

## Citation: Ntobeko Ntusi

Ntobeko Ntusi is a cardiologist and a Professor of Medicine, currently appointed as the Chair and Head of Medicine at the University of Cape Town (UCT) and Groote Schuur Hospital, where he also provides the Clinical Lead for cardiovascular magnetic resonance (CMR). He is a Principal Investigator based at the Hatter Institute for Cardiovascular Research in Africa (UCT) and the Cape Universities Body Imaging Centre (UCT), as well as a Collaborating Investigator at the Wellcome Centre for Infectious Diseases Research in Africa (UCT). He is the Editor-in-Chief of the South African Heart Journal, an Associate Editor of Circulation and serves on Editorial Boards for numerous journals and provides regular peer review for granting agencies and scientific journals globally. He obtained a BSc in Molecular and Cellular Biology from Haverford College, USA followed by an MBChB from UCT. He obtained a DPhil in Cardiovascular Medicine and an MD in Cardiology from the Universities of Oxford and Cape Town, respectively. He completed his clinical training in Medicine and Cardiology from the Colleges of Medicine of South Africa.

His primary research interests comprise inflammatory heart disease, cardiomyopathy, and non-invasive imaging, in particular with CMR. He has in-depth training and expertise in CMR, and has extensive experience with basic science, translational and clinical research. He currently supervises postgraduate students and is conducting several single-centre mechanistic clinical studies, and international clinical trials, which are mostly CMR-based. Through his research, he has built strong links with colleagues in clinical cardiology, physics and biomedical engineering, tuberculosis and HIV medicine, rheumatology, immunology, molecular genetics, and biomedical statistics; and has shown capacity for performance in scientific investigational teams and is suited to being part of multi-disciplinary and multi-centre clinical studies. To date, he has published 157 articles, 2 guidelines, 10 book chapters and 261 peer-reviewed conference proceedings. He has 3,965 citations, an h-index of 29 and an i10-index of 53. In the past 10 years, he has attracted research funding more than R150 million rands.

His key contributions to science have occurred in five domains. First, he has been involved in novel description of the clinical features, outcomes, and genetic underpinnings of cardiomyopathy in South Africa, with several novel genes identified. For example, he was the first to demonstrate differences in clinical characteristics and outcomes in patients with familial and idiopathic dilated cardiomyopathy in Africa (Ntusi NBA, et al. Clinical characteristics and outcomes of familial and idiopathic dilated cardiomyopathy in Cape Town: a comparative study of 120 cases followed up over 14 years. *SAMJ* 2011;101(6):399-404). Second, he has led innovative applications of CMR in the study of cardiovascular structure and function, myocardial perfusion, 4-dimensional flow imaging, HIV-associated cardiovascular disease, and imaging in obesity. An exemplar was the first publication demonstrating feasibility and safety of a high-dose adenosine perfusion CMR, which has been highly cited, and established the standard of practice (Karamitsos TD, Ntusi NAB, et al. Feasibility and safety of high-dose adenosine perfusion cardiovascular magnetic resonance. *JCMR* 2010;12:66). Third, his work has improved understanding of imaging biomarkers, phenotypes, and pathogenesis of inflammatory heart disease. For instance, in rheumatoid arthritis, he demonstrated that subclinical cardiovascular disease is common with focal and diffuse myocardial fibrosis and inflammation, associated with

disease activity and impairment in myocardial deformational characteristics (Ntusi NAB, et al. Diffuse myocardial fibrosis and inflammation in rheumatoid arthritis: insights from CMR T1 mapping. *JACC Img* 2015;8:526-536). Fourth, he and colleagues were the first to publish on systematic application of CMR and magnetic resonance spectroscopy (MRS) to understand the biology of HIV-associated cardiovascular disease. They described what has become axiomatic understanding of a high burden of cardiac steatosis, fibrosis, and alterations in cardiac function in individuals living with HIV on antiretroviral therapy without known cardiovascular disease (Holloway CJ, Ntusi N, et al. Comprehensive cardiac magnetic resonance imaging and spectroscopy reveal a high burden of myocardial disease in HIV patients. *Circulation* 2013;128(8):814-822). Finally, he has contributed significantly on how the use of CMR may improve assessment of myocardial inflammation, fibrosis and infiltration, with some of the earliest publications in these areas. For example, the first publication on application of CMR T1 mapping to stratify phenotypes of amyloidosis has been cited over 500 times and been considered the standard of practice (Karamitsos TD,... Ntusi NAB, et al. Noncontrast T1 mapping for the diagnosis of cardiac amyloidosis. *JACC Img* 2013;488-497).

He has been the recipient of numerous distinctions, fellowships and awards including the UCT Frank Forman Prize (2003), Mail and Guardian's 200 Most Influential Young South Africans Award (2011), National Research Foundation of South Africa Emerging Researcher Award (2015), National Research Foundation Science Team Award (2017), Walter Siegenthaler Medal (2019) and Fellowships from the Royal College of Physicians and the Royal Society of South Africa (2020).