Canary Medical Inc.
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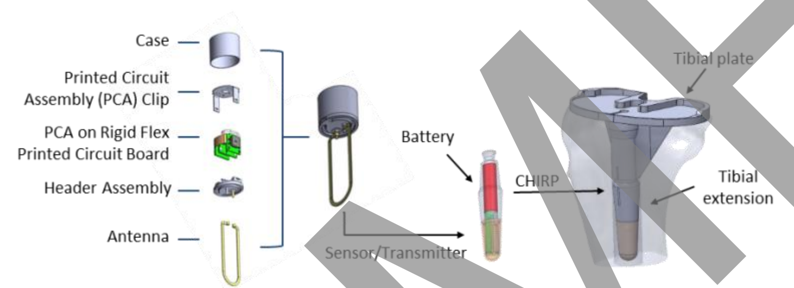
Millions of life-changing medical devices are surgically implanted every day, yet, for all their design sophistication, they are merely "dumb metal," and provide no feedback to patients, clinicians, or payers. Thanks to Canary Medical, that is about the change.

Technology and Products

In general terms, the Canary Health Implantable Reporting Processor (CHIRP) is an integrated module, comprising a sensor array, a power source, and a communications link, that is incorporated into existing implantable medical devices.

Canary's first product is a smart prosthesis for total knee arthroplasty (TKA), developed in collaboration with a large orthopaedics company. The CHIRP is embedded in the tibial extension (see Figure 1).

Figure 1: The Canary Medical TKA CHIRP



The TKA CHIRP measures patient activity, multiple dimensions of knee function, and provides the potential for early detection of complications such as infection and loosening. The power source, based on pacemaker battery technology, can exceed twenty years or more. Data captured by the CHIRP is transmitted each night, via a base station in the patient's home, to a HIPAA-compliant cloud data management site.

The device has a 510(k) without clinical trial regulatory pathway, and was granted Breakthrough Status by the FDA in 2019. Commercial launch is expected in the last Quarter of 2020.

Each CHIRP module is customized for the relevant device. For example, the smart hip CHIRP, launching in 2023, uses a smaller sensor array than the knee CHIRP, while a trauma screw CHIRP must be smaller still, and so is powered by a supercapacitor, which doesn't last as long as a battery, but is more than sufficient for the shorter monitoring period required. Canary's growing portfolio of more than 200 patents granted or pending includes these applications, as well as stents and stent grafts, spinal screws, and aesthetic implants.

Services and Business Model

Canary's data services subsidiary, Summatix, will provide clinicians with reports that inform treatment decisions and that comply with CMS's CPT codes for Remote Patient Monitoring (RPM). Physicians will purchase services from Summatix on a fee schedule designed to mimic a revenue-sharing arrangement. Patients will have access to appropriate data and services free with additional functionality provided based on a "freemium" model.

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Competition

RPM adoption has been slow because no solution has integrated these three elements:

Data: Too often, devices collect data about the device (not the patient) and cannot ensure adequate data reliability. In contrast, each CHIRP is optimized to the clinical and reimbursement requirements of its associated implantable device.

Compliance: The open secret about wearables is that people – especially patients with chronic conditions – simply don't wear them. The CHIRP, however, is embedded within an implanted device and requires no patient-initiated charging or data synching.

Workflow: RPM has been a burden to clinicians and device companies, and of questionable merit to patients. Canary, on the other hand, integrates RPM data into existing workflows, allowing clinicians to treat patients more effectively while improving practice economics.

Canary's integration of proprietary technology and a differentiated business model provides a uniquely valuable and defensible competitive position.

Financial Projections

Projections comprise the smart knee (Q42020) and the revision smart hip (Q12023).

	2021	**2022**	**2023**	**2024**
Revenue	$1,464,544	$3,814,072	$8,589,481	$41,649,365
Gross Margin @75%	$1,098,408	$2,860,554	$6,442,111	$31,237,024

Status

Canary was incorporated in 2012 with $8 million in seed financing from its founders. Quark, BioScience Managers, and Relentless Pursuit Partners led a $26 million series A round in 2018. Non-dilutive financing totaling $20 million has been provided by development partners.

Head office is in Vancouver, BC. with an engineering facility in Carlsbad, CA employing eighteen, and Summatix, in Melbourne, Australia, employing sixteen. More than fifty consultants support the company, including a product development team at Starfish Medical in Victoria, BC.

Management Team

Bill Hunter, M.D.	CEO	• 25 years as the CEO of publicly traded companies. • 200+ patents on products deployed in 40+MM patients
David McMasters, J.D.	GC	• 30 years of patent law experience
Jeff Gross, Ph.D.	CTO	• 28 years of R&D leadership at major medtech companies • 40+ patents
Fred Cushner, M.D.	CMO	• Designer, Journey 2 knee joint prosthesis • Member, Knee Society, and medical textbook author

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