VENTRIPOINT DIAGNOSTICS LTD.

MANAGEMENT'S DISCUSSION AND ANALYSIS
FORM 51-102F1

For the six months ended June 30, 2019

August 29, 2019

MANAGEMENT'S DISCUSSION AND ANALYSIS, AUGUST 29, 2019

This management's discussion and analysis of operations and financial position (MD&A) should be read in conjunction with Ventripoint Diagnostics Ltd.'s ('Ventripoint' or the 'Company') unaudited condensed consolidated interim financial statements and the corresponding notes thereto for the six ended June 30, 2019. Ventripoint's condensed consolidated interim financial statements have been prepared in accordance with International Accounting Standard 34 - *Interim Financial Reporting*.

Unless otherwise specified, all financial data is presented in Canadian dollars. This MD&A is as of August 29, 2019.

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

In the interest of providing current and potential investors in Ventripoint with information regarding the Company's future plans and operations, certain statements and information, which is included or referenced herein, contain "Forward-looking Statements."

Forward-looking Statements include, but are not limited to, statements (collectively, "Statements") with respect to status of technology, development, commercialization, market size, financing, general and administrative, and beyond. You are cautioned not to place undue reliance on forward-looking statements as there can be no assurance that the plans, intentions or expectations they are based on will occur. By their nature, forward-looking statements involve numerous assumptions, known and unknown, and risks and uncertainties, both general and specific, that contribute to the possibility that the predictions, forecasts, projections and other forward-looking statements will not occur.

Although the Company believes that the expectations represented by such forward-looking statements are reasonable, there can be no assurance that such expectations will prove to be correct. Some of the risks and other factors which could cause results to differ materially from those expressed in the forward-looking statements included or referenced herein include, but are not limited to, access to future funding (debt and/or equity) as described under the section titled "Liquidity"; general economics, business and market conditions as discussed in "Risks and Uncertainties – Financial"; the regulatory approval process as noted in "Risks and Uncertainties – Regulatory"; and the Company's ability to secure additional capital as discussed in "Risks and Uncertainties – Continued Operations". You are cautioned that the foregoing list of important factors is not exhaustive.

With respect to forward-looking statements contained in this MD&A, we have made several key assumptions including, but not limited to:

- the market for the Company's planned product and service offerings is in excess of $1 billion worldwide and is not subject to decline in the foreseeable future;
- The Company will be able to obtain financing in a timely manner on acceptable terms;
- The current tax and regulatory regimes will remain substantially unchanged;
- The Company will be able to obtain equipment and qualified personnel in a timely manner;
- The Company will successfully market its efficient, accurate and cost-effective heart diagnostic tool that uses standard echo images to deliver functional information about the heart;
- Product and service related approvals will be obtained from all necessary agencies in a timely manner and without unplanned additional costs; and

- The Company will have sufficient resources to implement its strategies in a timely and effective manner.

The forward-looking statements contained or referenced herein are expressly qualified by this cautionary statement made as of this date. The Company disclaims any intention and has no obligation or responsibility, except as required by law, to update or revise any forward-looking statements.

Stock Market Award and Activity

On February 22, 2018, the Company was named to the 2018 TSX Venture 50, a ranking of the top performers on the TSX Venture Exchange during 2017. It was a historic year for Ventripoint, our employees and shareholders, who saw the Company increase its market capitalization by 384% and share price appreciation of 258%, while trading 206 million shares on the TSX Venture Exchange and 250 million shares on all exchanges. This despite having only 50 million shares issued. This trend continued in 2018 with approximately 100 million shares traded on all exchanges and into 2019 with excellent liquidity for a company the size of Ventripoint. Starting October 23, 2018, the Company's common shares now trade on the OTCQB Venture Market under the stock symbol 'VPTDF'. Investors can find Real-Time quotes for the Company on www.otcmarkets.com. As a verified market with efficient access to U.S. investors, OTCQB will help Ventripoint to build shareholder value with a goal of enhancing liquidity and achieving fair valuation. It will allow the Company to engage a far greater network of U.S. investors, data distributors and media partners, ensuring U.S. investors have access to the same high-quality information that is available to investors in Canada.

OVERVIEW

Ventripoint is a medical device company engaged in the development and commercialization of its diagnostic tools to monitor patients with heart disease – a major cause of death in developed countries and a rapidly rising incidence in emerging countries. By using images produced from existing medical imaging systems, the Ventripoint Medical System (VMS™) generates accurate volumetric measurements and a three-dimensional model of all 4 chambers of the heart in a rapid and efficient manner. Ventripoint's solution produces critical heart information by processing standard information received from existing medical imaging equipment with its patented and proprietary artificial intelligence (AI) technology incorporating Knowledge Based Reconstruction (KBR) algorithms and proprietary cardiac databases (sometimes called catalogues). Measuring volume and function is fundamental in evaluating patients to determine the severity and progression of their heart disease, assess the effectiveness of treatment, gauge prognosis and decide on the timing of surgical and pharmacological interventions. These key measurements and the 3D model for visual assessment provide medical professionals with some of the critical information necessary for clinical diagnosis and monitoring of their patients.

The Company's KBR method, a form of AI, allows for the creation of a three-dimensional model of all the chambers of the heart; right and left ventricles, and right and left atria, using images generated from existing 2D and 3D imaging equipment. The Company's technology platform is applicable to all heart diseases. The VMS system is based upon patented and proprietary technology that Ventripoint has licensed on an exclusive basis from the University of Washington. The VMS+ system (hardware and software for 2D echocardiograms) and VMS+ software (software only for 3D echocardiograms) have US FDA marketing clearance, Health Canada license and European CE Mark for all patients where volumetric information for any of the 4 chambers of the heart is warranted or desired.

The Company is in the early stages of commercialization. As further described below, current efforts are focused on:

- Marketing the 4-chamber VMS+3.0 for 2D and 3D in Canada, Europe, the USA.
- Marketing the VMS+RV-only in China through a partnership with Yutian Shanghai Medical Technology Inc.
- Obtaining regulatory approvals for the VMS+ for 2D in other jurisdictions;
- Continued clinical evaluation of the 4-Chamber VMS+3.0 to determine its optimal use in medical settings;
- Establishing partnerships to develop an integrated 2D ultrasound machine and expand the software analysis tools using advanced artificial intelligence (AI) approaches;
- Completing a VMS-4DE application in partnership with the National Research Council; and
- Further advancing and developing the technology and product to extend and expand its acceptance and usability.

Since the commencement of operations, Ventripoint has been committed to commercializing its breakthrough technology to be used as a tool in the diagnosis and management of various heart diseases to reduce the cost of healthcare for these patients worldwide.

It is the Company's goal to have the first system on the mass market that addresses the need for an efficient, accurate and cost-effective heart diagnostic tool that uses standard 2D or 3D echocardiography, as well as MRI images to deliver 3D functional information for all 4 chambers of the heart. The ability to sustain the implementation of its commercialization strategies for its VMS is dependent upon the timely receipt of additional and sufficient operating capital.

HIGHLIGHTS AND CURRENT DEVELOPMENTS

The Company has made significant progress in implementing its development and commercialization plans. The Company has recently completed the development of a new model of the VMS+, marketed as the VMS+3.0. The Company announced on June 5, 2019 it had filed for regulatory approvals in Canada, Europe and the USA for the new model. The Company announced that the VMS+3.0 was licensed for use by Health Canada on June 25, 2019 and obtained the CE Mark for Europe on July 2, 2019. It is currently under review by the US-FDA for pre-market clearance in the USA. These regulatory approvals allow the VMS+3.0 to be marketed for all types of heart disease where the volumetric information for any of the four chambers of the heart is warranted or desired. The VMS+3.0 product remains the only approved way to generate substantially equivalent results to the gold-standard MRI for heart chamber volumes using 2D echocardiography.

The new VMS+3.0 is significantly smaller, more portable and easier to learn and use than the previous model. This was confirmed by a Human Factors Study (see NR June 17, 2019). The study was completed in Toronto with clinicians from hospitals and cardiac clinics across Ontario. Participants found the system convenient and easy to use with 100% of the clinicians reporting that it was intuitive. All study participants were able to be trained on the VMS+3.0 in 3 hours and were able to operate the system a week later without assistance. One user noted "Exact ejection fraction values are helpful and critical for patient management" and another commented "the 3D view is the "wow" factor".

The Company announced that it had elected to create its own manufacturing facility in Toronto (se NR June 10, 2019) and that its facility was passed the external audit and was fully functional on July 31, 2019. The Company has announced the receipt of purchase orders from two children's hospitals and

two heart Institutes in Canada. The first VMS+3.0 system was manufactured and shipped in August, 2019.

On August 6, 2019, the Company was pleased to comment on the clinical study done by Dr. Windram and his group of researchers at the Mazankowski Alberta Heart Institute in Edmonton. The group completed a clinical study on the ability of the VMS+ whole-heart analysis system to analyze 2D echocardiograms of left-ventricle (LV) volumes and ejection fractions (LVEF) without the need for intravenous ultrasonographic enhancing agents. This feasibility study concluded: "The use of the Ventripoint knowledge-based-reconstruction technique revealed no significant differences in the measurement of left ventricular volumes or ejection fraction in comparison with contrast echocardiography measurements. This study suggests a routine echocardiogram without contrast-enhancing agents is adequate to determine LV function if analyzed using the VMS.

The study included 26 patients and found no significant difference between the end-diastolic (LVED) and end-systolic (LVES) ventricular volumes for the left ventricle and LVEF between conventional 2D ultrasound using the VMS+ system and contrast-enhanced ultrasound. Two-dimensional contrast echocardiography has been the standard of care for LV volumes and EF assessment by echocardiography in technically-challenging patients, but the use of contrast comes with added cost and the small risk of anaphylactic reaction. This promising data shows the potential use of the VMS+ in patients who require accurate measurements of LV volumes and LVEF and obviates the need for contrast media to obtain a result.

A copy of the presentation can be viewed on the Ventripoint website at:

https://www.ventripoint.com/uploads/3/1/3/9/31398805/ase_2019_determination_of_lv_volume_and_ejection_fraction_with_a_novel_3d_knowledge_based_reconstruction_technique_mazankowski_heart_institute.pdf

Contrast-enhanced echocardiography is warranted on 20% of patients where LV function is required and yet is only used 7% of the time due to technical difficulties (Lindner, J.R., Expert Opinion, posted July 10th, 2017 online at the American College of Cardiology). Contrast echocardiography is increasing in use; however, the procedure requires injecting contrast media into patients. This is uncomfortable, expensive, requires training for intravenous access and takes extra examination time.

On June 21, 2019, the Company announced that it was showcasing the VMS+ 3.0 cardiac system and VMS+ Software Solution at the American Society of Echocardiography's 30th Annual Scientific Sessions in Portland, Oregon. Over 17,000 clinicians are members of the ASE, making it the largest global organization for cardiovascular ultrasound imaging. Members of the ASE are the leaders in setting practice standards and guidelines for the cardiac imaging field. The Scientific Sessions provide an outstanding opportunity to meet with clinicians from around the world.

