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UCT's latest A-rated scientist improving TB diagnosis in children

The latest A-rated researcher at University of Cape Town, Professor Heather Zar – head of the Department of Paediatrics and Child Health at Red Cross War Memorial Children's Hospital – is developing methods to improve diagnosing tuberculosis in children.

Professor Zar's A-rating by the National Research Foundation (NRF), makes her a leader in her field. A-ratings are awarded to researchers who are recognised by their peers as leading international scholars in their field for the high quality and impact of their recent research outputs.

Only the third woman at UCT to be awarded an A-rating by the NRF, Professor Zar joins Professors Jill Farrant and Valerie Mizrahi as UCT's three A-rated women. She said: "Joining what is still only a small band of A-rated women researchers in the country is something special. It is a privilege to be counted as an A-rated scientist; I hope my work can serve to inspire others."

Among the focus of Professor Zar's work is tuberculosis in children and in particular, developing improved methods for diagnosis. The Western Cape has one of the highest TB rates in the world, says Zar. Novel, improved methods for diagnosing childhood TB have been developed and these Professor Zar said, "include a method to get mucus from the lungs of infants and young children (sputum induction) and using new molecular methods on sputum to enable rapid diagnosis of TB and of resistance in children. Such studies have shown that confirmation of TB is possible and very useful even in infants, enabling rapid effective TB therapy to be started - and have so changed global practice."

As an acknowledged world leader in child lung health, she holds several leadership positions in international and national organisations. She currently serves as President of the Pan

African Thoracic Society and President of the South African Thoracic Society, so promoting lung health in Africa through education, training, research and advocacy.

Zar's A-rating is the culmination of more than a decade of work to develop strategies to improve child health. As head of a large department, her job is multifaceted, encompassing research, clinical work, teaching and administration – so achieving this rating is especially gratifying, she says.

Her wide-ranging research addresses the leading causes of childhood illness and death in African children – tuberculosis, pneumonia, HIV-associated respiratory illness and asthma. A strong focus, reports Professor Zar, has been on pneumonia – the major killer of children under 5 years of age – and finding new strategies for diagnosis, prevention and treatment of the condition, including for HIV-infected children.

Professor Zar and her team have also done work on asthma, including delineating the burden of childhood asthma in Africa and developing a low-cost device for therapy, thus empowering caregivers to provide optimal asthma therapy for children even in the poorest of circumstances. Asthma is now recognised as the commonest chronic illness in children in Africa.

Zar's projects have been supported through major global funding agencies, including the National Institutes of Health in the US, the European Developing Country Clinical Trials Partnership, the Wellcome Trust, the Global Alliance for Vaccine and Immunisation, the Gates Foundation, the Rockefeller Institute and the World Health Organisation.

Through this support, Professor Zar has been able to develop much-needed capacity in child health, with the establishment of a very productive paediatric clinical-research unit at Red Cross (a new expanded unit is to be built this year), the growth of several satellite clinical research sites at other health facilities such as community-based clinics, and the training of several PhD and master's students.

In 2011, she received a multi-million rand research grant to lead *The Drakenstein Child Lung Health Study*, a longitudinal birth cohort study that will follow 500 mother-child pairs in the Drakenstein region of the Western Cape from pregnancy through birth and early childhood. Along this timeline, they will investigate the determinants of child health with a focus on respiratory illness, specifically pneumonia, in early life and the long-term impact on child health.

"This is an exciting and unique study in Africa, with much potential to identify new interventions to improve child health," says Zar.

Keeping things in the family, Professor Zar is married to, UCT's Professor Dan Stein, head of Psychiatry and Mental Health, also an A rated scientist. The achievement, Zar says, affirms that not only is a dual academic family doable, but that balancing work and a happy home life – they have three children – is also possible.

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