

Artificial is apparently much better than the real thing. We are all familiar with many uses of artificial intelligence. It can not only drive cars but also user engagement and spending on advertising and sales platforms like Facebook, Google, Amazon and Netflix. We've already seen AI in healthcare, to some extent, performing millions of calculations to decipher the human genome and in robot-assisted surgeries. But there are numerous applications in development for AI in healthcare: think faster and better drug discovery and development, diagnosis and treatment, data mining, and even robotic pharmacists and nursing assistants, to name just a few.

Clearly, we see these trends driving an exciting year of innovation and productivity in healthcare!

CATHY STEINER, PRINCIPAL





BIGGEST MOVERS

Recent News¹

A summary of the largest share price movers in the healthcare space during the recent period is included below:

- **ABCann Global Corporation** (“ABCann”) (TSXV:ABCN, **+107%**): Strong recent performance driven by receipt of Health Canada license in early January, allowing ABCann to produce cannabis oils in Canada. Further, the announcement of acquisition of leading cannabis clinic **Harvest Medicine Inc.** in December 2017, as well as strong underlying momentum in the Marijuana space helped propel recent share performance
- **Atara Biotherapeutics, Inc.** (“Atara”) (NasdaqGS:ATRA, **+102%**): Shares surged early January on announcement that the FDA cleared Atara to proceed with enrollment at U.S. sites for ongoing global phase 1 clinical study to evaluate ATA188 in patients with progressive or relapsing-remitting Multiple Sclerosis
- **Emerald Health Therapeutics, Inc.** (TSXV:EMH, **+51%**): Strong recent performance driven by announcement and close of \$15 million prospectus equity plus warrant offering as well as strong underlying momentum in the Marijuana space.
- **Galectin Therapeutics, Inc.** (NasdaqCM:GALT, **+53%**): Recent performance is being driven by strong results from NASH-CX trials in 2017, the closing of a \$10.0 million credit line from shareholder Richard E. Uihlein in December 2017 as well as recent patents granted in China and Japan for Nash cancer immunotherapy clinical development programs
- **Jounce Therapeutics** (NasdaqGS:JNCE, **+102%**): Shares climbed significantly in January on the heels of initiating ICONIC Phase 2 clinical trials, anticipation of upcoming JTX-2011 preliminary clinical efficacy results and underlying momentum in among immunotherapy drug developers
- **Juno Therapeutics, Inc.** (“Juno”) (NasdaqGS:JUNO, **+84%**): Strong share performance was driven largely by the announcement on January 21st that **Celgene Corporation** will acquire the remaining 90.4% stake in Juno for US\$9.4 billion
- **Newstrike Resources Ltd.** (“Newstrike”) (TSXV: HIP, **+152%**) and **CanniMed Therapeutics Inc.** (“CanniMed”) (TSX:CMED, **+86%**): Shares soared over the past month amid anticipation of the recent announcement of the acquisition of Newstrike by leading Cannabis producer CanniMed. On Jan. 24th, **Aurora Cannabis Inc.** (“Aurora”) announced it will acquire CanniMed for approximately C\$1.1 billion, marking an end to the two-month-long takeover battle between the two companies. As a result, shares of Newstrike fell more than 30% on speculation the deal with Newstrike would be cancelled