On November 14, 2018, the Company announced it had entered into a Contribution Agreement with the Government of Canada. The National Research Council of Canada Industrial Research Assistance Program (NRC IRAP) will provide both advisory support and conditional funding to share the costs of a project designed to accelerate the further development of the Ventripoint VMS+ system's next-generation products. The goal of the project is to extend the current technology for advanced visualization extracted from 2D ultrasound images of the heart to construct and visualize 4D from 2D ultrasound images. 4D is the real time display of the beating heart in a 3-dimensional view, with quantification of the movements as well as 2D measurements. The project also aims to include the addition of advanced measurements for Wall Motion Velocity and Left Ventricle Mass, to further aid the clinician in assessing the cardiac disease state. Currently, 4D products are available in the

marketplace and while they have improved significantly, they still are only able to get useable images in 60% of people for the basic heart analysis and, therefore, are only used for research purposes. The VMS+ system's accuracy matches that of the MRI, the gold standard, providing a significant opportunity for the unique 4D VMS+ system in the market. For the clinician, the Ventripoint solution of 4D display will provide additional information about the motion of the different chambers of the heart throughout the cardiac cycle, quickly and reliably. The provision of both quantitative and qualitative information essential for complete assessment of the cardiac condition is the major goal of this project.

On November 19, 2018 the Company announced it had extended its product line to include the VMS+ (software only for 3D). This product is also approved for sale in Europe, Canada and the USA. The Company is building a sales and distribution team to capitalize on these product expansions.

The Company previously announced (see NR, Nov. 11, 2017) the invention of a small, low-cost location device, which tracks the ultrasound probe's position and orientation in 3-dimensional space. The new design eliminates the need for patients to remain perfectly still during image acquisition and improves the workflow of the VMS+ through a more intuitive user interface and a smaller footprint.

The VMS 3.0 will allow the Company to provide the VMS+ inexpensively to customers and charge for the reconstruction of the study. This subscription model is the trend in imaging studies as it becomes more cost effective to outsource the analysis than maintain the expertise to analyze difficult and technically-challenging cases, especially in small and medium-sized centers. The Company intends to offer both a capital purchase option as well as the subscription option to customers starting in 2019.

On January 22, 2019 the Company announced that it had received the Medical Device Single Audit Program (MDSAP) certification, following an audit of its quality management system by its Notified Body/Registrar, an authorized third-party auditing organization. **T**he Medical Device Single Audit Program (MDSAP) became a mandatory requirement by Health Canada on January 1, 2019 and allows the conduct of a single regulatory audit of a medical device manufacturer's quality management system that satisfies the requirements of multiple regulatory jurisdictions, including Canada, United States, Japan, Brazil, and Australia. The MDSAP audit approach reduces the need for duplicate quality management audits, allowing device manufacturers to better manage costs and ease global market access.

On March 4, 2019, the Company announced that its Partner, Ma'anshan YuTian Medical Technology Co. Ltd ("YuTian Technology"), has received CFDA approval and a Certificate of Production (CoP) from the FDA in the People's Republic of China for the VMS (QAS-R in China) system to be clinically used to analyze the right ventricle (RV) of the heart. The company had previously received GMP certification for the manufacturing facility in Ma'anshan. The factory is fully functioning and scaled to produce the VMS at a significant rate to address the Chinese market. Yutian Technology has also received the Chinese equivalent of ISO60601 for the VMS, which allows it to be used in hospitals in China.

Marketing efforts are well underway in the Chinese market with the creation of a multi-channel distribution network. The medical-device market in China was estimated at over US$58 billion in 2017 and experienced 20% growth from 2015 to 2016. There are over 2,500 Tier 1 hospitals and a total of 32,000 hospitals, with over 1,000 new hospitals currently under construction.

On March 25, 2019, the Company announced that the University of Ottawa Heart Institute has ordered the VMS+ complete heart analysis system for the clinical assessment of cardiac patients. The new system will be used to do research into valvular heart disease, infective endocarditis and aortic diseases with a specific focus in the application of ultrasound in the study of cardiac structure and function. The

initial research focus will be on patients with tricuspid regurgitation, testing the hypothesis that RV volume determined by the Ventripoint system can be used as a more reliable and quantitative method to assess and follow patients with tricuspid regurgitation.

The function of the right ventricular (RV) is increasingly recognized as an important predictor of outcome in various forms of heart disease. Although cardiac magnetic resonance (CMR) is accepted as the reference standard in the assessment of RV volume and function, its use is hindered by limited accessibility. Echocardiography (echo) is widely used in the assessment and follow-up of patients with suspected RV dysfunction, but it suffers from suboptimal endocardial visualization, inability to visualize the entire RV and only a qualitative rather than a quantitative assessment.

The University of Ottawa Heart Institute (https://www.ottawaheart.ca) has flourished into one of Canada's most distinguished heart health centres for the unparalleled care it provides to its patients, a world-renowned research Institute that brings science from bench to bedside, and the country's main influencer when it comes to preventing heart disease. Its promise remains the very pillar on which it was built: Always putting patients first.

The Company has continuously marketed its products at major cardiology meetings (listed later in this document) and expects to continue to use this approach along with social media approaches to build awareness in the cardiology community of the benefits of the VMS.

Since 2007, the Company has completed a number of equity and debt financings to fund its technology development and commercialization activities and will likely continue to seek additional investments from both public and strategic investors.

Corporate Strategy

The overall strategy is to have a suite of products available to allow customers with existing 2D and 3D ultrasound machines to purchase the VMS+ and then upgrade to an integrated 2D-VMS machine when they are ready to buy new 2D ultrasound machines. The normal average life cycle of a cardiac ultrasound is 5-7 years and many are now past the end of their useful life. Thus, there is now a large emerging opportunity to sell integrated 2D-VMS machines as replacement machines. Ultimately, the strategy will be to sell the VMS+ (software only for 3D) analytical package for 3D ultrasound as the 3D spatial data is already embedded in the 3D scans and so no additional hardware is required. There would still be a need for the 2D VMS products in about a quarter of the patients and so those cardiologists wanting to use 3D would need to buy both products to effectively and efficiently examine all their patients. The 3D ultrasound machines currently only provide readable images in about 50% of patients and so are not used clinically for global heart measurements. The Company has now created a software-only module for the VMS+ for analysis of 3D echocardiograms. A major centre in Germany has purchased this product and will be publishing shortly on its application in pediatric cardiology (see NR November 20, 2018). In addition, a pediatric hospital in Canada will be using the 3D analytics software-only workstation for children with congenital heart diseases (se NR August 8, 2019).

The Company believes that the KBR approach is the best approach to use in building a semi-automated analysis package for 3D scans. To this end, the Company previously announced (see NR, March 19, 2018) a collaboration with Ryerson University to use its Artificial Intelligence (AI) expertise to develop a software engine to automatically detect all four chambers of the heart in standard echocardiographic views. On August 13, 2018, the Company announced that the university researchers had completed an initial prototype of the AI engine. This software can be used to detect the end systolic and end diastolic frames in cardiac video clips in number of different views. In initial testing with images provided by

the Company, results were impressive with an up to 90% accuracy rate in identifying cardiac ultrasound views. If successful, this will reduce time spent on analysis and training and allow sequential exams conducted by different users to be compared with confidence. Even today, the comparison of sequential exams is difficult to interpret due to operator variability in image acquisition and analysis and this makes disease progression hard to quantify. Automated analysis should improve comparability between sequential studies.

The Company's strategy is to hire experts in ultrasound and biomedical commercialization to be sure it develops best-in-class products and services.

On August 1, 2017, Desmond Hirson was appointed as Vice-President, Development and Operations and in December, 2017 Desmond was promoted to the role of President. Desmond is a seasoned executive and has over 20 years of experience in commercializing medical devices and managing product development, manufacturing operations, and regulatory and quality assurance. He has had multiple successes in start-up ventures including three exits at Sonosite Inc, VisualSonics and DICOMIT Inc. Desmond joined VisualSonics in 2003 as Vice President, Engineering, and led a development team to commercialize novel ultrasound technology from prototype to market success in cardiovascular, cancer and other areas of preclinical research that also resulted in ground breaking clinical applications. VisualSonics was purchased by SonoSite, a Seattle based ultrasound company in 2010 followed by the sale of SonoSite and VisualSonics to FUJIFILM of Japan in late 2011. At that time Desmond became Vice President Engineering and General Manager of FUJIFILM VisualSonics. Prior to this Desmond developed ultrasound technology for hospital PACS systems, ultrasound image processing and 3D visualization. Desmond holds a master's degree in electrical engineering and is co-inventor on a number of patents.

On December 12, 2017, the Company announced that it had appointed Dr. Alvira Macanovic as the Manager of Regulatory Affairs and Quality Assurance, received the ISO60601 safety certificate for the VMS+ device and moved its Development and Manufacturing Centre, as well as its Corporate Offices.

Dr. Macanovic has over 10 years of experience in pharmaceutical and medical device related industries where she has worked with researchers, start-ups, SMEs, and multi-national companies to commercialize technologies in multiple therapeutic areas. She has developed regulatory and quality strategies and plans to deliver high quality, safe, and reliable medical device products to market efficiently and cost-effectively. Most recently, as Director of Regulatory Affairs and Quality Assurance at a medical imaging company, she oversaw all aspects of the regulatory affairs/quality operations and activities for the successful launch of their products in Canada, the United States, and China. Previously, Dr. Macanovic worked for a non-profit organization supported through the Centres of Excellence for Commercialization and Research to commercialize medical imaging and digital pathology technologies. She obtained a Bachelor of Science in Biochemistry from McGill University and a PhD in Chemistry from Concordia University.

On January 10, 2018, the Company announced the appointment of David McPhedran as Director of Sales for North America. Dave McPhedran is an experienced leader in the healthcare industry. Previously, he was Director of Sales for imaging in Western Canada for Siemens Healthcare, where his team achieved sales targets of $35M per year. Dave has also worked for Becton Dickinson and Johnson & Johnson in sales and marketing. He received his Bachelor of Science degree from the University of Waterloo.

On February 6, 2018, the Company announced that Dr. Andriy Shmatukha has joined the Ventripoint team as software developer to advance the Ventripoint products and technology. Dr. Shmatukha is a

qualified network administrator with over 18 years of medical device R&D experience with emphasis on diagnostic cardiac imaging, including the development of image analysis algorithms and associated software. At his tenure at GE Healthcare he was responsible for quality assurance of clinical trials for medical software. He is an inventor on multiple patents in image analysis algorithms and device hardware. As a research engineer at Sunnybrook Health Sciences Center (Toronto, Canada), he developed DICOM application software to manipulate medical images to allow them to be analysed and stored in a hospital Picture Archiving and Communication Systems (PACS) environment. At Utrecht University Medical Center (Utrecht, The Netherlands), he developed MRI imaging procedures and image analysis algorithms for real-time MRI guidance of minimally-invasive thermal therapies.

