February 2023

WITS UNIVERSITY 1922 2022 | FACULTY OF HEALTH SCIENCES

WITS HEALTH SCIENCES RESEARCH REVIEW

Editorial – Research Newsletter

Although we are already in the second month of the year, I hope that it's never too late to wish you all a productive and prosperous 2023.

The year 2022 was a good year for the Faculty as some of our researchers received prestigious research awards. In this issue we congratulate Professors Laetitia Rispel, Frederick Raal and Deborah Glencross for being awarded DSc (Med) degrees in 2022. Congratulations too, to Professor Karen Hofman who was bestowed with an ASSAf Science for Society Gold Medal.

Lastly, we are exceptionally proud of Professor Frederick Raal who was named for the third time as a Highly Cited Researcher.
In this issue, we also announce several calls for applications for funding in 2023 offered by the Faculty Research Office.

Have a wonderful year!

Happy reading!

Professor Maria Papathanasopoulos
Assistant Dean:
Research, Innovation and postgraduate Support
Wits Faculty of Health Sciences

FACULTY OF HEALTH SCIENCES

Contacts

Faculty of Health Sciences, University of the Witwatersrand

www.wits.ac.za/health

Do you want your research work to be featured?

For staff, email:
didi.mmatladi@wits.ac.za

Alumni submission, email:
alumni.healthsciences@wits.ac.za

Editorial

LAYOUT DESIGN
Didi Mmatladi

CONTRIBUTING WRITER
Didi Mmatladi

COPY EDITORS
Nomfundo Sibiya

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Research in high-impact factor journals:

Point-of-care HIV diagnosis for infants: the outcomes we need to achieve

Lancet (IF - 202.731)

Wits researchers involved: Karl-Gunter Technau, Ahmad Haeri Mazanderani

Caring for infants and young children living with HIV remains a reality for many families. Despite decades of work leading to a substantial reduction in vertical transmission rates, the stark reality of poor and often late access to HIV diagnosis and subsequent antiretroviral therapy (ART) remains an issue. This is especially true in the African region, where 90% of all HIV-exposed infants reside. Approximately 1 150 000 children aged 0–9 years acquire HIV globally each year, but less than two-thirds access early infant testing services.

Processes that for years have been elusive or taken many weeks or even months can now be expedited in a few hours. Point-of-care testing can further offer the promise of incorporating other tests that are important for HIV management (e.g., virological and immunological monitoring, and screening for other infectious diseases), with manufacturers developing testing platforms that can run various assays simultaneously, thereby enabling development of comprehensive and timely packages of care.

Point-of-care viral load testing has been shown to improve viral suppression and retention in care and can be combined with early infant diagnosis programmes.

*Read full study

Patterns of tobacco use in low- and middle-income countries by tobacco product and sociodemographic characteristics

British Medical Journal (IF - 96.216)

Wits researchers involved: Justine Davies

The Global Burden of Disease study estimates that tobacco smoking caused 7.7 million deaths globally in 2019 and that smoking is the leading risk factor for disability adjusted life years among men. Smokeless tobacco use, such as chewing tobacco, snuff, or tobacco chewed with betel nut, are estimated to have caused an additional 349 000 deaths in 2017.

As of 2020, almost one billion people worldwide were estimated to smoke tobacco and 336 million were estimated to use smokeless tobacco, predominantly living in low- and middle-income countries.

The tobacco associated health consequences can pose a risk to health systems of these countries because many of them are not well prepared to cope with the increased need for care of related diseases, such as cancers and cardiovascular diseases.

This study complements the Global Burden of Disease studies on smoked and smokeless tobacco use. The study analyses not only how tobacco use overall varies by age and sex within these countries but also how the use of each product varies by sociodemographic and economic variables, including education, household wealth, and rural versus urban residency.

