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Hemodialysis Innovation

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Summary





Quantum Medical North America Inc. is dedicated to improving the quality of life for individuals suffering from chronic kidney disease.

Quantum Medical North America Inc. was established in 2023 by Dr Irene Torres and her partners Bernardo Canizares, Managing Director; Mauricio Anderson, Business Advisor. The team had a vision to improve the quality of life of kidney dialysis patients. Quantum Medical North America currently operates out of Toronto Ontario and Quito Ecuador. Our mission is to propagate an affordable medical device that measurably improves the results of a traditional dialysis regimen by converting conventional one-pump hemodialfiltration machines into hemodiafiltration machines without changing hardware or software.

Problem Statement

Quantum Medical North America, Inc. is committed to bringing high-quality hemodiafiltration treatment to underserved communities.

Problem



Chronic kidney disease (CKD) rose from the 27th to the 18th leading cause of death worldwide between 1990 and 2010, the second-largest increase after HIV/AIDS. Despite the global expansion of dialysis, access to kidney replacement therapy (KRT) remains uneven, and outcomes are often poor due to high mortality, comorbidities, and low quality of life. Innovations in treatment are urgently needed. Hemodiafiltration is a major advancement in hemodialysis, but financial and technical barriers limit its use. Quantum Medical North America has developed an adaptation to enable hemodiafiltration in standard dialysis machines.



Our objective

Just imagine that 80% of dialysis machines around the world are conventional equipment which do not provide access to hemodiafiltration. We reconfigure existing hemodialysis machines to perform hemodiafiltration as it has been shown to provide advantages over conventional hemodialysis, including various clinical advantages and an overall improvement of chronic kidney patient survival.