Note 1: For the period January 1st to January 29, 2018

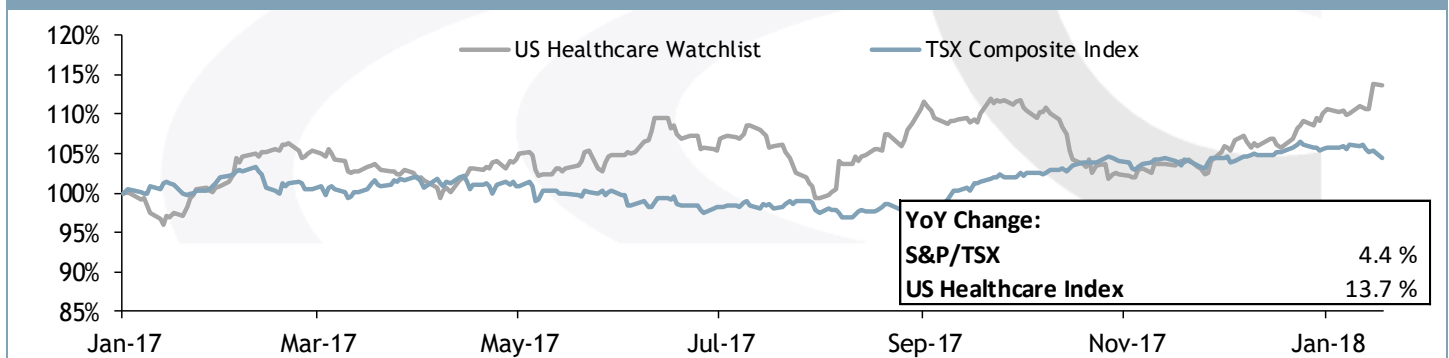


US HEALTHCARE WATCHLIST

News Scan¹

- Last twelve-month performance of the US Healthcare Watchlist index was approximately 11%, beating the TSX Composite Index which gained 6% over the same period. Some events making news this January:
- On Jan. 21st, **Celgene Corporation**, a developer of cancer treatment and inflammatory disease therapies, announced it will acquire the 90.4% stake in **Juno Therapeutics, Inc.** that it didn't already own for US\$9.4 billion. Pursuant to the terms of the agreement, Celgene will acquire all the outstanding common shares of Juno through a tender offer for \$87 per share in cash. Celgene plans to finance the transaction using existing cash and new debt. The resulting capital structure will be consistent with Celgene's historical financial strategy. The acquisition is expected to be dilutive to adjusted earnings per share in 2018 by approximately \$0.50 but is expected to be incrementally additive to net product sales in 2020. The acquisition will accelerate revenue diversification with meaningful growth drivers beyond 2020, while also adding a novel scientific platform and scalable manufacturing capabilities which will compliment Celgene's leadership in hematology and oncology
- On Jan. 9th, **Monteverde & Associates** filed a class action lawsuit in the United States District Court, Southern District of Texas Houston Division, on behalf of the stockholders of **Repros Therapeutics Inc.** for alleged violations in connection with the tender offer of company common stock to be purchased by **Allergan plc**. The complaint alleges that the offer of US\$0.67 per share is inadequate and that the Schedule 14D-9 Solicitation/Recommendation Statement provides materially incomplete and misleading information about the company's financial standing
- On Jan. 8th, **Baxter International Inc.**, a provider of renal and hospital products, announced it will acquire RECOTHROM Thrombin Topical and PREVELEAK Surgical Sealant from **Mallinckrodt Public Limited Company** for approximately US\$190 million. The transaction is expected to be modestly accretive to Baxter's 2018 adjusted earnings and increasingly accretive thereafter. Mallinckrodt will use the proceeds of the sale to repay existing debt
- On Jan. 5th, **TAIYO Pharma Co.**, a pharmaceutical and quasi-drug product manufacturer, announced it acquired marketing and manufacturing rights of 13 long-term listed products from **Chugai Pharmaceutical Co., Ltd.** and **F. Hoffmann-La Roche Ltd.** for ¥21.3 billion

Relative Performance Index



Note 1: For the period January 1st to January 29, 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

