

Titan Medical Reports First Use of SPORT Surgical System in Europe at the Institute of Image-Guided Surgery of Strasbourg

TORONTO, Dec. 20, 2017 -- Titan Medical Inc. (“Titan” or the “Company”) (TSX:TMD) (OTCQB:TITXF), a medical device company focused on the design, development and commercialization of a robotic surgical system for application in minimally invasive surgery (“MIS”), reports the successful first use of its SPORT Surgical System in Europe. These studies in general and urologic surgery at the Institute of Image-Guided Surgery at the Institut Hospitalo-Universitaire de Strasbourg, France (“IHU Strasbourg”) are part of the feasibility and validation studies intended to support regulatory submissions.

David McNally, President and CEO of Titan Medical, said, “After our installation of the SPORT system at IHU Strasbourg earlier this month, surgeons have now successfully completed the first preclinical single-port robotic surgeries in Europe using the SPORT system. We are honored that highly-regarded surgeons Pr. Lee Swanstrom from IHU Strasbourg, Dr. Jelle Ruurda from University Medical Center Utrecht, the Netherlands, and Dr. Eric Barret from Institut Mutualiste Montsouris, Paris, directed and performed a variety of abdominal, oncologic and urologic procedures. These first-use studies provide valuable insight into procedures we may focus on during commercialization.”

Lee Swanstrom, MD, FACS, Chief Innovation Officer of IHU Strasbourg, said, “I was pleased with my first experience with the SPORT system for applications in abdominal procedures. There are many patients undergoing general surgical procedures who could greatly benefit from a reduced number of incisions. Single-port robotic surgery can be a truly enabling solution for patients and surgeons alike, and it is exciting to see that the SPORT system takes us much closer to that possibility.”

Jelle Ruurda, MD, a gastrointestinal and oncologic surgeon at University Medical Center Utrecht, who has several years of robotic surgery experience, commented, “Many oncologic general surgery procedures require specimen retrieval at the end of the procedure. These procedures are natural applications for single-port robotic surgery. My first operation of the SPORT system in a preclinical environment was very exciting, and the system shows great promise for future clinical use. I look forward to the opportunity to work together with Titan Medical to evolve a single-port robotic surgery option for my oncology patients. Based on this first experience, I am confident that single-port robotic surgery has a bright future.”

Eric Barret, MD, a world-renowned robotic urologic surgeon at Institut Mutualiste Montsouris, said, “Having performed many single-incision robotic surgeries with flexible, non-wristed and crossed-over instruments, my first experience with the SPORT system was exceptional. The SPORT system addresses many limitations of previous laparoscopic and robotic single-incision surgery approaches, and holds significant promise for meaningful use in urologic applications.”

Mr. McNally concluded, “Titan has now successfully installed SPORT systems at all three Centers of Excellence in the United States and Europe, on or ahead of schedule. With the planning and guidance of respected laparoscopic and robotic surgery experts, we have observed the first single-port robotic surgery procedures performed with the SPORT system in gynecologic, urologic, general surgery and colorectal specialties. The objectives of each of the preclinical surgeries have been accomplished. The achievement of these milestones sets a strong foundation for us to build on in 2018, as we prepare for our regulatory submissions and commercialization.”

About the Institute of Image-Guided Surgery / IHU Strasbourg, France

The Institute of Image-Guided Surgery is a unique medical and surgical center dedicated to the management of digestive diseases. It develops innovative surgery to deliver personalized patient care, combining the most advanced minimally invasive techniques and the latest medical imaging methods.

The Institute is:

- A healthcare center offering personalized treatment using the least invasive techniques;
- A research center gathering teams to design and develop instruments and procedures for the future;
- An international training center for professionals and students driven to learn the most advanced minimally invasive practices; and
- An innovation hub to foster technology transfer through industrial partnerships and creation of startups.

The Institute is a designated part of the “Programme Investissements d’Avenir” and benefits from the financial support of the French government managed by the “Agence Nationale de la Recherche.” The Institute is also funded by the Région Grand Est, the Conseil Départemental du Bas-Rhin, the Eurometropole de Strasbourg and the European Union.

For more information, please visit IHU Strasbourg’s website at www.ihu-strasbourg.eu/ihu/en/.

About Titan Medical Inc.

Titan Medical Inc. is a Canadian public company focused on research and development through to the planned commercialization of computer-assisted robotic surgical technologies for application in minimally invasive surgery. The

Company is currently developing the SPORT Surgical System, a single-port robotic surgical system. The SPORT Surgical System is comprised of a surgeon-controlled patient cart that includes a 3D high definition vision system and multi-articulating instruments for performing MIS procedures, and a surgeon workstation that provides the surgeon with an advanced ergonomic interface to the patient cart and a 3D endoscopic view inside the patient's body during MIS procedures. With the SPORT Surgical System, the Company aims to pursue a broad set of surgical indications, including general abdominal, gynecologic and urologic procedures.

For more information, please 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 31, 2017 (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 current or prospective investors that actual results, performance or achievements will be consistent with these forward-looking statements.

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