Our Product

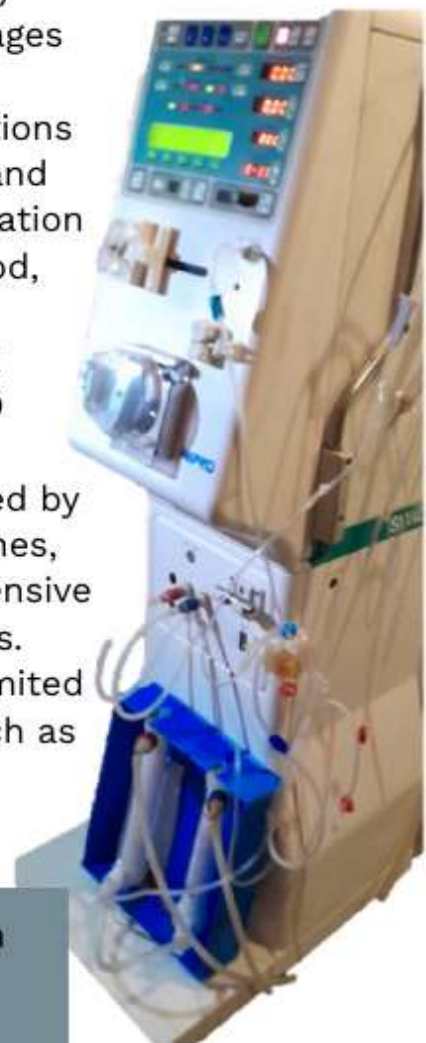


The Quantum Conversion System

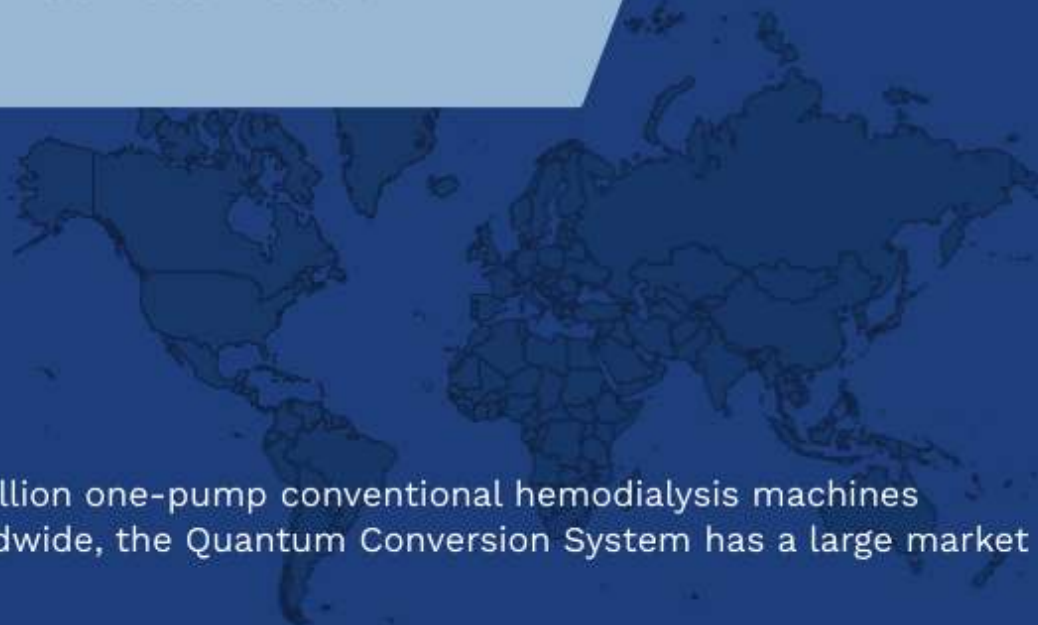
The Quantum Conversion System

Current hemodialysis machines provide life-sustaining treatment for chronic kidney disease (CKD) patients in advanced stages (stages 3-5). However, conventional hemodialysis is associated with limitations in clearance efficiency, fluid balance, and overall clinical outcomes. Hemodiafiltration (HDF), a more advanced dialysis method, has demonstrated superior waste clearance, improved fluid balance, and better long-term survival rates for CKD patients. Despite these benefits, the widespread adoption of HDF is hindered by the high cost of dedicated HDF machines, which are approximately twice as expensive as conventional hemodialysis machines. Additionally, access to HDF remains limited globally, even in developed regions such as the United States, where it has only recently received FDA approval.

Quantum Medical North America Inc. has developed an adaptation that can be used in existing one-pump hemodialysis machines to achieve the function of hemodiafiltration, making this treatment more accessible.



Market and Business Model



With over 1 million one-pump conventional hemodialysis machines available worldwide, the Quantum Conversion System has a large market appeal.

Priority Markets: LIMCs, China, India and United States



Business Model

Our revenue is generated through a subscription-based model, where dialysis clinics pay a licensing fee for access to our product, along with a one time per-machine conversion fee.



A Competitive and Innovative Solution

The Quantum Conversion System (QCS) is a competitive solution compared to Hemodiafiltration machines

QCS	Hemodiafiltration Machine
It adapts to existing hardware	Requires clinics to change hardware
It uses existing supplies	It requires changes in the supply provision chain

Market Strategy and Financing

Our go-to-market strategy includes:

- Site visits to independent dialysis clinics
- Participation in Congresses
- Product introduction to health practitioners

Financing

Financing up to date

Our revenue is generated through a subscription-based model, where dialysis clinics pay a licensing fee for access to our product, along with a one time per-machine conversion fee.

Investor	Amount	Specs
National Secretary of Higher Education/Republic of Ecuador	\$120.000	Non-dilutive
Biolegal/Ecuador	\$20.000	Dilutive
Center for Bioengineering University of Waterloo-Canada	\$25.000	Non-dilutive
Aton Path/Canada	\$15.000	Dilutive

Funding needs and plan

Expense	Cost	Duration (months)	Subtotal
Personnel	\$1600	12	\$19200
Clinic Maintenance	\$4800	6	\$28800
Travel	\$11500	3	\$34500
ISO Certification	\$420	12	\$5040
Marketing	\$1611	9	\$14520
Clinical Trial	\$400000	7	\$400000
Office/Lab Supplies	\$1750	12	\$21 000
		Total	\$523,060



Budget and Valuation

Financial Plan

Quantum Medical North America, Inc. has a comprehensive financial plan in place to support the development and implementation of the Hemodiafiltration Conversion System.

The total project cost is estimated at \$523,060, which includes personnel costs, clinic maintenance expenses, travel expenses, ISO certification costs, and Impact Accelerator program fees.

The budget also includes marketing and production costs, which will be incurred in the second half of 2025, and ancillary office and lab supplies.

The company is seeking funding to support the research and licensing fees necessary to launch the Hemodiafiltration Conversion System in Canada and the United States.

Valuation

Our company is valued in 9 million USD, based on the market prospects of Quantum Conversion System, its traction in LMICs such as India and China, as well as its adoption in markets such as the United States and Canada.

Development and Status

Intellectual Property

The Quantum Conversion System is a patent-pending technology, registered in The Intellectual Property National Service in Ecuador, awaiting for the patentability examination.

Clinical Validation

An in-vitro validation has been conducted by the Center for Bioengineering at the University of Waterloo-Canada with promising results. Check the pre-print in <https://www.biorxiv.org/content/10.1101/2023.06.16.545389v1>

Also, an observational study was conducted with encouraging results. Check info in https://drive.google.com/file/d/1LWTtkRukf_oO6BZ2UqltNiSCjOgFpfPl/view?usp=sharing

Pitch

View our pitch in <https://youtu.be/72tGtq38goo>

Regulatory Approvals

The Quantum Conversion System has received commercial approval in Ecuador as a Class III medical device. In collaboration with IMPACT and the University of Calgary, we are currently preparing pre-submission documentation for FDA (U.S.) and Health Canada regulatory review. You can check our pre-submission in <https://drive.google.com/file/d/1aR3nn-Y8Zaj26DlWnPXYLBqaRsX3a6KB/view?usp=sharing>.