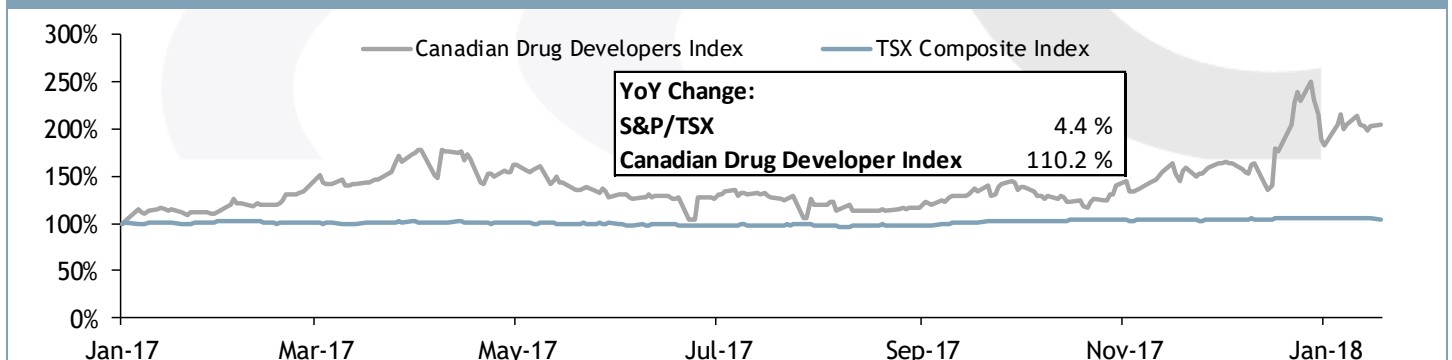


CANADIAN DRUG DEVELOPERS

News Scan¹

- Last twelve-month performance of the Canadian Drug Developer index was a whopping 108%, significantly outperforming the TSX Composite Index which gained 6% over the same period. In the news January 2018:
- On Jan. 2nd, **Tetra Bio-Pharma Inc.**, a cannabinoid-based drug developer, entered into a share purchase agreement to acquire the remaining 20% stake in **PhytoPain Pharma Inc.**, a manufacturer of cannabinoid-based drugs, for C\$13 million. The transaction will allow Tetra to gain 100% control of PhytoPain, a key asset in the development of their pipeline of cannabinoid-based drugs, while giving the company full flexibility to enter other partnerships or agreements in the future. Majority of the transaction will be financed through equity, while approximately C\$2.5 million will be financed through cash and debt
- On Jan. 8th, **Resverlogix Corp.**, a developer of small molecule therapeutics for bromodomain and extra-terminal inhibition, announced it has entered into a licensing agreement with **Medison Pharma Ltd.** Under the terms of the agreement, Medison has the exclusive rights to distribute and market apabetalone in Israel. If certain sales milestones are reached, total royalty payments are estimated to potentially reach in excess of C\$100 million over the patent life in the region
- On Jan. 11th, **Resverlogix Corp.** announced the FDA acceptance of the company's Phase 3 BETonMACE trial Protocol amendments. The BETonMACE trial will now expand beyond South America, Asia and Europe to North America, with the addition of the United States
- On Jan. 8th, **Acerus Pharmaceuticals Corp.** announced it has entered into an exclusive distributor and license agreement with **Innovus Pharmaceuticals** granting it the exclusive rights to commercialize UriVarx in Canada. UriVarx is a Health-Canada approved Natural Health Product to reduce symptoms of hyperactive bladder. Innovus will receive an up-front license payment and is eligible to receive up to C\$1.7 million in sales milestone payments based on Acerus achieving certain sales targets, plus minimum order quantities at an agreed-upon transfer price
- On Jan. 17th, **Aeterna Zentaris Inc.** announced it has entered into an exclusive licensing agreement with Strongbridge Pharma to carry out development, manufacturing, registration and commercialization of Macrilen in the US and Canada. Macrilen is the only FDA-approved drug for use in the diagnosis of patients with adult growth hormone deficiency. **Origin Merchant Partners** provided a fairness opinion on the licensing transaction.

Relative Performance Index



Note 1: For the period January 1st to January 29, 2018

Canadian Drug Developers Constituents: ProMetic Life Sciences Inc., Clementia Pharmaceuticals Inc., Theratechnologies 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.

