



"Hospital-acquired infections (HAI) affected more than 1.7 million patients last year in the United States, and cost the healthcare system more than \$20 billion dollars in additional costs. Catheter-related infection is among the most serious and morbid category of HAI. CatheCare is developing a UV-C device that automates the sterilization process and maintenance of catheters. We keep catheters clean and stop infections."

Status: Pre-Clinical

Management Team:

CEO: Aonnicha Burapachaisri is a Biomedical Engineer. She has worked at the Vunjak-Novakovic lab (Columbia) in engineered chondrocyte tissues and Hospital for Special Surgeries on clinical cervical disorders.

COO: Chanond Sophonpanich is an engineer with a business mindset. He has backgrounds in both finance and Biomedical Engineering.

Financial Information:

Grants Received: \$220k

Internal Funding: \$320k*

*Management team is committed in a convertible note, but not fully drawn down.

Use of Funds:

- 40% Product Testing
- 20% Manufacturing
- 20% Administrative
- 12% Product Development
- 8% Legal & Operations

Advisors:

- S. Sia (PhD, Professor, Columbia BME)
- P. Schlossberg (MD, Director, Interventional Radiology, Morgan Stanley Children's Hospital)
- K. Lertutsahakul (MD, Chief Administrative Officer, BDMS)
- D. Kim (PhD, Retired US FDA Expert)

Legal: DLA Piper, Philadelphia

CatheCare LLC

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Executive Summary: CatheCare offers a novel solution, CatheCare Sterilization System (CaSS), that addresses the time-consuming and error-prone shortcomings of current methods of infection prevention. CaSS is an easy-to-use, safe, and effective device that universally attaches onto any catheter to eradicate bacteria using germicidal ultraviolet (UV-C) light. By administering patient-safe doses of UV-C, CaSS serves as a continuous and automatic defense system against microbes during the lifetime of the catheter. With CaSS, we achieve our mission to reduce the morbidity and mortality associated with dangerous, but entirely avoidable, catheter-related bloodstream infections.

Company History: CaSS was conceptualized by Aonnicha and Chanond at Columbia University. CatheCare was founded in 2016 to further develop and commercialize CaSS in NYC. We have partnered with Bangkok Dusit Medical Services (BDMS), a healthcare provider with \$12B market cap, to conduct R&D on device efficacy in Bangkok, Thailand.

Market Opportunity: More than 3 million central venous catheters (CVC) are used annually in the US for patients needing chemotherapy, critical care (ICU), and hemodialysis. About one-in-twenty patient catheters become infected through improper CVC usage, resulting in central line-associated bloodstream infections (CLABSIs), requiring treatments costing \$29,000 on average. One of the consequences is the non-reimbursable cost that hospitals are made responsible for, resulting in CLABSIs being a \$4 billion burden on healthcare providers. More importantly, the attributable mortality rate with CLABSI incidence is around 25%. Efforts to reduce CLABSI rate have yielded some results, but can be much improved with point-of-care technology.

Product: CaSS is designed to reduce CLABSI rates with its UV-C sterilization mechanism. Catheter-related infections are prevented with CatheCare's small-footprint device that attaches universally onto catheter hubs and emits UV-C light to eliminate microbes. CaSS serves as a continuous and automatic defense system against bacteria during the full lifetime of CVCs.

Intellectual Property: CatheCare holds a utility patent on devices, methods, and systems for luer connector sterilization with UV radiation. Luer connectors are standard connections for medical devices. CVCs also uses luers in their design.

Status and Milestones: CaSS was first developed in 2016 and further validated and improved as a viable product in 2017. The first production run is slated to be completed in Q2 2018, with final efficacy and validation tests completed by end of Q2 2018. We plan on entering the US and Thai market by Q3 2019, and the EU and China market by 2021.

Competition: We created CaSS to address the shortcomings of current methods of infection prevention. Existing solutions like alcohol-impregnated caps and antimicrobial-coated catheters are not long-term and have inherent flaws, such as bacterial resistance and susceptibility to fungal infections. In addition, adoption of these products is not wide-spread compared to the almost-nationwide adaptation of the CVC bundle, a checklist of guidelines hospitals follow that has shown to reduce CLABSI rates. Despite the mass adoption of the CVC bundle, compliance is low and CLABSI rates remain unreasonably high. As a result, we predict CaSS has the ability to heavily disrupt the CVC infection prevention market.

Financial Projection ('000 \$)	2019	2020	2021
Revenue	652	5,088	15,540
Cost	640	3,063	7,435
EBITDA	12	2,025	8,105

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