Management Team and Advisors

Our team has great experience in health research and product implementation in markets worldwide

Team



Dr. Irene Torres-CEO

A well known researcher with great experience in health and education studies. (<https://orcid.org/0000-0002-0516-3090>)



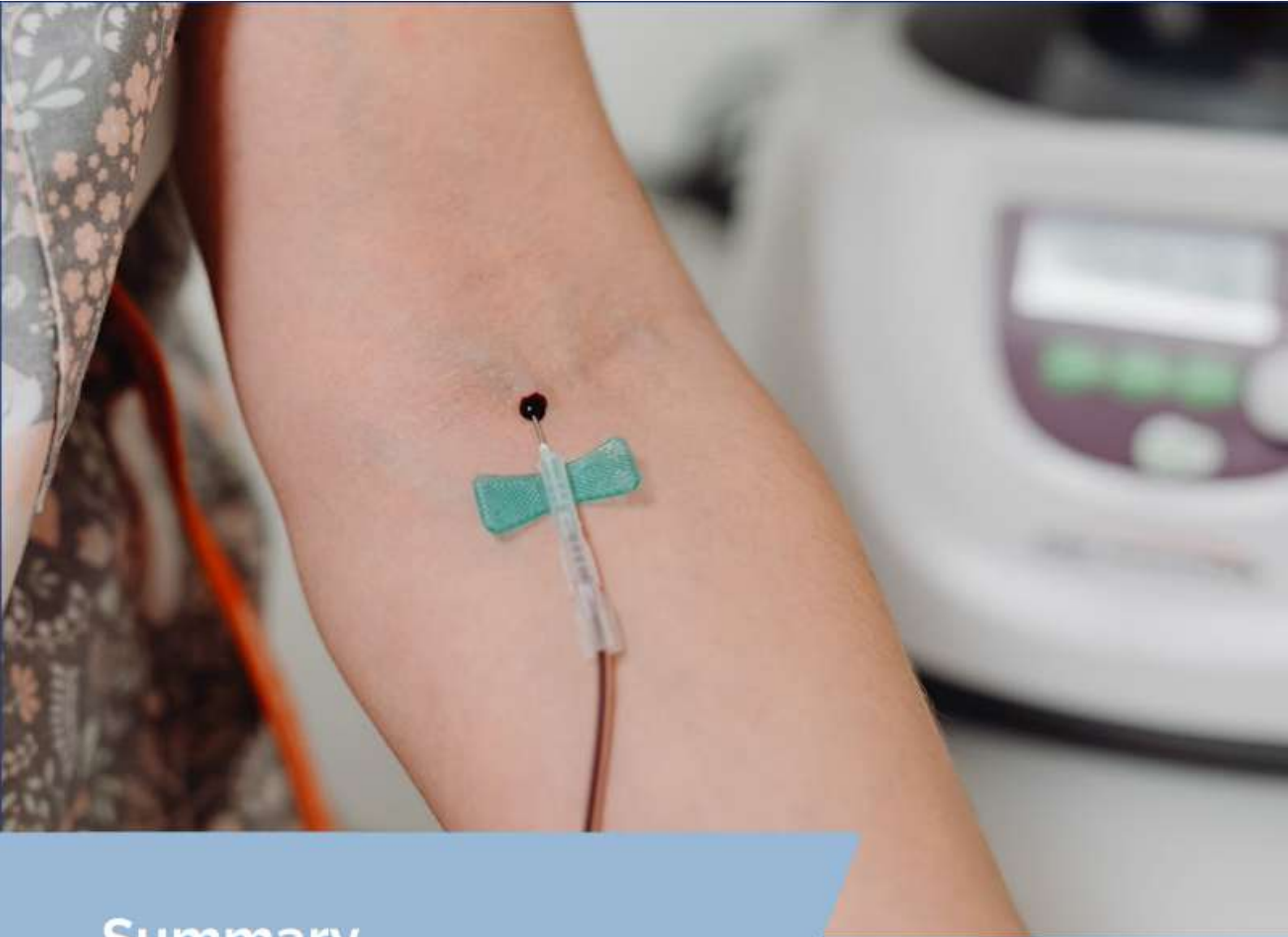
Bernardo Cañizares-COO

A social entrepreneur, who has managed projects and institutions in Ecuador, Colombia, Denmark and the Netherlands.



Mauricio Anderson-Advisor

A seasoned CEO who has worked in projects with budgets over 2 billion dollars.



Summary

Quantum Medical North America Inc. is committed to improving the lives of people with chronic kidney disease through the development of a more efficient and effective hemodialysis treatment.

We are confident that our Quantum Hemodiafiltration Conversion System has the potential to transform hemodialysis treatment and significantly improve the quality of life for patients.