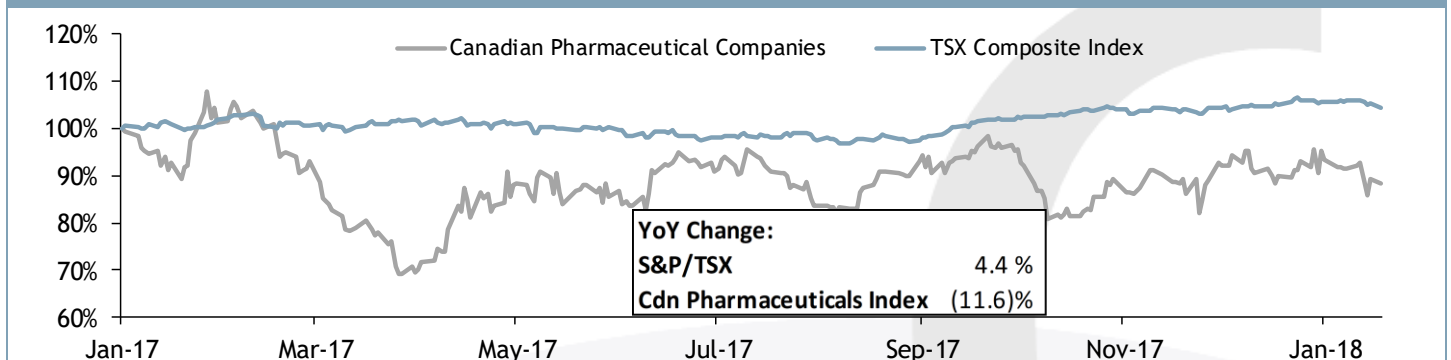


CANADIAN PHARMACEUTICALS

News Scan¹

- The Canadian Pharmaceutical index lost approximately 31% over the last twelve months, lagging the TSX Composite Index which gained 6% over the same period. News for Canadian-listed pharmaceutical companies in January 2018:
- On Jan. 12th, **Ortho Dermatologics**, a division of **Valeant Pharmaceuticals**, announced the FDA has accepted the New Drug Application for IDP-121 (tretinoin 0.05%) lotion (ALTRENOTM1) with a PDUFA action date of August 27, 2018
- On Jan. 10th, **APAC Resources Inc.** and **XORTX Pharma Corp.** announced the completion of the previously announced reverse take-over and acquisition by APAC of all the issued and outstanding shares of XORTX. The resulting company, **XORTX Therapeutics Inc.**, will focus on developing drug therapies for rare orphan disease indications such as polycystic kidney disease

