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TITAN MEDICAL

Titan Medical Reports First Quarter Financial Results and Provides Corporate Update

Signs Manufacturing and Supply Agreement With Contract Manufacturer

TORONTO, ON -- (Marketwired) -- 05/16/16 -- Titan Medical Inc. (TSX: TMD) (OTCQX: TITXF), a medical device company focused on the design and development of a robotic surgical system for application in minimally invasive surgery (MIS), today announced financial results for the three months ended March 31, 2016. All financial results are reported in US dollars, unless otherwise stated. The unaudited condensed interim financial statements and management's discussion and analysis for the period ended March 31, 2016 may be viewed on SEDAR at www.sedar.com.

Additionally, the Company announced today that is has signed a manufacturing and supply agreement with an established third party contract manufacturing firm and is providing an update on its development milestones and timeline for achieving submission of its 510(k) application to the FDA for its SPORT™ surgical system.

Titan will host a conference call and webcast today beginning at 5:00pm ET to discuss these updates.

John Hargrove, Chairman and Chief Executive Officer of Titan Medical Inc., commented:

"We made significant progress during the first quarter of 2016 including completing the build of initial enhanced engineering verification units of the SPORT Surgical System to be used in upcoming optimization trials and cadaver studies. We also made our first public unveiling and demonstration of the SPORT system at the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) Annual Meeting in Boston to a strong turnout and interest from the surgical community.

"Going forward, we remain focused on accomplishing our next major milestones towards achieving submission of our 510(k) application to the FDA. This is a well-defined process during which we must not only complete the development of the technology, but also complete the testing that will provide the results that demonstrate substantial equivalence between SPORT and predicate device. We have worked with the FDA to identify the predicate devices to which we must demonstrate substantial equivalence and our revised timeline to accomplish our milestones incorporates our current and best broad-based thinking, as well as input from a variety of sources, to reflect recent developments in our industry. We are being very meticulous about our process and our documentation at each of these steps, with a high level of attention to detail in getting all of this data ready for our 510(k) application."

First Quarter Operational Highlights

- On March 16-19, 2016, Titan first publicly unveiled and demonstrated its SPORT™ Surgical System at the SAGES conference in Boston, Massachusetts. Over the course of three exhibit days, more than 800 surgeons viewed the technology and attended live demonstrations of Titan's SPORT™ technology.
- On March 30, 2016, Titan announced that enhanced engineering verification (EEV) units were completed during the first quarter of 2016 incorporating substantially all of the previous design and engineering work and would be used for optimization trials and cadaver studies.

First Quarter Financial Highlights

- Cash and cash equivalents at March 31, 2016 totaled $12,012,081, compared to $11,197,573 at December 31, 2015.
- In February and March of the quarter, Titan completed two public offerings. Total gross proceeds, including the fully exercised over-allotment options, was $22,098,793.
- Net and comprehensive loss for the three months ended March 31, 2016 was $11,720,394 compared to a net and comprehensive loss of $9,126,268 for the three months ended March 31, 2015.
- The Company's research and development expenses for the three months ended March 31, 2016 were $10,435,679, compared to $6,148,714 for the three months ended March 31, 2015.
- The increase in research and development costs and net and comprehensive loss for the three months ended March 31, 2016 compared to March 31, 2015 was possible due to the most recent equity financings completed in the first quarter of 2016 as well as the fourth quarter of 2015.

New Manufacturing and Supply Agreement

Titan announced today that has signed a manufacturing and supply agreement with an established third party contract manufacturing firm. The firm has a strong manufacturing base in the US and an extensive global reach and service infrastructure, including a well-established worldwide network of suppliers. This new partner brings a proven track record of quality and reliability with highly complex medical device products per all the required global standards. The firm is the largest OEM for one of the largest US medical device companies, and its clients include very large medical device companies as well as smaller, early stage companies.

This new manufacturing partnership will be integral in not only completing the design and build of the two main capital components of the SPORT™ surgical system, the patient cart and the workstation, but also in testing the various aspects of SPORT™ including software development and validation, to which they bring substantial experience. A significant advantage of this partnership is the initiation of the manufacturing hand-off process for SPORT™, which will enable a smooth transition to manufacturing product pending approval from the FDA.

Dennis Fowler, EVP, Clinical and Regulatory Affairs for Titan Medical, Inc., commented:

"This contract manufacturer brings substantial experience and a unique skill-set in execution of projects pertaining to highly complex medical products in a timely manner. With this

agreement, we are well positioned to leverage the substantial expertise of this industry veteran to aggressively pursue our development milestones. We believe this partnership will ensure the highest quality for Titan products and that it validates the prospects for SPORT. In addition to providing manufacturing expertise, their design and development arm will now be sharing equally in the next stages of development of the SPORT Surgical System, and the addition of their capabilities will help expedite and enhance its development."

Timeline of Remaining Milestones

As part of its corporate update, the Company has detailed below the remaining timeline of milestones needed to achieve its goal of submitting its 510(k) application to the FDA for the SPORT™ surgical system. The Company developed these milestones based on several considerations, including but not limited to recent events in its market segment, recent publications of guidelines from the FDA on human factors and usability engineering, and an updated, detailed analysis of the work yet to be done in developing its technology.