On March 14, 2018, the Company created a Business Advisory Committee (BAC) and appointed Dr. Samuel Schwartz as the inaugural Chairman. The BAC will provide senior management and the Board of Directors with strategic advice on matters including, but not limited to, financing alternatives and opportunities, market opportunities, human resource insights, and new technology perspectives, in addition to carrying out special assignments. Sam is the founder of The Strategic Law Group. He previously was the Managing Partner of the Toronto office of DLA Piper Canada LLP, where he practiced in the areas of corporate/commercial, corporate finance, structuring, and securities law, including merchant banking and public and private company transactions. His diverse client base included Canadian and foreign companies involved in the life sciences, biotechnology, and computer hardware and software. Sam has regularly assisted established as well as start-up companies in accessing the capital markets both in Canada and the United States. In addition, he has assembled professional teams to assist Canadian companies in their business development efforts worldwide. Among Sam's community involvements, he served on the Strategic Planning Committee of the Baycrest Centre for Geriatric Care; the National Board of Directors of the Canadian Friends of Hebrew University; the National Campaign Cabinet of the Canadian Cancer Society; and the Board of Directors of Mount Sinai Hospital Foundation. He also served on the Board of Governors of York University and is presently a Life Honorary Governor of the University. Sam received his JD and LLB from Osgoode Hall Law School of York University and was called to the Ontario Bar in 1974 and the Alberta Bar in 1978. Previously, he received an MA degree from York University and a BA degree from the University of Toronto. In 2010, he was recognized by Osgoode Hall Law School by being awarded a Gold Key for Outstanding Achievement. In 2015, he was awarded an Honorary Doctorate Degree from York University for Outstanding Contributions to the Canadian Community.

On May 22, 2018, the Company announced the appointment of Jim Graba BSc, RDCS, FASE, as Application Specialist and Chief Trainer. Jim will take the clinical lead in the deployment and training of customers. In addition, he will provide product strategy and direction for the development team. Jim previously held positions in the healthcare industry, including Chief Cardiac Sonographer at the Toronto General Hospital and Manager of Echocardiography at the University Health Network. His decades of experience make him keenly aware of workflows and methodologies within the clinical and research Echo environments. He is well known as an innovator with multiple medical publications and as mentor in the Echo community. His commercial experience with the development and deployment of other ultrasound technologies with VisualSonics, as Product and Applications Specialist, makes him exceptionally well qualified to assist in evolving the VMS+ to have even broader applications. Jim is also a certified Heath Informatics professional and will be key in installing Ventripoint products into the sophisticated digital environment of hospitals and institutions throughout the world.

The Company's strategy is also to use non-dilutive means and use outside vendors to offset the cost of development and commercialization where possible. Accordingly, the Board elected to establish a new facility in Toronto, Canada in early 2016. There is an excellent pool of software and hardware engineers in Toronto to draw upon for the 4-chamber project at more reasonable cost than the Seattle location. In addition, there are government grants available for development projects (as mentioned above, an NRC-IRAP grant has been received).

The Company hired Precision Image Analysis to build the new right atrium (RA) and left atrium (LA) catalogues using its internal image library. Over many years, the Company has amassed an excellent cardiac image library with both MRI and ultrasound image files from patients with a wide variety of cardiac conditions. This is a very valuable resource that anyone wishing to build catalogues would need to replicate. Consequently, the Company has been able to produce the new catalogues more quickly.

The Company was able to extend its license for the KBR technologies with the University of Washington to include the atria. The building of new catalogues requires an iterative process of tracing the heart chambers and then verifying the accuracy of the tracings using the KBR algorithm and then retracing any images that have motion artefacts and other inaccuracies. The Company is pleased to report the catalogues have been created and tested for accuracy and been shown to yield results equivalent to MRI analysis. The Company has established relationships with two clinical centres to advise it on the development and testing of the 4-chamber user interface and catalogues. The clinical evaluation continues with a focus on optimization of scanning protocols and work flow.

The Company's strategy is to partner to access foreign markets where suitable partners can be identified.

In Q4 2015, the Company entered into an agreement with Lishman Global Inc. to set up a self-financing joint venture in China to develop an integrated VMS-ultrasound machine, as well as to manufacture and market existing and new VMS machines in China. The Company retains all rights to market the Chinese-manufactured machines outside of China.

On September 23, 2016, the Company reported that a joint venture has been formed in China called Ma'anshan YuTian Medical Technology Co. Ltd ("YuTian Technology"). The first investments are complete and YuTian Technology is fully capitalized to meet its goals of product manufacturing, product development, certification, sales and marketing and the achievement of profitability within two years.

On October 31, 2016, the Company announced it had received payment from YuTian Technology to purchase the first batch of components to begin the manufacturing process of the VMS+ heart analysis units in China. The first machine was constructed in Q4 2016 and an additional 3 machines were fabricated in Q1 2017. Two machines will be used to facilitate the submission to the Chinese FDA for marketing approval and obtain appropriate certifications for medical use in hospitals in China including ISO60601 (China version).

On March 4, 2019, the Company announced Ma'anshan YuTian Medical Technology Co. Ltd ("YuTian Technology"), has received CFDA approval and a Certificate of Production (CoP) from the FDA in the People's Republic of China for the VMS (QAS-R in China) system to be clinically used to analyze the right ventricle (RV) of the heart. The company had previously received GMP certification for the manufacturing facility in Ma'anshan. The factory is fully functioning and scaled to produce the VMS at a significant rate to address the Chinese market. Yutian Technology has also received the Chinese equivalent of ISO60601 for the VMS, which allows it to be used in hospitals in China. Yutian Technology has also built a sales, marketing and distribution network in China is actively marketing the QAS-R system. They are hosting a symposium on heart analysis on May 16, 2019 in China.

Product Development

The Company continues to look for ways to make the VMS system easier to use, expand its capabilities and increase its value. Initially thought to be years away, Ventripoint has completed the development of chamber-specific catalogues. All the VMS analytical products; 2DE, 3DE or CMR use the same chamber-specific catalogues to generate volumetric measurements. The VMS+ for 2D and 3D images is approved for sale in in Canada, Europe and the USA.

2D Echocardiography

The Company recently upgraded the system to VMS+3.0. The Company is approved to manufacture the VMS+ 3.0, both hardware and software for 2D studies and software-only for 3D studies, in Canada for worldwide use.

The Company has identified additional improvements that can be incorporated in the next version and will immediately begin development of the next-generation device. One of these improvements would be the ability for advanced visualization extracted from 2D ultrasound images of the heart to construct and visualize 4D from 2D ultrasound images (see NR Nov. 14, 2018). 4D is the real time display of the beating heart in a 3-dimensional view with quantification of the movements as well as 2D measurements. The project also aims to include the addition of advanced measurements for Wall Motion Velocity and Wall Mass. Another improvement will be the use of AI to automatically identify the views and select certain landmarks (see NR Mar. 19, 2018 and Aug. 13, 2018). An additional improvement will be the use of the DICOM file generated by the 2D ultrasound machine to provide the images to be analyzed. This will greatly simplify the VMS hardware and lower the cost of the equipment significantly. This will improve margins and make it possible to supply a VMS machine for every 2D ultrasound unit in an imaging service.

The Company actively seeks ideas for improvements to its products from its customers and leading cardiologists.

3D Echocardiography

The VMS technology has been shown to provide analysis of 3D ultrasound images of the right ventricle with the same accuracy as MRI (see NR Jul. 7, 2014). The development team has completed the development of the VMS+ (software only) analytical package for all 4 chambers of the heart to be used with 3D echocardiograms. The first VMS+ (software only for 3D) has been purchased by a leading heart centre in Germany, which will be verifying the accuracy of the VMS+ (software only for 3D) for the left ventricle (see NR Nov 20, 2018) and a pediatric hospital in Canada (see NR August 21, 2019).

The current use of 3DE in cardiology is for research purposes and for isolated structures of the heart, such as valves. The Company believes that the VMS approach can overcome the limitations of 3DE concerning coverage and image quality and provide more accurate volumetric functional assessments. Nevertheless, 3D echocardiography will not be used extensively clinically until the image quality improves and provides readable studies 70-80% of the time. The major large OEMs continue to spend extensively on advancing the hardware. The VMS-3DE is ready now to analyze these image sets. We will continue to research automation of the analysis while we wait for better 3DE machines to be developed.

The further development of such technologies is consistent with Ventripoint's corporate mission of being a leader in providing medical products that use AI to enhance the productivity, accuracy and consistency of cardiac measurements. The benefits of this technology can also be extended to other modalities and

imaging technologies, such as MRI and CT, to further expand the use of AI in the field of medical imaging.

Commercialization – Strategies and Implementation

The successful launch and adoption of a new medical device requires acceptance by multiple groups. Among the most fundamental is a credible independent validation of meritorious use of the VMS in clinical-care settings. It is essential that the ultimate payers for healthcare (e.g. government, third party insurers) receive the appropriate professional recommendations with supporting justifications and verify the device represents a medically effective and financially efficient tool that fits within the healthcare industry's complex set of business and patient-care needs.

The Company believes the support of thought leaders is the first building block to gaining the endorsement of the product. Accordingly, the Company has collaborated with leading echocardiologists and institutions in the field of Congenital Heart Disease (CHD), PAH and other heart conditions. Establishing luminary sites across multiple geographies has and will enable the Company to best select those studies that address clinically relevant challenges and solidify the medical benefits of its VMS system in clinical settings, as well as to disseminate the study results more broadly. To build awareness, VMS deployments are designed to produce publications in leading medical journals and presentations at conferences. When possible, the Company attends the conferences where the results of these clinical studies are being first presented to the medical community. The Company has been successful in having a number of independent studies published.

Independent Clinical Studies

1. A multicentre group from the University of Chicago and Elisabethinen Hospital in Linz, Austria presented a study entitled "Three-dimensional Modeling of the Right Ventricle from Two-Dimensional Transthoracic Echocardiographic Images: Utility of Knowledge-Based Reconstruction in Pulmonary Arterial Hypertension". Dr. Lang from the University of Chicago and past President of the ASE stated; "*The Ventripoint 3D system provides reproducible measurements of RV volumes in pulmonary arterial hypertension patients. The clinical accuracy of VMS helps obtain valuable information that can impact patient care*".

2. A group led by Dr. Laser from the Heart and Diabetes Center NRW (HDZ NRW), Bad Oeynhausen, Germany reported on the first use of the prototype VMS-4DE software, which analyses 4D ultrasound cardiac images, in a paper entitled; "*Right ventricular volumetry in healthy children and young adults by RT3DE - New axis, new quantification tool with promising results*".

3. A group led by Dr. Soriano from the Seattle Children's Hospital reported on their early experiences with the VMS in a number of children with a broad range of heart problems in a paper entitled; "*Echocardiographic 3D Reconstruction Accurately and Precisely Measures Right Ventricular End Diastolic Volumes: Preliminary Pediatric Experience in a Single Institution*". Dr. Soriano commented "Our ongoing research experience with the Ventripoint equipment has been very positive and we look forward to applying it routinely once it is available for clinical usage in the USA".