Relative Performance Index



Note 1: For the period January 1st to January 29, 2018

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

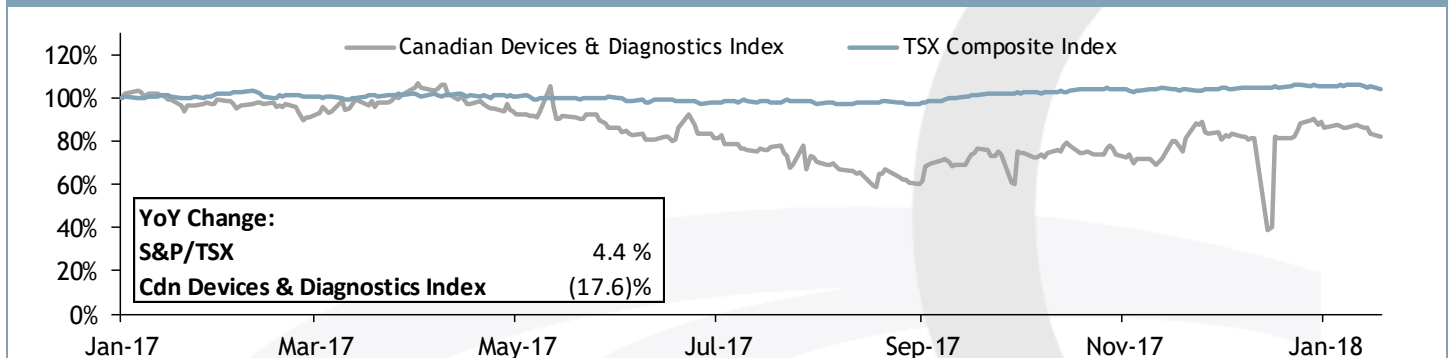


CANADIAN DEVICES & DIAGNOSTICS

News Scan¹

- The Canadian Devices & Diagnostics index was down approximately 14% over the last twelve months, lagging the TSX Composite Index which gained 6% over the same period. Newsmakers for January 2018:
- On Jan. 8th, **Neovasc Inc.**, a speciality cardiovascular device company, announced an update on its clinical program for the Tiara™ (Tiara) valve. In total, 47 patients have now been implanted with Tiara, 12 of which are enrolled in the company's CE Mark trial, TIARA-II
- On Jan. 8th, **Profound Medical Corp.**, a medical device company that focuses on the treatment of prostate cancer, reported that as of Dec. 31, 2017, the company-sponsored TACT pivotal clinical study had reached 87% (96 out of 110) patient enrollment. Profound expects to complete study enrollment at some point in the month of February
- On Jan. 10th, **Ergoresearch Ltd.**, a manufacturer and seller of orthotics, announced that it reached an agreement with a corporation controlled by Sylvain Boucher and Danielle Boucher, in partnership with Walter Capital Partners Inc., pursuant to which all of Ergoresearch's outstanding shares will be acquired by the corporation for \$0.30 each in cash

Relative Performance Index



Note 1: For the period of January 1st to January 29, 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.

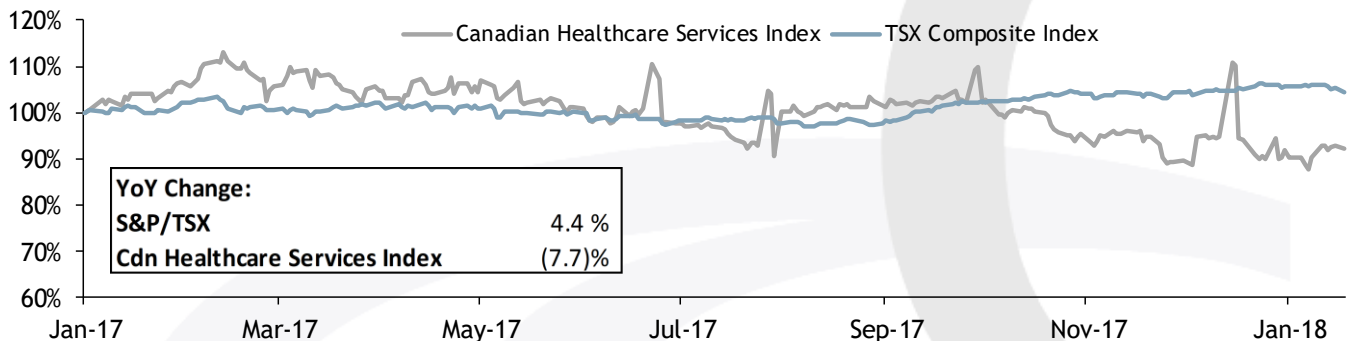


CANADIAN HEALTHCARE SERVICES

News Scan¹

- The Canadian Healthcare Services index experienced a decline of approximately 8% over the last twelve months, lagging the TSX Composite Index which gained 6% over the same period. January 2018 news highlights among the group:
- On Jan. 12th, **Medical Facilities Corp.**, an owner-operator of speciality surgical hospitals, announced an agreement with Kansas-based **NueHealth LLC** to form a joint venture and acquire seven ambulatory surgical centers from Meridian Surgical Partners, for US\$46.5 million. The transaction includes acquisition of Brookside Surgery Center, Central Arkansas Surgical Center, City Place Surgery Center, Eastwind Surgical, Miracle Hills Surgery Center, Riverview Ambulatory Surgical Center and Two Rivers Surgery Center
- On Jan. 17th, **Morneau Shepell**, a leading provider of digital mental health services in Canada, announced the Ontario Telemedicine Network (OTN) qualified the company as a Vendor of Record (VOR) for digital mental health and electronic cognitive behavioural therapy services
- On Jan. 11th, **Homewood Health**, a health care facility operator, announced it completed the acquisition of Dunsmuir Lodge along with 28 acres of surrounding property on Vancouver Island from the University of Victoria, for an undisclosed amount. Homewood plans to convert Dunsmuir to an inpatient facility specializing in mental health and addiction treatment

