Meticuly's 'Factory-in-a-Box' enables 3D-printed hip implant success at Siriraj

Meticuly's "Factory-in-a-Box" enables on-site 3D-printed hip implants at Siriraj, improving speed and patient outcomes.

PATHUMWAN, BANGKOK, THAILAND, April 17, 2025 /EINPresswire.com/ -- Siriraj Hospital, a leading medical institution in Thailand, and OSS3O Co., Ltd., a joint venture between Meticuly Co., Ltd., and Mr. T Thirakomen of MK Group, have announced a groundbreaking achievement: the successful treatment of a patient using a 3D-printed titanium hip socket manufactured at a pioneering "Factory-in-a-Box" point-of-care facility located within the hospital. This marks a significant leap forward in personalized healthcare.

The announcement was made at a press conference held today at the Sirindhorn Conference Room, Siriraj Hospital, officiated by Ms. Supamas Isarabhakdi, Minister of Higher Education, Science, Research, and Innovation.

Revolutionizing Personalized Healthcare with On-Site Production
This collaboration, stemming from a Memorandum of Understanding (MOU) signed in 2024, has resulted in the establishment of OSS3O Co., Ltd., a joint venture designed to bring advanced medical device

Experts discuss the groundbreaking 3D implant impact


Engineer and nurses review implants

3D implants at Siriraj: Medical tech milestone

manufacturing directly to the point of care. The project is supported by research funding from the Program Management Unit for Competitiveness (PMUC) and facility support from the Golden Jubilee Medical Center, Faculty of Medicine Siriraj Hospital, Mahidol University.

"Factory-in-a-Box": A Paradigm Shift in Implant Production

OSS3O has developed and installed an in-hospital manufacturing system for personalized medical devices, centered around the innovative "Factory-in-a-Box" concept. This system, a world-first, utilizes an Advanced Modular System, integrating AI and automation to condense a large-scale implant manufacturing facility into a compact, container-sized unit. The "Factory-in-a-Box" concept is poised to transform the way medical devices are manufactured and delivered, bringing advanced, patient-specific solutions closer to those who need them most.

This "Factory-in-a-Box" model, strategically located adjacent to the operating theater, enables real-time collaboration between surgeons and engineers. It facilitates the rapid and precise production of patient-specific medical devices, such as titanium hip sockets, custom titanium orbital floor plates, patient-specific titanium mandibular reconstruction plates, wrist and elbow joint replacements, bone tumor reconstructions, and custom surgical instruments.

Successful First Patient Treatment

The press conference highlighted the successful treatment of Mr. Boonrod, the first patient to receive a 3D-printed titanium hip socket manufactured on-site at the OSS3O facility. This procedure, an acetabular reconstruction, demonstrates the effectiveness of the point-of-care manufacturing system in delivering personalized solutions.

Expert Commentary:

Prof. Dr. Keerati Chareancholvanich, M.D., Head of the Department of Orthopaedic Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University: "I operated on Mr Boonrod in the beginning of March. The procedure was successful, and the patient is now on their path to recovery. At Siriraj Hospital, we treat many patients who present with similar conditions as this patient. The challenge with these kind of hip revision surgeries is that a significant portion of the hip socket have degraded, meaning that standard sized implants can not be used."

Prof. Dr. Apichat Asavamongkolkul, Dean of the Faculty of Medicine Siriraj Hospital, Mahidol University: "With the 3D-printing capabilities on-site, we will be able to treat even more patients with a patient-specific solution. I have colleagues from oculoplastic, oral and maxillofacial, orthopedic and plastic surgery specialties waiting to utilise the in-house printed products for their patients. Particularly in complex and time-critical indications, the use of patient-specific implants will lead to reduced surgery time, less blood loss, lower complication rates and better patient outcomes. This innovation is going to leverage Siriraj to a new level of healthcare excellence."

Asst. Prof. Dr. Chedtha Puncreobutr, Chief Technology Officer of Meticuly Co., Ltd. and OSS3O Project Lead: "We are incredibly proud to bring this groundbreaking innovation to life in one of Asia's leading medical institutions. This achievement marks a major milestone, but it is only the

beginning. Our vision is to revolutionise healthcare by empowering hospitals around the world with an accessible, straightforward solution for point-of-care titanium 3D printing, ultimately changing the way we think about personalized patient care. Bringing our technology to the point-of-care has the potential to significantly reduce wait times, improve surgical outcomes, and enhance recovery, ultimately leading to better quality of life for those in need."

About OSS3O
OSS3O was established to advance Thailand's medical device industry through the development of integrated point-of-care medical systems powered by cutting-edge 3D printing technology. The company is a joint venture between Meticuly Co., Ltd., a leader in the production of internationally certified personalized medical devices, and Mr. Tee Thirakomen, in collaboration with the Faculty of Medicine Siriraj Hospital, Mahidol University. The project is supported by research funding from the Program Management Unit for Competitiveness (PMUC).

About Meticuly
Meticuly is a leader in the production of personalized titanium bone implants, leveraging metal additive manufacturing and AI-powered predictive design to develop cutting-edge solutions for personalized medical devices. The company holds 36 patents and 18 trademarks across 10 countries. Products are approved by both the Thai Food and Drug Administration (TH FDA) and the U.S. Food and Drug Administration (U.S. FDA). Additionally, its Quality Management System (QMS) is certified under ISO 13485 and the Medical Device Single Audit Program (MDSAP). Meticuly has helped over 2,000 patients regain mobility and improve their quality of life, and it aims to support over 10,000 patients annually in the near future. Meticuly's mission is to make healthcare delivery more efficient and accessible, guided by its core philosophy of "Better Life"—with a meaningful, positive impact on patient well-being and the broader community.

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