4. The cardiology group from the University of Chicago, led by Dr. Roberto Lang, published a paper entitled "*Three-Dimensional Modeling of the Right Ventricle from Two-Dimensional Transthoracic Echocardiographic Images: Utility of Knowledge-Based Reconstruction* in Pulmonary Arterial Hypertension*" in the Journal of the American Society of Echocardiography, Volume 26, Issue 8 , Pages 860-867, 2013. The paper concludes: "Three-dimensional

reconstruction of the RV endocardium from 2D transthoracic echocardiographic images obtained in patients with Pulmonary Arterial Hypertension (PAH), as accomplished by Knowledge-Based Reconstruction (KBR), is feasible, accurate, and reproducible".

5. Dr. Johannes Schwaiger of the Department of Cardiology at Royal Free Hospital in London lectured at the 13th International Pulmonary Hypertension Forum in Lisbon on his experiences using the VMS to verify a significant change in RV ejection fraction after novel targeted treatments, which resulted in significant improvements in patients with PAH in a session entitled "*Progress and future challenges in the management of PAH"*.

6. Dr. Henrik Brunand and his group at the Rikshospitalet University Hospital in Oslo, Norway, published a paper in the Congenital Heart Disease Journal entitled "*Right Ventricular Volumes Assessed by Echocardiographic Three-dimensional Knowledge-based Reconstruction Compared with Magnetic Resonance Imaging in a Clinical Setting*". The paper reports on patients with Congenital Heart Disease who had undergone pulmonary valve replacement and found excellent feasibility (97% of patients could be assessed) with VMS and clinically useful correlations with MRI for RV volumes. The paper concludes with the comment "*Knowledge-based reconstruction [VMS] may replace MRI measurements for serial follow-up..."*

7. A group from L'hôpital Universitaire Necker-Enfants Malades in Paris, France had published a paper entitled: "*Knowledge-based 3D reconstruction compared to MRI for evaluation of right ventricular volumes and function in congenital heart diseases affecting the right ventricle*" in *Archives of Cardiovascular Diseases*, Volume 107(9), 491-500. For the first time, along with a wide range of patients with congenital heart disease (CHD), patients with all stages of repaired Hypoplastic Left-Heart Syndrome (HLHS) were studied. The VMS allowed for repeated evaluation of these very ill children, while MRI continues to be very difficult and dangerous to perform. This is of particular concern in these HLHS patients. The paper concludes: "*3D-KR ... provides accurate and reproducible measurements of RV volumes. This new technique can be used as an accurate routine tool to assess RV function in CHD*".

8. A paper entitled "Accuracy and Test-Retest Reproducibility of Two-Dimensional Knowledge-Based Volumetric Reconstruction of the Right Ventricle in Pulmonary Hypertension" was accepted for publication in the *Journal of the American Society of Echocardiography*. The full article is available at http://www.onlinejase.com/article/S0894-7317%2815%2900142-X/references.

   The study design compared the accuracy of the measurements performed by the cardiologists who independently performed an echocardiogram on the same patient and then analyzed the scans. This "test-retest" design is unique in that a majority of studies comparing measurements performed by different individuals are typically completed with the observers using the same echocardiographical images. This type of study method reflects the real world clinical use of echocardiography, where patients receive echocardiograms on different days performed by different cardiologists and they are used to assess if changes in heart function have occurred. An accurate, reproducible procedure is absolutely necessary to make therapeutic decisions.

   This clinical study demonstrated that the VMS analysis of the right heart is reproducible between operators. This means that the cardiologist can trust previous test results regardless of the examiner, so long as the echocardiagram was analyzed using the VMS. Further, the study determined that results produced by VMS were more accurate and reproducible than Fractional-

Area Change, which is one of the methods of estimating right-heart function recommended by the ASE imaging guidelines.

9. The cardiology group at Royal Free Hospital in London, UK published a study entitled "Two-dimensional knowledge-based volumetric reconstruction of the right ventricle documents short-term improvement in pulmonary hypertension" in Echocardiography, volume 34, pages 817–824. This study confirms the ability of the VMS Heart Analysis System (referred to in the paper as "two-dimensional knowledge-based volumetric reconstruction" or "2DKBR") to follow patients with enlarged right ventricles (RV) and accurately measure small but medically-significant changes in volume and function. This ability to monitor clinical outcomes shortly after the initiation of therapy is important to determine if the therapy is working well or if a new therapeutic approach is required. The VMS detected the remodelling of the RV to reduce its size in patients who improved and an increase in RV size in patients with worse clinical outcomes including death.

   "Ventricular remodelling in PAH can be differentiated into two patterns: adaptive remodelling with concentric hypertrophy and preserved function, and maladaptive remodelling with eccentric hypertrophy and worsening function. Our study shows that within several months a change from one pattern to the other can occur with medical therapy," stated the authors.

   The publication concluded; "2DKBR can be reliably used in a busy clinical setting to follow-up right-ventricular indices in pulmonary hypertension…"

10. The Mazankowski Heart Institute reported on its study of unreadable echocardiograms in a paper entitled "*Determination of LV Volume and Ejection Fraction with a Novel 3D Knowledge Reconstruction Technique in Comparison with Contrast Echocardiography Measurements*" at the American Society of Echocardiography in 2019. Dr. Windram and his group of researchers in Edmonton completed a clinical study on the ability of the VMS+ whole-heart analysis system to analyze 2D echocardiograms of left-ventricle (LV) volumes and ejection fractions (LVEF) without the need for intravenous ultrasonographic enhancing agents. This feasibility study concluded: "The use of the Ventripoint knowledge-based-reconstruction technique revealed no significant differences in the measurement of left ventricular volumes or ejection fraction in comparison with contrast echocardiography measurements." This study suggests a routine echocardiogram without contrast-enhancing agents is adequate to determine LV function if analyzed using the VMS+. A copy of the presentation can be viewed on the Company's website at: https://www.ventripoint.com/uploads/3/1/3/9/31398805/ase_2019_determination_of_lv_volume_and_ejection_fraction_with_a_novel_3d_knowledge_based_reconstruction_technique_mazankowski_heart_institute.pdf.

    The study included 26 patients and found no significant difference between the end-diastolic (LVED) and end-systolic (LVES) ventricular volumes for the left ventricle and LVEF between conventional 2D ultrasound using the VMS+ system and contrast-enhanced ultrasound. Two-dimensional contrast echocardiography has been the standard of care for LV volumes and EF assessment by echocardiography in technically-challenging patients, but the use of contrast comes with added cost and the small risk of anaphylactic reaction. This promising data shows the potential use of the VMS+ in patients who require accurate measurements of LV volumes and LVEF and obviates the need for contrast media to obtain a result.

The need for reliable quantification of all 4 chambers of the heart is emerging as doctors cannot rely on the results from previous exams due to the large variations between observers using conventional analysis techniques. The VMS+ has excellent reproducibility as published in the above-mentioned study

and others. Looking at the evolution of the patient's heart (remodelling) is a better way to understand the particular type of heart disease but is not done now due to the variability from exam to exam. This ability to standardize the analysis within a hospital, as well as between hospitals is becoming more important as patients are admitted at different sites. The need to "redo" cardiac exams is a costly and unnecessary process if the VMS+ was used.

Sales and Marketing

The Company has a small sales and marketing team and is seeking distributors. The Company has reviewed its sales approach and has met with a number of existing and potential customers to determine the highest value propositions in defined cardiac care settings. Ventripoint has identified many settings where the VMS is regarded as critical to providing the best cardiac diagnosis and monitoring. The Company has been contacting known experts in these application areas to further understand the need and create initial sales and partnerships. This process is ongoing. The Company has received 6 orders (see NRs: Feb. 21, 2018; Jun. 4, 2018; Nov. 5, 2018, Nov. 12, 2018; Nov 20, 2018, Mar 25, 2019) with 3 from Canada, 2 from USA and 1 from Europe. Each of these new users are recognized leaders in cardiac care and will be using the VMS+ to expand the application of the VMS+ to inform the best treatment path to be taken by patients. There are an additional seven hospitals currently indicating they will order a VMS+, subject to budget approvals. The Company also has a number of hospitals requesting an on-site demonstration of the equipment, which is now possible using the VMS+3.0, which is easily transported and setup.

While initially markets in Asia and regions in the Middle East were viewed as good places to build awareness, it became obvious that these regions would wait until leaders in the field in developed countries were using the VMS+. On November 15, 2017, the Company announced it had signed a memorandum of understanding (MOU) to establish a partnership with the SEED Group, a group of diversified companies owned and chaired by The Private Office of Sheikh Saeed Al Maktoum of Dubai, United Arab Emirates. The partnership was initially to focus on making hospitals, doctors and officials aware of the unique features of the VMS+ through research, conferences and opportunities designed to demonstrate its population health applications, however the Company has put this initiative on hold while it focuses its efforts on sales and research in Canada, Europe and USA. The Company will restart discussions with potential distributors in Iran, Singapore, Thailand, U.A.E. and Saudi Arabia, when it has significant sales in western countries.

An experienced marketing person has been hired (see NR Oct 21, 2018) and the Company has put a lot of effort into exhibiting at medical conferences. These efforts have resulted in the hundreds of clinicians viewing the VMS+3.0 actually being used to scan and analyze hearts. The marketing team is following up with those who expressed interest in more information and doing on-site demonstrations.

On May 14, 2019 the "Company" announced it had signed an Authorized Sales Agent Agreement with Irudigi out of France. France is a unique market, with a lack of MRI scanners, growing demand, and mounting pressure to reduce healthcare costs. Meanwhile, there are over 1 million people suffering from cardiac impairments in France, a number that grew by 30% over the last decade. The combination of low MRI coverage, a growing number of patients, and financial incentives make the Ventripoint VMS+ a perfectly suited solution for the French market" notes Pierre Zavattero, CEO of Irudigi. When looking at data from statista.com for the number of magnetic resonance imaging (MRI) units in selected countries as of 2017 (per million population), there are 2.5 times more MRI scanners in Germany, and 2 times more in Spain and Italy than in France. Consequently, current waiting times for MRI are over a month in France, while they are only 1 to 2 weeks for echography, with a significantly shorter

examination time. This combination of low MRI coverage, a growing number of patients, and financial incentives make the VMS a perfectly-suited solution for the French market.

It should be recognized that capital equipment sales to hospitals is a very long process requiring many levels of approval and normally take 12-18 months. Since FDA clearance was received in late May, it has only been 11 months and while 6 sales are only a start, it is ahead of industry standards. It is anticipated that sales will accelerate with the approval of the VMS 3.0 and the publication of meritorious-use clinical results by our early users, who are opinion leaders in the field.

The Company continues to interview leading cardiologists to identify specific cardiac conditions where clinical studies would verify the need for the VMS. These experts have identified, uncontrolled hypertension (50 million people in the USA), normal and high-risk pregnancies, cancer chemotherapy, congenital heart disease and technically-difficult imaging (20-30% of all echocardiograms) as highest-value applications.

The Company commissioned a market survey for Canada. The study shows there were ~150 cardiac ultrasound machines purchased in each of the last 5 years. Data from a number of one-on-one interviews with cardiologists confirmed the need for better heart-chamber quantification in cancer patients, paediatrics, technically-challenging patients, where contrast-media is routinely injected, and in high-risk pregnancies, as well as providing suggestions of other areas of application where current methods are either unreliable or too costly and so are not done. The Company has focused on building support for 3 application areas.

