

# Washington Research Foundation awards \$230,052 to Center for Dialysis Innovation researchers to improve in-home dialysis

*Jonathan Himmelfarb, Bruce Hinds and Buddy Ratner will progress toxin-removal and portable dialysis technologies for patients with end-stage renal disease*

SEATTLE, WA, USA, August 20, 2021 /EINPresswire.com/ -- [Washington Research Foundation](https://www.washingtonresearchfoundation.org/) (WRF) has awarded a technology commercialization grant of \$230,052 to researchers at the [Center for Dialysis Innovation](https://www.cdinstitute.org/) (CDI) in Seattle. The grant will support the development of proprietary technologies by Jonathan Himmelfarb, MD, Bruce Hinds, Ph.D., and Buddy Ratner, Ph.D., to enable portable dialysis and improve quality of life for patients with end-stage renal disease (ESRD).



An estimated 37 million adults in the United States have chronic kidney disease. It is a leading cause of death, and despite an [invention by University of Washington researchers in 1960](#) that has extended patients' lives by enabling long-term dialysis, therapeutics have improved only incrementally in the decades that have followed. ESRD, for example, typically requires the patient to undergo four-hour, three-times-weekly hemodialysis (HD) in a clinic. Patients routinely experience severe fatigue and nausea resulting from both the burden of treatments and the buildup of toxins in the blood between sessions. HD must continue for the remainder of the patient's lifetime or until a transplant can be performed.

A standard HD session requires approximately 120 liters of dialysate, a precise purified-water and electrolyte solution that must be run through a cumbersome machine connected to a water supply and drainage system, making in-home dialysis extremely complex.

To address the impact of HD on patient quality of life, Himmelfarb, Hinds and Ratner are developing a toxin-removal technology named Photo-Oxidation Urea Removal (POUR) with CDI



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*Jonathan Himmelfarb, MD*

colleagues that will allow any HD system to operate using only one liter of dialysate in a closed-loop circuit. This will eliminate the need for a constant connection to water and drainage, greatly increasing the feasibility of in-home treatments. A key innovation in the POUR system is the ability to selectively decompose urea by UV irradiation of a titanium dioxide surface.

“This technology allows us to cut the water hose, opening the way to portable and wearable forms of dialysis,” said Ratner.

Meher Antia, Ph.D., WRF’s director of grant programs, believes the CDI team is addressing a major unmet need for HD patients, who currently have just a 35% five-year survival rate.

“Innovation is sorely needed to improve dialysis technology to make it more accessible and offer a better quality of life for patients. WRF’s support for this project recognizes the potential for exactly this type of an innovation coming from the CDI team,” said Antia.

The researchers will use the funding from WRF to improve operational durability and decrease the size of the POUR unit, as well as reduce costs of some components.

“By applying 21st century advances in engineering and materials science to the problem of treating kidney failure, CDI teams are developing new technologies for a spectrum of dialysis applications,” said Himmelfarb. “This grant from the Washington Research Foundation will accelerate our lead technology, targeted for incorporation in our envisioned wearable device, which we call the Ambulatory Kidney to Improve Vitality or AKTIV.”

About Washington Research Foundation:

Washington Research Foundation (WRF) supports research and scholarship in Washington state, with a focus on life sciences and enabling technologies.

WRF was founded in 1981 to assist universities and other nonprofit research institutions in Washington with the commercialization and licensing of their technologies. WRF is one of the foremost technology transfer and grant-making organizations in the nation, having earned more than \$445 million in licensing revenue for the University of Washington and providing over \$123 million in grants to the state's research institutions to date.

WRF Capital, the Foundation’s venture investment arm, has backed 114 local startups since 1994. Returns from these investments support grant-making activities at WRF.

For additional information, please visit <https://www.wrfseattle.org/>.

About the Center for Dialysis Innovation:

The Center for Dialysis Innovation (CDI) in the University of Washington School of Medicine was founded in 2017 with the mission to improve the health and well-being of people receiving dialysis treatment by transforming dialysis technology. The CDI is a collaboration between Northwest Kidney Centers and the University of Washington School of Medicine. Since its inception, the CDI has built a cross-disciplinary team of world class scientists and engineers and other investigators, including patients who participate in leadership of the CDI, and whose voices are heard during each step along the path to innovation.

For additional information, please visit <https://cdi.washington.edu/>.

Meher Antia, Ph.D.

Director, Grant Programs, Washington Research Foundation

+1 206-336-5600

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