Communication and Marketing Department
Isebe loThungelwano neNtengiso
Kommunikasie en Bemarkingsdepartement

Private Bag X3, Rondebosch 7701, South Africa
Welgelegen House, Chapel Road Extension, Rosebank, Cape Town
Tel: +27 (0) 21 650 5427/5428/5674 Fax: +27 (0) 21 650 5628

www.uct.ac.za

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First aid for kids' kidneys: UCT professor champions African innovation

Professor Mignon McCulloch Photo: Nasief Manie

Addressing kidney disease requires a multifaceted approach, incorporating early detection, accessible treatment options, skilled healthcare workers and supportive policies.

This is according to Professor Mignon McCulloch, head of the Clinical Unit of Paediatric Nephrology and Solid Organ Transplantation at the Red Cross War Memorial Children's Hospital (RCWMCH), who delivered her inaugural lecture titled "First aid for kids' kidneys in Africa and beyond".

"Only through global collaboration can we ensure that no patient is left behind," she said.

Her presentation focused on using alternative forms of dialysis that do not rely on sophisticated technology. McCulloch's work demonstrates that African solutions for African problems exist, and with good results that can be applied elsewhere in the world.

She mentioned that chronic kidney disease (CKD) affects approximately 10% of the global population, yet many individuals remain undiagnosed until the disease has progressed to a critical stage. Risk factors such as diabetes, hypertension and genetic predisposition contribute significantly to CKD. "We must prioritise early detection through routine screenings. Simple blood pressure checks, and urine tests can identify CKD before it reaches a life-threatening stage," she said.

Challenges in treatment access

Disparity in access to life-saving treatments like dialysis and kidney transplantation was a key theme of the lecture.

"In high-income countries, patients with kidney failure have access to advanced medical care. However, in many low-resource settings, dialysis remains an unattainable luxury. I remember a young mother in rural Africa who was diagnosed with end-stage renal disease. Without access to dialysis, her prognosis was grim. Her only option was to travel hundreds of miles to the nearest hospital – a journey she could barely afford," said McCullogh.

"For many patients the lack of infrastructure means kidney failure is effectively a death sentence," she said.

One of the promising solutions highlighted in the talk is peritoneal dialysis (PD), which can be performed at home with minimal equipment. "PD offers a cost-effective and accessible alternative to traditional haemodialysis. It does not require large dialysis centres or continuous electricity, making it ideal for rural settings," she explained.

PD, however, comes with its challenges. "Sterile conditions are critical to prevent infections. Our goal is to train local healthcare workers and patients in safe PD techniques to expand its use in underprivileged areas."

The role of medical training and collaboration

McCulloch stressed the importance of education and training. "We cannot address this crisis without investing in the training of nephrologists, nurses and technicians. By empowering local healthcare professionals, we build sustainable solutions."

One initiative she discussed involves partnerships between universities and hospitals in high-income and low-income countries. "Through mentorship programmes and virtual training platforms, we are equipping healthcare workers with the knowledge to diagnose and manage kidney disease more effectively."

"We've put together some international guidelines, both for adults and children. We've run the 'saving young lives' course, not just in one day but for five days. We have seen in Ghana over 100 young doctors and nurses support community dialysis as part of the health system. We have saved 500 patients with a 65% survival rate."

Pointing to the map which shows their work extends to various regions, including South America, Southeast Asia and Fiji, where there were no paediatric kidney centres.

Innovative solutions and resilience

McCulloch shared inspiring stories of resilience and innovation in dialysis treatment. "During a severe water crisis, many hospitals in Cape Town had to ration dialysis sessions. Instead of giving up, doctors and engineers at RCWMCH devised a water recycling system by sinking a borehole to sustain treatment."

She emphasised innovation in paediatric dialysis, particularly when traditional supplies are unavailable: "These companies have stopped making children's catheters worldwide, so we had to think of alternative solutions." She recounted improvising with adult catheters for small children, stating, "It works just as well as the PD catheter."

"Telemedicine has allowed us to monitor kidney patients remotely, providing them with expert advice without requiring costly travel. This is a game-changer," she added.

"Kidney disease must become a public health priority. Governments must invest in preventive care, subsidise dialysis treatments and promote organ donation. Many people do not realise that simple lifestyle changes, such as reducing salt intake, staying hydrated and controlling blood pressure can significantly lower the risk of CKD," she concluded.

Story by: Myolisi Gophe, UCT News

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Issued by: UCT Communication and Marketing Department

Thami Nkwanyane
Media Liaison and Monitoring Officer
Communication and Marketing Department
University of Cape Town
Rondebosch
Tel: (021) 650 5672
Cell: (072) 563 9500
Email: thami.nkwanyane@uct.ac.za
Website: www.uct.ac.za