Current Focus for Clinical Applications

The Company has been reviewing other applications where the volume and function of different heart chambers have been shown in recent studies to correlate with the progress of heart disease or medical interventions. The current foci are:

1. Cardiotoxicity of chemotherapy treatments for cancer: There is a growing literature base to show all chemotherapy agents are cardiotoxic, with many patients developing chronic heart disease following cancer therapy. A study published in Echo Res Pract. (2016, Sept 3(3): 79-84) entitled "Right heart function deteriorates in breast cancer patients undergoing anthracycline-based chemotherapy", by a group led by Dr. Boczar at the University of Ottawa Heart Institute, Ottawa, Ontario, Canada, concluded: "This study demonstrates that breast cancer patients receiving anthracycline-based chemotherapy experience adverse effects on both right atrial size and RV function". The Company intends to contact cardiologists within cancer centers to determine the need to accurately determine RA and RV size and function during and after cancer therapy using the 4C-2DE-VMS+.

   There are 1.7M new cancer patients/year in the USA. The lifetime risk of cancer is 42% in men and 38% in women. Cancer has surpassed cardiovascular disease as the number one killer in the USA with 600,000 deaths per year. The leading cause of death in cancer, for both women and men (27%), is lung cancer where RV failure is a major risk. Direct medical costs for cancer in the US in 2013 were $74.8B billion and $30B (40%) were for inpatient hospital stays. In the USA, there are more than 1,400 cancer-care facilities, which are accredited by the Commission on Cancer of the American College of Surgeons. These centers have been adding cardiologist to their staff as cardiotoxicity is now well established.

The Company announced on June 4, 2018, only a few weeks after obtaining FDA clearance, that MD Anderson Hospital had ordered a 4C-VMS+ to use for routine clinical assessment of oncology patients to determine cardiac changes during and after treatments. The machine is operational, and the staff trained. It has been used on a number of patients and the Company met with the principal cardiologist in July, 2019 to assess their experience to date and to demonstrate the VMS+3.0. The meeting was positive and once the VMS+3.0 is cleared by the FDA, MD Anderson will evaluate its use and assist in developing a model for its use in cancer patients. MD Anderson has been one of the top two cancer centers in the USA for decades. It receives the highest number of research grants from the National Cancer Institute and is the recognized leader in the diagnosis and treatment of cancer. The hospital sees approximately 1.5 million patients a year and performed 575,000 imaging exams in 2017.

2. Technically difficult imaging: Significant numbers of patients yield unreadable images using conventional 2D echo due to their particular anatomy. When a result is needed, a contrast medium is injected into the patient while the study is re-done to increase the contrast between the heart muscle and the blood. This results in a readable image about 80% of the time, but this procedure has a number of drawbacks. It takes extra time as the study needs to be redone. It requires a patient to approve an infusion and requires an IV nurse to be summoned to do the infusion, which can also take time. As well, the contrast media is expensive and only provides one or two views (compared to a routine study which would have 16 views). With conventional 2D echo, there are usually some views that can be difficult to interpret due to either borders that are not easily distinguishable or areas of drop out (fading). The VMS+ only needs a small number of points to analyze the heart and once the heart can be located in the views, other parts become recognizable. The Company believes it can significantly reduce the use of contrast media, which would save time, money and patient discomfort.

   It is estimated that contrast-enhanced echocardiography is warranted on 20% of patients, where LV function is required, and yet is only used 7% of the time due to technical difficulties (Lindner, J.R., Expert Opinion, posted July 10th, 2017 online at the American College of Cardiology). Contrast echocardiography is increasing in use; however, the procedure requires injecting contrast media into patients. This is uncomfortable, expensive, requires training for intravenous access and takes extra examination time.

   The Mazankowski Alberta Heart Institute in Edmonton has completed a clinical feasibility study on the ability of the VMS+ whole-heart analysis system to analyze 2D echocardiograms of left-ventricle (LV) volumes and ejection fractions (LVEF) without the need for intravenous ultrasonographic enhancing agents. This feasibility study concluded: “The use of the Ventripoint knowledge-based-reconstruction technique revealed no significant differences in the measurement of left ventricular volumes or ejection fraction in comparison with contrast echocardiography measurements.” This study suggests a routine echocardiogram without contrast-enhancing agents is adequate to determine LV function if analyzed using the VMS approach.

   The Company is currently researching the economics of using contrast media and the overall cost reductions by reducing or eliminating its use. Initial indications are that the increase in “confidence” in the result which comes from knowing the VMS analysis is substantially equivalent to MRI is a significant benefit as well as the reduced cost. The Company is discussing with leading cardiologists how to further document the advantages of this approach.

The Mazankowski Alberta Heart Institute is the advanced cardiac care center for Edmonton, Northern and North-Central Alberta, Northern BC, Saskatchewan, Manitoba, Yukon and Northwest Territories. Located on the Walter C. Mackenzie Health Sciences Centre Campus in Edmonton, Mazankowski is physically integrated with the University of Alberta and Stollery Children's Hospitals, making it one of the very few heart institutes to accommodate both adult and pediatric patients. The Mazankowski has one of the most technologically advanced Echo Labs in the world employing leading-edge imaging techniques.

Congenital Heart Disease (CHD): About 1% of children are born with a congenital heart problem and this predominantly with the right side of the heart. These patients require lifelong monitoring and often many interventions such as surgery and valve replacement. The VMS is uniquely efficient at assessing the right heart and so a number of pediatric hospitals are interested in expanding their capabilities. This is especially true where MRI exams are backlogged or too expensive.

Children with CHD now live a near normal lifespan and so there are a number of adults with CHD as well. They too must be monitored routinely as they are at risk for right-heart failure. Doctors are seeking simple and more reliable ways to better quantify changes in the heart over time in these patients. The Company is discussing an economic study with a major CHD centre in Europe to better understand the needs.

The Company will be focusing on the above three applications and approaching leading cardiologists who have published in these areas to make them aware of the VMS+.

Marketing Efforts

This VMS validation and awareness campaign continues to engage the support and endorsement of opinion leaders and to position VMS for broad acceptance by clinicians in Canada, Europe and in the USA. A significant effort is spent at medical conferences where large numbers of echocardiographers gather to hear the latest best practices. The Company has exhibited:

- On June 21, 2019, the Company announced it had showcased the VMS+ 3.0 cardiac system and VMS+ Software Solution at the American Society of Echocardiography's 30th Annual Scientific Sessions in Portland, Oregon. Over 17,000 clinicians are members of the ASE, making it the largest global organization for cardiovascular ultrasound imaging. Members of the ASE are the leaders in setting practice standards and guidelines for the cardiac imaging field. The Scientific Sessions provide an outstanding opportunity to meet with clinicians from around the world.
- The 21st Annual Canadian Society of Echocardiography Annual Symposium, April 11-13 2019 in Toronto. The annual symposium was held at the Toronto Marriott Downtown Eaton Centre Hotel from. It explored aspects of interventional echocardiography and structural heart disease, the developing role of artificial intelligence in echo and cardiac imaging, as well as a session on congenital heart disease. The Company exhibited the VMS+ 3.0 system.
- On April 1, 2019, the Company announced that it was a proud sponsor of the 21st Annual Canadian Society of Echocardiography Annual Symposium and would be exhibiting the VMS+ 3.0 system. The annual symposium was held at the Toronto Marriott Downtown Eaton Centre Hotel from April 11th - 13th, 2019. It explored aspects of interventional echocardiography and structural heart disease, the developing role of artificial intelligence in echo and cardiac imaging, as well as a session on congenital heart disease.

- On March 19, 2019, the Company announced that it successfully showcased the next-generation VMS+3.0 system at the American College of Cardiology's 68th Annual Scientific Session & Expo. With nearly 20,000 cardiologists from around the world attending the ACC's Annual Scientific Sessions & Expo, it provided an opportunity to give live hands-on demonstrations in the Ventripoint booth to a highly captivated audience.
- From December 5th-7th, 2018 the Company exhibited at EuroEcho 2018 in Milan, Italy, showcasing the next-generation VMS+ 3.0 system, and providing hands-on demonstrations. EuroEcho is the annual congress of the European Association of Cardiovascular Imaging to showcase the next-generation VMS+ System. With nearly 4,000 healthcare professionals from over 90 countries around the world, EuroEcho is one of the world's largest cardiovascular imaging congresses and is a premier place to meet with world-renowned global experts in the field of cardiovascular imaging. At EuroEcho Dr. Shelby Kutty of Nebraska Children's Hospital presented a poster on a comparative study performed with the VMS+ System "*Application of knowledge-based reconstruction to three-dimensional echocardiography and comparison with semiautomatic border detection method for evaluating ventricular function*".
- The American Society for Echocardiography annual conference, June 22-26, 2018 in Nashville, Tennessee, and identified a number of potential customers. The conferences had a combined attendance of 3,000 attendees from almost 50 countries. The sales team is following up with these contacts and reaching out to 300 clinical centers, which have a profile of patients where the VMS+ would provide significant benefits to their cardiac service. Capital purchases require a long process for budget approval, as well as signoff by a number of hospital departments, such as bioengineering and IT, before a purchase order is generated.
- The 20th Annual Canadian Society of Echocardiography conference in Toronto, in April, 2018. The gathering is attended by cardiologists and sonographers and is the largest single gathering in Canada with over 600 attendees. This was an opportunity to showcase our latest VMS+ system, which demonstrated volumetric measures for all 4 chambers of the heart. This new system was well received by clinicians who appreciated the value of ultrasound 3D visualization with fast and accurate measurements, equivalent to the gold standard MRI for all heart chambers. High profile cardiologists from all the main cardiac centers in Canada visited the booth and expressed interest in this unique product. This gave us the opportunity to engage with potential customers and to collect prospects and leads to contribute to our expanding sales effort.
- EuroEcho Imaging 2017 conference in Lisbon. Many leaders in echocardiography visited the booth and reviewed the new 4C-2DE-VMS+ product, which had not received CE Mark at that time. On December 15, 2017, the product received the CE Mark and the sales team is now following up with clinicians who requested additional information at the conference.

Chinese Partnership for Development, Manufacturing and Distribution

In Q4 2015, the Company entered into an agreement with Lishman Global Inc. to set up a self-financing joint venture in China to develop an integrated VMS-ultrasound machine, as well as to manufacture and market existing and new VMS machines in China. The Company retains all rights to market the Chinese-manufactured machines outside of China. An initial investment in Ventripoint Diagnostics Ltd. of CDN$500,000 was received by the Company and a follow-on investment of $150,000 was received in December 2016. The agreement anticipates an additional CDN$2.1M will be invested by Chinese entities who will be part of the joint venture. Due to market conditions and capital on hand, the

additional investment has been postponed.