- ***Optimization Trials.*** These trials will include rigorous usability trials and other trials that are more clinically focused. In most cases, these trials will involvecadaver studies. The Company is aware that the FDA has increased the requirements for usability and human factors testing. In February, the FDA released a new set of guidelines for usability and human factors for medical devices. Titan Medical has a major focus on these new guidelines, and through these trials will optimize any final designs affecting usability. The Company is currently initiating usability trials and expects to continue these trials into 2017. Throughout the time of the optimization trials, the device will also be undergoing bench testing and third party testing to measure compliance with both design specifications and regulatory requirements, including testing for factors affecting patient safety.
- ***Design Freeze***, would follow later in the first half of 2017. At this time, Titan will lock in the final design of SPORT, after which changes in the basic design cannot be made without repeating much of the testing completed in the Optimization Trials.
- ***Build Design Verification Units.*** These units must be equivalent to units that will be manufactured for sale in the future, and will be used to complete the test data that will demonstrate compliance with all the requirements to the FDA. The data generated from testing these units will be used for the 510(k) application and any other regulatory review, such as CE Mark audits. These units are projected to be completed in the second half of 2017.
- ***Complete Design Verification and Validation.*** This is the testing that will be submitted to the regulatory bodies. This milestone is projected to be completed in second half of 2017.
- With completion of design verification and validation, the Company expects to be able to ***Submit 510(k) Application*** to the FDA. Titan expects to complete this milestone in the second half of 2017.

Several additional progress milestones will be required to be completed in parallel with these estimated timelines. Titan expects the first ***Audit for CE Mark Approval*** to commence sometime during the design verification process. This audit will review Titan's quality management system and various documents containing design and test data up to that date. The Company expects the ***Final CE Mark Audit*** to be completed shortly after the completion of Design Verification in the second half of 2017. Most of the cost would be

included in Design Verification.

The Company has withdrawn its current milestone chart set forth in the Company's Management's Discussion and Analysis and its Annual Information Form in respect of the year ended December 31, 2015 and its prospectus supplements respectively dated February 9, 2016 and March 24, 2016, and replaced it with one that reflects estimated timelines projected to the end of 2017 and estimated costs projected to the end of 2016 based on current information available to Management. Reference is made to the new milestone chart set forth in the Company's Management's Discussion and Analysis in respect of the first quarter of 2016 filed on WWW.SEDAR.com The Company is aware of recent developments within the sector and recently published changes to the FDA guidelines, in particular as they relate to human factors and usability trials, and is reviewing and analysing estimates of how these developments will impact costs. To meet this level of scrutiny, Titan will increase its testing of usability and human factors aspects of the SPORT Surgical System. Based on new information received from the Company's development firms, total estimated costs to get to 510 (K) submission could be increased to more than double the previous estimated costs. Before the Company accepts and reports these revised cost amounts, beyond 2016, the Company will conduct an analysis of the scope of work required to complete the projected milestones in 2017 with a view to arriving at an incremental budget for 2017 when it is able to do so with greater certainty.

Conference Call and Webcast

Titan management will host a conference call beginning at 5:00 p.m. ET today to discuss the first quarter financial results, provide an update on recent progress and to answer investor questions. To access the live call by telephone, dial 800-499-4035 (US and Canada) or +1 416-204-9269 (International) and reference the Conference ID: 2116944.

A live webcast and subsequent archived replay of the conference call may be accessed via the investor relations section of the Company's website under "Events & Presentations" at http://www.titanmedicalinc.com/investor-relations. To listen to the live webcast, please go to the website 15-minutes prior to its start to register, download and install the necessary audio software.

A phone replay of the call will be available approximately two hours following the end of the call through 8:00 p.m. ET on Monday, May 23, 2016. To access the replay numbers, please visit https://jsp.premiereglobal.com/webrsvp and use passcode 2116944.

About Titan Medical Inc.

Titan Medical Inc. is a Canadian public company focused on the design and development of a robotic surgical system for application in minimally invasive surgery ("MIS"). The Company's SPORT™ Surgical System, currently under development, includes a surgeon-controlled robotic platform that incorporates a 3D high-definition vision system and multi-articulating instruments for performing MIS procedures through a single incision. The surgical system also includes a surgeon workstation that provides a surgeon with an advanced ergonomic interface to the robotic platform for controlling the instruments and provides a 3D high-definition endoscopic view of inside a patient's body. The SPORT™ Surgical System is designed to enable surgeons to perform a broad set of surgical procedures for general abdominal, gynecologic, and urologic indications. For more

information, visit the Company's website at www.titanmedicalinc.com.

Forward-Looking Statements

This news release contains "forward-looking statements" which reflect the current expectations of management of the Company's future growth, results of operations, performance and business prospects and opportunities. Wherever possible, words such as "may", "would", "could", "will", "anticipate", "believe", "plan", "expect", "intend", "estimate", "potential for" and similar expressions have been used to identify these forward-looking statements. These statements reflect management's current beliefs with respect to future events and are based on information currently available to management. Forward-looking statements involve significant risks, uncertainties and assumptions. Many factors could cause the Company's actual results, performance or achievements to be materially different from any future results, performance or achievements that may be expressed or implied by such forward-looking statements, including, without limitation, those listed in the "Risk Factors" section of the Company's Annual Information Form dated March 30, 2016 (which may be viewed at www.sedar.com). Should one or more of these risks or uncertainties materialize, or should assumptions underlying the forward looking statements prove incorrect, actual results, performance or achievements may vary materially from those expressed or implied by the forward-looking statements contained in this news release. These factors should be considered carefully, and prospective investors should not place undue reliance on the forward-looking statements. Although the forward-looking statements contained in the news release are based upon what management currently believes to be reasonable assumptions, the Company cannot assure prospective investors that actual results, performance or achievements will be consistent with these forward-looking statements.

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