Relative Performance Index



Note 1: For the period January 1st to January 29, 2018

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

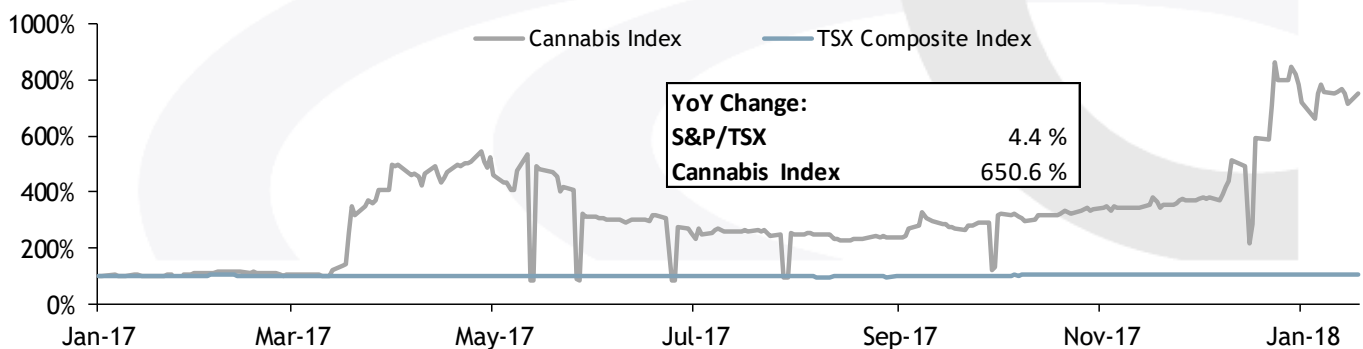


CANNABIS

News Scan¹

- Last twelve-month performance of the Canadian Pharmaceutical index was approximately 650%, dwarfing the 6% gain of the TSX Composite Index over the same period. Highlights of cannabis news for January 2018:
- On Jan. 24th, **Aurora Cannabis Inc.** announced it will acquire **CanniMed Therapeutics Inc.** for approximately C\$1.1 billion, marking an end to the two-month-long takeover battle between the two companies. **Newstrike Resources Inc.** had previously agreed to be bought by CanniMed, but the transaction was terminated on Jan. 24th. As a result, CanniMed will pay Newstrike a C\$9.5 million break fee. Aurora believes the combination of the two companies offers significant opportunity for both companies to accelerate growth and shareholder value creation
- On Jan. 12th, **CanniMed Therapeutics Inc.** filed a lawsuit in the Ontario Superior Court of Justice alleging breach of confidentiality, intentional interference with economic relations, conversion, breach of contract and other allegations pursuant to the Securities Act. The lawsuit also alleges that Aurora Cannabis Inc. and several large shareholders of CanniMed participated in a civil conspiracy intended to injure the economic interests of CanniMed
- On Jan. 16th, **Canopy Growth Corporation** and the Province of Prince Edward Island (PEI) announced that the company entered a supply Memorandum of Understanding (MOU) to guarantee a regulated supply of cannabis into PEI's retail and online stores. Under the terms of the 2-year MOU, Canopy will allocate a minimum of 1,000 kg of cannabis in the first year, with an option to renew in the third year upon mutual agreement
- On Jan. 16th, **Organigram**, a producer and seller of medical marijuana, and the Province of Prince Edward Island (PEI) announced that the company entered a supply Memorandum of Understanding (MOU) to guarantee at least 1,000kg of cannabis into PEI's retail and online stores per year
- On Jan. 15th, **Aphria Inc.** announced it will acquire **Broken Coast Cannabis Ltd.**, a medical cannabis producer, for approximately C\$230 million. Under the agreement, Aphria will pay up to C\$10 million in cash and the remainder in shares

Relative Performance Index



Note 1: For the period January 1st to January 29, 2018

Cannabis Index Constituents: Canopy Growth Corporation, Aurora Cannabis Inc., Aphria Inc., MedReleaf Corp., CannTrust Holdings Inc., CanniMed Therapeutics Inc., Cannabis Wheaton Income Corp., OrganiGram Holdings Inc., The Supreme Cannabis Company, Inc., The Hydropharmacy Corporation



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