On September 23, 2016, the Company reported that a joint venture has been formed in China called Ma'anshan YuTian Medical Technology Co. Ltd ("YuTian Technology"). YuTian Technology is situated in the city of Ma'anshan in Anhui Province. Shanghai YuTian is the largest shareholder in YuTian Technology and the investors include Anhui Province Hi-Tech Venture Capital Investment Co. Ltd. and Ma'anshan Economic and Development Zone Venture Capital Investment Co. Ltd. The first investments are complete and YuTian Technology is fully capitalized to meet its goals of product manufacturing, product development, certification, sales and marketing and the achievement of profitability within the next two years.

On October 31, 2016, the Company announced it had received $240,534 from YuTian Technology to purchase the first batch of components to begin the manufacturing process of the VMS+ heart analysis units in China. Thus, the Company with its Chinese Partners is accessing the market in China. This is a major milestone as the opportunity in China continues to expand. The first machine was constructed in December 2016 and an additional 3 machines were fabricated in Q1 2017. Two machines will be used to facilitate the submission to the Chinese FDA for certifications for medical use in hospitals in China. YuTian formally applied to the C-FDA for approval of the VMS+ with RV analysis software in 2018 and expects a response in Q3 2018. Our Chinese partners are establishing a distribution network for medical devices for all of China.

On March 4, 2019, Ma'anshan YuTian Technology received CFDA approval and a Certificate of Production (CoP) from the FDA in the People's Republic of China for the VMS (QAS-R in China) system to be clinically used to analyze the right ventricle (RV) of the heart. The company had previously received GMP certification for the manufacturing facility in Ma'anshan. The factory is fully functioning and scaled to produce the VMS at a significant rate to address the Chinese market. Yutian Technology has also received the Chinese equivalent of ISO60601 for the VMS, which allows it to be used in hospitals in China. Yutian Technology has also built a sales, marketing and distribution network in China is actively marketing the QAS-R system.

Marketing efforts are well underway in the Chinese market with the creation of a multi-channel distribution network. The medical-device market in China was estimated at over US$58 billion in 2017 and experienced 20% growth from 2015 to 2016. There are over 2,500 Tier 1 hospitals and a total of 32,000 hospitals, with over 1,000 new hospitals currently under construction. Yutian Technology hosted a symposium on heart analysis on May 16, 2019 in China.

Heart disease is the number one healthcare issue in China with 23% of hospital admission for cardiovascular conditions. This is almost twice the 13% rate in North America. In addition, it is common to have an echocardiogram prior to any surgery and so the rate of exams is much higher than the rate in the USA. China represents a large and rapidly growing market for the VMS+.

In addition, the Company is evaluating the integration of its technology with existing ultrasound devices and analysis packages. The Company continues to discuss with manufacturers of ultrasound equipment and analytic software the merits of combining the VMS with their systems to allow for a complete heart analysis using 2D ultrasound. The Company will disclose any agreements, to the limit possible for such commercial agreements, should they arise.

Company-Sponsored Clinical Trials in Support of Regulatory Filings

The Company completed clinical enrolment for two clinical trials in the United States which were designed to show substantial equivalency between the gold-standard MRI method and the 2D-ultrasound, VMS-2DE technique in Tetralogy of Fallot (TOF) and Pulmonary Arterial Hypertension (PAH) and has an ongoing study to examine the ability of RV analysis with the VMS tools to identify heart failure patients who will be re-admitted to hospital within 30 to 90 days.

Pulmonary Arterial Hypertension:

On May 2, 2012 the Company announced that it had initiated a clinical trial in pulmonary hypertension and on October 10, 2013, the Company announced that the clinical trial achieved all its primary endpoints of accurately measuring the volume and ejection fraction of the right heart as compared to the traditional MRI analysis using the method of summation of disks. The results of the clinical trial demonstrated that the calculated parameters between right ventricular volumes computed from echocardiograms by VMS and MRI images computed with Simpson's rule were within the pre-specified 10% range for each of the mean difference and 95% confidence interval (4.8+/-1.4% for EDV, 1.8+/-1.5% for ESV, and 2.0+/-0.7% for EF).

On January 23, 2014, the Company submitted a revised 510(k) application and on March 10, 2014, the Company received clearance from the FDA to market the VMS device for use in adults with PAH in the United States. The VMS was the first ultrasound system to be cleared as substantially equivalent to MRI for right ventricle analysis.

All Patients with Right Heart Disease:

Right heart function remains a significant prognostic parameter for all heart disease. On May 26th, 2015, the Company announced that the US FDA had given Market Clearance for the VMS for use in all heart disease patients where RV analysis was warranted or desired.

Heart disease is the number one killer of adults, taking more lives each year than all forms of cancer combined. With more than 27 million individuals in the U.S. alone that are living with cardiac disease, there is not a single person that will not be affected by this statistic at some point in their life. This Market Clearance will greatly increase the marketability of the VMS product as it is recommended by the ASE guidelines that a RV volumetric analysis be done on heart patients.

Tetralogy of Fallot (TOF):

On June 24, 2013 the Company announced that the TOF clinical trial had stopped recruiting as it had achieved the goal of 75 evaluable cases. The Company has elected not to analyze the TOF study data as the RV application to the FDA was approved and allows for analysis of all patients where the RV analysis is warranted or desired.

All Patients, All Hearts:

On March 2, 2017, the Company announced that it received a certificate for the VMS+ with 4-chamber analysis from Health Canada. On January 17, 2018, the Company announced it had received the CE Mark. On May 15, 2018, the Company announced that it received market clearance from the US-FDA for the complete heart VMS+ system. All these regulatory approvals allow the VMS+ to be used on all patients, children and adults, where the assessment is warranted or desired. There are no restrictions.

Regulatory

Canada and Europe The Company has received Health Canada approval and has received the European CE Mark approval to market its VMS+ product and service offering.

On March 27, 2012, the Company was notified that it had received Notified Body approval to market its pulmonary hypertension application in Europe and on May 4, 2012, the Company was notified that it had received Health Canada approval to market its pulmonary hypertension application in Canada.

On April 17, 2013, the Company was notified that it had received Notified Body approval to market its NRV application in Europe. On April 25, 2012 Health Canada approved the Company's application for approval of the NRV database in Canada.

On November 11, 2014, the Company received a renewal of its European CE Mark.

On March 2, 2017, the Company announced it had received a license to market the VMS+ with the 4-Chamber analysis package from Health Canada.

On May 26, 2017, Ventripoint successfully completed an ISO 13485 re-certification audit, which is carried out every three years, as well as a surprise audit in August, 2017.

On December 12, 2017, the Company announced it had received ISO60601 certification for the VMS+.

In January, 2018, the Company announced it had received the CE Mark for the VMS+ with the 4-Chamber analysis package.

In November, 2018 the Company concluded it had approval for the VMS+ (software only for 3D) module in Canada and Europe.

In June 2019, the Company received a license in Canada and a CE Mark in Europe for its VMS+3.0 product.

United States

On March 10, 2014, the Company received clearance from the FDA to market the VMS device for use in adults with PAH in the United States. The VMS is the first ultrasound system to be cleared as equivalent to MRI for right ventricle analysis.

The Company completed an initial Establishment Inspection by the US FDA on January 8, 2015. This initial Establishment Inspection, at the Company's Bellevue, Washington location, was a pre-announced Good Manufacturing Practices (GMP) facility inspection. It was a very detailed inspection of our Quality System as it relates to Federal Regulations. The inspection reported only two minor observations, as noted on FDA Form 483, that were easily addressed.

On May 26, 2015, the Company announced that the US FDA had granted Marketing Clearance for Ventripoint's RV catalogue, which was developed to provide right ventricular volumes of individuals being evaluated, regardless of their cardiac diagnosis. Previous submissions to the FDA required us to prove the methodology, safety, and accuracy of the entire VMS product to the reviewers, which was challenging with such novel technology. By referring to our cleared product throughout any future submissions as a Predicate Device, our path forward becomes much more predictable. This approval will also allow us to formulate additional submissions for expansion of the databases to other heart chambers.

On January 17, 2018, the Company announced it had submitted a traditional 510(k) application to the US Food and Drug Administration's (FDA) Center for Devices and Radiological Health (CDRH) to request clearance for sale of the VMS+ whole-heart analysis system. The Company submitted the 510(k) to extend the capabilities of our current model to all 4 chambers of the heart. The submission uses the existing VMS as the predicate device and provides testing data to show that the databases for the left atrium, right atrium and left ventricle perform equally well in assessing the chamber volumes in a wide variety of heart conditions, and shapes and sizes of hearts. The volumes and ejection fraction determination by VMS+ were equivalent to MRI measurements, which is the gold standard for these types of cardiac assessments. The data also demonstrate excellent reproducibility between operators. operators.

On May 15, 2018, the Company announced it had received market clearance with the label for use for all patients where the analysis is warranted or desired. There are no restrictions on use.

In November, 2018, the Company concluded it had approval for the VMS+ (software-only for 3D) module in the USA.

In June 2019, the Company applied for premarket clearance for the VMS+3.0 product and is awaiting a response from the FDA.

FINANCIAL HIGHLIGHTS

These Financial Highlights should be read in conjunction with Ventripoint Diagnostics Ltd.'s unaudited condensed consolidated interim financial statements for the six months ended June 30, 2019 and the corresponding notes thereto.

Capital Transactions

The fully diluted share capital of the Company as of August 29, 2019 is as follows:

	Issued and Outstanding				
	Common Shares	**Convertible Debentures**	**Warrants**	**Options**	**Fully Diluted**
Reverse takeover - 2007 Ventripoint and Diagnostics	2,432,845		7,881	115,285	2,556,011
Stock for services and payment of debt	2,764,751		405,129		3,169,880
Option grants net of expirations & forfeitures				3,718,980	3,718,980
Options and DSUs exercised to 2017	647,500			(497,500)	150,000
Warrants cancelled/expired			(4,404,195)		(4,404,195)
Warrants exercised - 2008 - 2017	6,555,186		(6,555,186)		0
Debenture offerings - 2009 - 2014	110,000		924,514		1,034,514
Convertible Debenture offerings - 2013	234,000	728,000	689,900		1,651,900
Debenture conversions - 2014-2017	1,916,666	(766,666)			1,150,000
Common stock offerings - 2007 - 2016	24,573,066		11,812,565	52,635	36,438,266
Extension of convertible debentures - 2016		651,666	4,086,666		4,738,332
Cash repayment of convertible debentures - 2017		(109,000)			(109,000)
Shares for Debt offering - March, 2017	1,575,000	(504,000)	1,575,000		2,646,000
Common stock offering - March, 2017	10,779,494		10,779,493		21,558,987
Common stock offering – September, 2018	4,816,666		2,408,333		7,224,999
Warrants exercised – 2018	2,371,667		(2,371,667)		0
Warrants expired – 2018			(1,763,789)		(1,763,789)
Options granted – 2018				1,970,000	1,970,000
Options exercised – 2018	700,000			(700,000)	0
Options expired/forfeited - 2018				(934,400)	(934,400)
Shares issued for debt – 2018	648,397				648,397
2019 year to date activity:					
Stock options granted				1,335,000	1,335,000
Stock options expired				(906,667)	(906,667)
Stock options exercised	900,000			(900,000)	0
Warrants expired			(2,312,000)		(2,312,000)
Convertible Debenture offering		9,748,387	9,554,160		19,302,547
Convertible Debenture conversions	2,683,869	(2,683,869)			0
Shares issued for debt	331,322				331,322
Issued and outstanding, August 29, 2019	**64,040,429**	**7,064,518**	**24,836,804**	**3,253,333**	**99,195,083**

As of August 29, 2019, Officers and Directors held 0.74% of the outstanding common shares of the Company (5.16% on a fully diluted basis).

Capital Transactions – 2019 Year-to-Date

Convertible Debenture Private Placement

On January 25, 2019, the Company closed a non-brokered private placement of convertible unsecured debentures ("Debentures") for gross proceeds of $1,511,000, which will mature on January 25, 2022 and 9,066,000 common share purchase warrants with each warrant exercisable for one Common Share of the Company at an exercise price of $0.175 per common share until July 25, 2020.

Finders acting in connection with this Private Placement received a cash finder's fee of $81,360 and 488,160 finder's warrants. Each finder's warrant is exercisable for one Common Share at an exercise price of $0.175 per Common Share until July 25, 2020.

For more details see **Notes and Debentures** *Convertible Debenture Private Placement* below.

Debenture Conversions

On June 10, 2019 and June 26, 2019, $80,000 and $73,000 respectively, of the Debentures were converted into 516,129 and 470,967 common shares. On August

On August 14, 2019, an Officer and Director of the Company converted $233,000 of the Convertible Debentures into 1,503,225 common shares, and another holder converted $30,000 of Debentures into 193,548 shares at the conversion price of $0.155.

Shares for Interest

On July 25, 2019 the Company issued 143,833 common shares at a deemed price of $0.153 per common share in payment for $22,007 of interest owing on the Convertible Debentures.

Shares for Debt

On July 4, 2019, the Company issued 187,500 shares in payment of a $30,000 quarterly work fee due to financial consultants under a financial and strategic advisory services contract. The deemed price of these shares was $0.16 per common share.

Stock option grants

On February 5, 2019 the Board of Directors granted a total of 685,000 common share stock options at an exercise price of $0.16 per share. Three officers of the Company were granted a total of 175,000 options and four independent directors were granted a total of 200,000 options, all of which have a maturity date of five years from the date of issuance, and vest over either three years or one year, respectively. The remaining options were granted to employees and consultants.

On May 13, 2019 the Board of Directors granted a consultant to the Company 250,000 common share stock options with an exercise price of $0.15 per common share, and a second consultant 50,000 stock options with an exercise price of $0.11 per share. Both options have a term of one year and vest immediately.

On July 25, 2019 the Board granted 100,000 options to a consultant with a six month term and an exercise price of $0.15, which vested immediately. On August 15 two consultants were granted 150,000 options with an exercise price of $0.15 and a term of one year, which vested immediately.

Stock option exercises

In 2019 year to date, 900,000 common shares were issued as a result of the exercise of stock options for proceeds of $134,500.

Warrant Issuances

On January 25, 2019 the Company closed a Private Placement of $1,511,000 in Convertible Debentures (see *Notes and Debentures* below). The Debentures were issued with 9,066,000 warrants and 488,160 finder's warrants, all with an exercise price of $0.175, and a term of 18 months to July 25, 2020.

Warrant extension

On March 8, 2019 the Company received approval from the TSX Venture Exchange to amend the expiry date of 10,496,938 common share purchase warrants with an exercise price of $0.50 issued by the Company in connection with a private placement on March 23, 2017. The expiry date was amended from March 23, 2019 to March 23, 2021, with all other terms remaining the same.

Warrant expiries

Year to date in 2019, 1,857,555 warrants with an exercise price of $0.50 have expired, along with 454,545 warrants with an exercise price of $0.40.

Outstanding Warrants

The following table reflects warrants outstanding at August 29, 2019. All warrants are exercisable.

Exercise Price	Quantity	Remaining Avg Contractual Life
$0.175	9,554,160	0.77
$0.30	1,150,000	1.30
$0.34	2,408,333	1.03
$0.40	1,227,273	0.08
$0.50	10,496,938	1.57
$0.34	**24,836,704**	**1.12**

Outstanding Options

The following table shows the stock options outstanding at August 29, 2019:

	Options Outstanding			Options Exercisable		
Grant Price Range	**# of options**	**weighted avg remaining life**	**weighted avg exercise price**	**# of options**	**weighted avg remaining life**	**weighted avg exercise price**
≤ $0.25	880,000	3.86	$0.17	458,750	3.50	$0.17
$0.26 - $0.32	2,108,333	3.31	$0.32	1,536,250	3.22	$0.32
$0.33 - $1.25	265,000	0.44	$0.97	265,000	0.44	$0.97
	3,253,333	3.23	$0.33	2,260,000	2.95	$0.36

Notes and Debentures

As at August 29, 2019 the Company has $1,095,000 in three year unsecured convertible debentures outstanding, which mature on January 25, 2022. Prior to this issuance the Company had no debt.

Convertible Debenture Private Placement

On January 25, 2019, the Company closed a non-brokered private placement of debenture units ("Units") for gross proceeds of $1,511,000. Each Unit is comprised of: (i) CDN$1,000 principal amount of convertible unsecured debentures ("Debentures"), which will mature on January 25, 2022; and (ii) 6,000 common share purchase warrants with each warrant exercisable for one common share of the Company at an exercise price of $0.175 per common share until July 25, 2020. The securities issued pursuant to the private placement were subject to a four month hold period which expired on May 26, 2019.

The Debentures bear simple interest at an annual rate of 6.5%, payable quarterly in either cash or common shares at the option of the Company, aside from the first interest payment which was required to be paid in cash, with the number of common shares being determined by using the 10 day volume-weighted average price of the Common Shares on the TSX Venture Exchange on that date that is five days prior to the last trading day of the applicable quarter. The second payment of interest on July 25th was paid in common shares at a deemed rate of $0.153 per common share.

The Debentures may be converted by the holder at any time at a price of $0.155 per common share. The Debentures may be redeemed in whole or in part by the Company at any time after May 26, 2019, upon payment of the principal amount plus a premium of 2.5% of such principal amount and all accrued and unpaid interest.

Under the terms of the Debentures, other than in the ordinary course of business, the Company shall not directly or indirectly enter into a loan or borrowing arrangement with a third party lender without the prior written consent of the holders of not less than 51% of the then outstanding aggregate principal amount of the Debentures.

The Chief Executive Officer and Director subscribed for $233,000 of the Debentures.

Finders acting in connection with this private placement received a cash finder's fee in the aggregate total amount of $81,360 and an aggregate of 488,160 finder's warrants, which was an average of 5.4% of the gross proceeds. Each finder's warrant is exercisable for one common share at an exercise price of $0.175 per common share until July 25, 2020.

For financial statement purposes, the Debentures were valued at the present value of the Debenture interest and principal payments, less transaction costs of $89,589 for a residual value of $845,713. The Debentures are accreted up to the face value outstanding over the life of the liability using the effective interest rate method, at an effective rate of 28.9%. The Warrants were valued at $562,092 using a Black-Scholes model, with the conversion feature derived as the residual of the Debenture face value of $1,511,000 less the Warrant and Debenture fair values. The Warrants were recorded in Contributed Surplus and the conversion feature of $13,605 was recorded in Share Capital.

The Company will use the net proceeds of the Debentures for sales and marketing, development and general working capital purposes.

On June 10th and June 26th, 2019, $80,000 and $73,000 respectively, of the Debentures were converted into 516,129 and 470,967 common shares.

On August 14, 2019, an Officer and Director of the Company converted $233,000 of the Debentures into 1,503,225 common shares, and another holder converted $30,000 of Debentures into 193,548 shares at the conversion price of $0.155, leaving a remaining obligation of $1,095,000.

Premises Lease Capitalized for Financial Statement Purposes

The Company has a five year lease on its premises in Toronto, which began October 1, 2017. Prior to 2019, the lease was treated as an operating lease, and base rent expense was included in General and Administration expenses ($44,209 in 2018 and $11,072 in 2017).

The new IFRS 16 – *Leases* accounting standard came into effect as of January 1, 2019, and has been adopted by the Company retrospectively, without restatement of prior year comparatives, which resulted in the cumulative impact of adoption recorded as an adjustment to 2019 opening Retained Earnings of $5,788 and the de-recognition of $11,011 in accrued rent on the balance sheet.

The accounting standard requires all lessees to recognize "right-of-use" assets and lease liabilities for all major leases at the lease commencement date. The right-of-use asset is measured based on the initial amount of the lease liability adjusted for any lease payments made at or before the commencement date, and less any lease incentives received. The right of use asset is depreciated using the straight-line method over the lease term.

The lease liability was initially measured at the present value of the lease payments, other than those payments at the commencement date, discounted using the Company's estimated borrowing rate of 18%.

The asset value was recorded as $146,702, and as of June 30, 2019, the accumulated depreciation was $51,346. Depreciation expense recognized in the first six months of 2019 was $14,670.

In 2019, base rental payments are recorded as principal payments on the lease obligation and imputed interest expense. For the six month period ended June 30, 2019, the Company recognized interest expense of $11,960, and principal payments of $11,071. Interest expense is accounted for in Non-Operating Income/Expense.

The comparable period 2018 results were not adjusted for the change in lease accounting, so $22,145 of rent expense was recognized in the first six months of 2018 and was recorded in General and Administrative expenses.

Profit and Loss

The summary loss and comprehensive loss information below is derived from the Company's unaudited condensed consolidated interim financial statements for the three and six month periods ended June 30, 2019 and 2018.

	Three months ended June 30		Six months ended June 30	
	2019	**2018**	**2019**	**2018**
Revenue	-	-	$49,523	-
Cost of Revenue	1,673	1,613	30,931	3,193
Gross Margin	**(1,673)**	**(1,613)**	**18,592**	**(3,193)**
Total Operating Expenses	876,429	1,102,705	1,932,967	2,001,284
Loss from Operations	**(878,102)**	**(1,104,318)**	**1,914,375**	**2,004,477**
Non-operating Income (Loss)	16,729	173,593	(245,876)	1,023,428
Loss & Comprehensive Loss (Income)	**($861,373)**	**($930,725)**	**$2,160,251**	**$981,049**
Basic and diluted loss per share	(0.01)	(0.02)	(0.04)	(0.02)

During 2018 the Company began ramping up sales and marketing efforts for the VMS+ 2.0, however, with the announcement of the next generation VMS+ 3.0 system in development in August, 2018 potential purchasers opted to wait for the next version product, so only one sale was completed by June 30, 2019. As of June 2019, the VMS+ 3.0 has received Canadian and EU regulatory approval and is awaiting US FDA approval. It is illegal to sell medical devices without regulatory approval, so all direct sales efforts have been on hold for most of the year, though the product has been demonstrated at a number of conferences and marketing activities have been continuing in order to generate awareness of the technology.

The VMS+ 3.0 addresses all the issues received as feedback from users, including eliminating the need for patients to remain motionless during image acquisition, providing an intuitive easy to use interface, and improving the workflow of the VMS+ with a much smaller footprint and with an innovative new tracking sensor technology (patent pending) which removes the need for the extended arm over the patient. Many potential purchasers opted to wait for the launch of the new system.

The Company had expected to submit the VMS+ 3.0 for regulatory approval in Q4 of 2018, however, a technical issue with the new sensor technology delayed the completion of development by 6-8 months, significantly impacting the Company's ability to sell.

Given the average 12-18 month sales cycle to hospitals, we do not expect to see significant revenue from the VMS+ 3.0 for accounting purposes until early 2020 (i.e. sales are only recognized in the financial statements after delivery and installation), though the Company is beginning to receive purchase orders from a number of hospitals.

Operating Expenses

Total operating expenses to year to date to June 30, 2019 are down year over year by roughly $70k.

	Three months ended June 30		Six months ended June 30	
	2019	**2018**	**2019**	**2018**
General & Administration	$431,449	$484,205	$993,487	$747,239
Research & Development	283,557	368,439	597,918	700,843
Sales & Marketing	161,423	250,061	341,562	553,202
Total Operating Expenses	$876,429	$1,102,705	$1,932,967	$2,001,284

General and Administrative expenses in the first six months of 2019 were higher than in 2018 partly due to additional costs related to the debenture financing in January, especially IR costs, as the delay in completing the VMS+ 3.0 due to technical challenges put downward pressure on Ventripoint's stock, so investor communications have been more important than ever. IR efforts included the Company co-sponsoring an investor conference in January to build corporate awareness in the U.S. to capitalize on our OTCQB listing, as Ventripoint was only listed on the OTCQB Exchange in October, 2018 (OTCQB: VPTDF).

Research and Development costs are primarily as a result of reduction in development staff as development of the VMS+ 3.0 was completed in Q2 and submitted for approval to the regulatory agencies in Canada, the US and the EU at the beginning of June. In addition, the delay in completion of development due to technical issues meant that bonuses were not granted to anyone.

Sales and marketing costs were also down in 2019 largely due to payroll as the US based VP of Global Distribution left the Company in January. This also resulted in share-based compensation expense being lower by $40k as the VP's options expired once he left the Company. The Company spent more in marketing efforts, but general sales expenses were down pending the VMS+3.0 approval, as it is illegal to sell medical devices prior to their regulatory approval.

Non-Operating Income and Expense

The components of non-operating income and expense for the three and six month periods ended June 30, 2019 and 2018 are as follows:

	Three months ended June 30		Six months ended June 30	
	2019	**2018**	**2019**	**2018**
Finance costs:				
Interest expense on debentures	(24,149)		(41,640)	
Implied interest on leases	(6,012)		(11,961)	
Accretion of convertible debentures	(36,968)		(64,329)	
Bank service charges and other	(1,008)	(1,046)	(2,822)	(2,152)
Total finance costs	(68,136)	(1,046)	(120,751)	(2,152)
Other Income	51,024	0	78,955	0
Foreign currency differences	(8,232)	(10,336)	22,137	(27,306)
Non-operating loss before Revaluation Adjustment	**(25,344)**	**(11,382)**	**(19,659)**	**(29,458)**
Derivative liabilities revaluation adjustment	42,073	184,975	(226,217)	1,052,886
Total non-operating gain (loss)	**16,729**	**173,593**	**(245,876)**	**1,023,428**

In 2018, the Company had no debt and the office premises lease was accounted for as an operating lease under the previous IFRS accounting standard (see **Notes and Debentures** *Premises Lease Capitalized* above) so rental payments were recorded in General & Administrative expenses, rather than interest and principal repayments, as in 2019.

With the adoption of the new accounting standard for leases, the lease is capitalized at the initial discounted fair value and monthly rental payments are recorded as principal repayments on the lease liability and implied interest expense calculated at the Company's estimated cost of borrowing.

On January 25, 2019, the Company closed $1,511,000 of convertible debentures (see **Notes and Debentures –** *Convertible Debenture Private Placement* above) with an annual interest rate of 6.5% payable quarterly in either cash or common shares (at the option of the Company), except for the first interest payment which was paid in cash.

The Debentures were originally valued at the present value of the Debenture interest and principal repayment cash flows, less transaction costs for a residual value of $845,713. The present value was derived using the Company's estimated cost of borrowing. The Debentures are accreted up to the face value of the outstanding Debentures over the life of the liability, using the effective interest rate method at an effective rate of 28.9%.

The non-cash Derivative Liabilities revaluation adjustment represents the net decrease (increase) in the fair market value of the Company's outstanding Derivative Warrants, which were issued prior to 2018 (the "Derivative Warrants"), calculated at the time of each Warrant exercise as well as at the end of each period. The Derivative Warrants are treated as liabilities due to a clause in them which allows for the acceleration of the expiry date under certain circumstances.

Warrants issued in 2018 and 2019 are recorded in Shareholders Equity as they meet the 'fixed for fixed' criteria under IFRS standards. They are not revalued after issuance.

The fair value of the Derivative Warrants depends on a number of factors, including; the Company's stock price at the date of revaluation, exercise price or conversion price, risk-free interest rate, volatility of the Company's stock price, expected life of the Derivative Warrant, the estimated number of Warrants that will actually be exercised in future periods and the expected annual dividend rate for future periods.

The 2019 Derivative Liabilities revaluation adjustment expense of $226k was largely due to the two year extension in March 2019, of 10,496,938 Derivative Warrants, issued on March 23, 2017 and originally due to expire March 23, 2019.

Other income in 2019 consists of a contribution from the National Research Council of Canada Industrial Research Assistance Program (NRC IRAP) under a Contribution Agreement for partial reimbursement of salary and contractor costs for research and development work on next generation product features. This monthly Contribution from NRC IRAP has been fully drawn down by the end of July, 2019.

Liquidity

The following summary shows the primary sources and uses of cash for the six months ended June 30, 2019:

Cash balance – December 31, 2018	**66,566**
Sources of Cash:	
Convertible Debenture Placement Proceeds	1,511,000
Option Exercises	104,500
Sales collections	44,861
Government grant contributions	63,659
Sales tax refund	74,202
Change in working capital	106,950
Total Cash Sources	1,905,171
Uses of Cash:	
Payroll	(649,254)
Other operating costs	(878,922)
Debenture Private Placement cash costs	(114,468)
Debenture cash interest costs	(25,679)
Lease payments (principal and interest)	(23,033)
Inventory purchases	(17,801)
Fixed Asset purchases	(5,770)
Total Cash Uses	(1,714,927)
Net increase (decrease) in cash and equivalents	190,245
Cash balance – June 30, 2019	**256,811**

On January 25, 2019 the Company raised $1.5M in convertible debentures, with a 6.5% coupon rate (see **Notes and Debentures** above).

The Company will need to raise more capital by the end of Q3 2019.

Contractual Commitments

The Company has the following contractual cash obligations as of August 29, 2019:

	2019	2020	2021	2022-2028	Total
Premises lease	$14,988	$46,799	$48,022	$36,075	$145,884
University of Washington Technology License Minimum Annual Royalty (US$5,000)	-	6,692	6,692	46,844	60,228
Total contractual commitments for the period	$14,988	$53,491	$54,714	$82,919	$206,112

The annual Royalty due to the University of Washington under the Technology License Agreement is the higher of 1.5% of gross sales or the Minimum Annual Royalty of US$5,000.

On October 1, 2017 the Company entered into a 5 year lease for office premises at 2 Sheppard Avenue East, Suite 605, Toronto, Ontario. The cash obligations shown above are the annual Base rent due over the term of the remaining lease. See **Notes and Debentures**, *Premises Lease* above for discussion of impact of the adoption of IFRS 16 on the financial statements.

RISKS AND UNCERTAINTIES

Financial

The Company's success in raising new operating capital has enabled it to finalize its VMS+ development and implement initial commercialization strategies. The Company will require additional operating capital to sustain and grow the level of its operations and to further implement its commercialization strategies. The Company is in discussions with multiple parties related to its financing, development and commercialization efforts to secure sufficient additional capital and resources for commercialization of its VMS technology and the expansion and enhancements of product applications and to achieve cash flow break-even. The need, success and timing of additional financings and/or strategic relationships cannot be projected with any certainty and their ultimate success is necessary for the Company to continue operations and to achieve its near term commercial and development milestones.

Regulatory

On June 25, 2019, the Company announced it has received a license from Health Canada for the VMS+ 3.0 whole heart analysis system.

On July 2, 2019 the Company announced that the VMS+ 3.0 system has received European CE Mark.

The Company is still awaiting market clearance from the US FDA for the VMS+3.0.

Continued Operations

Without sufficient additional capital being secured in a timely manner, Company operations may have to be curtailed; the result of which could render the Company unable to pursue commercialization of its products and services, or to continue its operations.

CRITICAL ACCOUNTING ESTIMATES

The Company's condensed consolidated interim financial statements for the six month periods ended June 30, 2019 and 2018, have been prepared in accordance with International Accounting Standard 34 - *Interim Financial Reporting.* Accordingly, they do not include all disclosures which would otherwise be required in a complete set of financial statements and should be read in conjunction with the annual audited financial statements for the year ended December 31, 2018, which have been prepared in accordance with International Financial Reporting Standards ("IFRS") as issued by the International Accounting Standards Board ("IASB"). The Company has applied the same accounting policies and methods of computation in its interim condensed consolidated interim financial statements as in its 2018 annual audited consolidated financial statements, aside from the adoption of IFRS 16 - *Leases*.

Certain accounting policies require that management make appropriate decisions with respect to the formulation of estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses. The Company's primary critical accounting estimates relate to the valuation of its issued common stock warrants and stock options. The Company applies the fair value method for valuing stock option grants and the issuances of warrants. The fair value is estimated on the date of grant or issue, and the warrants issued prior to September 2018, which are treated as derivative liabilities, are revalued at each balance sheet date using the Black-Scholes option pricing model or a specialized Binomial model required to reflect the impact of the acceleration of the expiry date under certain circumstances. The fair value of the warrants issued in September, 2018 and January 2019 are recorded as Contributed Surplus, rather than as a liability, as they fit the definition of fixed for fixed financial instruments and are therefore not considered as derivative liabilities, unlike all the warrants issued prior to that date, and are not revalued after the grant date. In order to calculate the fair value of options when granted, warrants at issuance, and for period end revaluation of derivative liability warrants, the following information is required: stock price at date of grant, issue or revaluation, exercise price of option or warrant, and vesting periods. In addition, are the following factors for which management is required to make assumptions: risk-free interest rate, volatility of the Company's stock price, expected life of the option or warrant, the estimated number of options or warrants that will actually be exercised in future periods and the expected annual dividend rate for future periods. Weighted average assumptions used to determine the fair value of the Company's options and warrants are presented in the financial statement notes.

Other accounting judgements include the designation of the Canadian dollar as the Company's functional currency, and the discount rates used to determine the initial fair value of leases and convertible debentures.

ADDITIONAL INFORMATION

Additional information relating to the Company can also be found on SEDAR at *www.sedar.com.*