*Read full study

Research in high-impact factor journals:

Emergence of SARS-CoV-2 Omicron lineages BA.4 and BA.5 in South Africa

Nature Medicine (IF - 87.244)

Wits researcher involved: Cathrine Scheepers (NICD), Kathleen Subramoney, Zinhle Makatini, Lesley Scott, Wendy Stevens, Nicole Wolter (NICD), Florette K. Treurnicht, Jinal N. Bhiman (VIDA), Anne von Gottberg (NICD)

Three lineages (BA.1, BA.2 and BA.3) of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) Omicron variant of concern predominantly drove South Africa's fourth Coronavirus Disease 2019 (COVID-19) wave.

The spike proteins of BA.4 and BA.5 are identical and are similar to BA.2 except for the addition of 69–70 deletion (present in the Alpha variant and the BA.1 lineage), L452R ss(present in the Delta variant), F486V and the wild-type amino acid at Q493. The two lineages differ only outside of the spike region.

The study actively investigating the potential of a yet unidentified animal reservoir in the region. To date, the only reverse zoonoses cases reported from the African region were in African lions and a puma in a private zoo in Johannesburg, South Africa.

The study identified two new Omicron lineages (BA.4 and BA.5), which are associated with a resurgence in infections in South Africa approximately 4months on from the start of the Omicron wave. This highlights the importance of continued global genomic surveillance and variant analysis to act as an early warning system, giving countries time to prepare and mitigate the public health effect of emerging variants.

*Read full study

National survey in South Africa reveals high tuberculosis prevalence among previously treated people

Lancet Infectious Diseases (IF - 71.421)

Wits researcher involved: Neil Martinson

People who reported a history of previous tuberculosis treatment contributed disproportionately to prevalent tuberculosis. Of the 35 191 individuals participating in the survey, 2964 (8·4%) reported previous tuberculosis treatment. However, of 234 participants with bacteriologically confirmed pulmonary tuberculosis, 62 (26·5%) reported previous treatment, all of whom were culture-positive for Mycobacterium tuberculosis complex as per the study's case definition.

The crude prevalence of bacteriologically confirmed pulmonary tuberculosis was thus 3·2-times higher in participants who had previously had treatment compared with those who had not. High rates of prevalent tuberculosis among people who were previously treated have repeatedly been documented at the sub-country level in South Africa.

It is worth emphasis that previously treated people are a key high-risk group for tuberculosis in South Africa, representing less than 10% of the adult population but contributing more than a quarter (26·5%) of undetected tuberculosis, and they should therefore be considered for targeted interventions.

Mathematical modelling showed that post-treatment follow-up with secondary preventive therapy among people who had previously completed tuberculosis treatment could reduce transmission, tuberculosis incidence, and mortality in high-incidence settings, and potentially save costs.

*Read full study

Research in high-impact factor journals:

Safety and immunogenicity of VPM1002 versus BCG in South African new-born babies: a randomised, phase 2 non-inferiority double-blind controlled trial

Lancet Infectious Diseases (IF - 71.421)

Wits Researchers involved (VIDA): Shabir Madhi, Anthonet Koen, Andrew Moultrie, Sutika Bhikha

Tuberculosis is a major public health problem worldwide. Immunisation with Mycobacterium bovis BCG vaccine is partially effective in infants, reducing the incidence of miliary and tuberculosis meningitis, but is less effective against pulmonary tuberculosis. The aim of this study was to compare safety and immunogenicity of VPM1002—a recombinant BCG vaccine developed to address this gap—with BCG in HIV exposed and HIV unexposed new-born babies.

Eligible neonates were aged 12 days or younger with a birthweight of 2·5–4·2 kg and could be HIV exposed (seropositive mothers) or unexposed (seronegative mothers).

The primary outcome was assessed in all vaccinated participants (safety population) at regular follow-up visits until 12 months after vaccination. Secondary immunogenicity outcomes were interferon-γ levels and percentages of multifunctional CD4+ and CD8+ T cells among all lymphocytes across the 12-month study period. VPM1002 is currently being studied for efficacy and safety in a multicentric phase 3 clinical trial in babies in sub-Saharan Africa.

*Read full study

Outcomes of flucytosine-containing combination treatment for cryptococcal meningitis in a South African national access programme: a cross-sectional observational study

Lancet Infectious Diseases (IF - 71.421)

Wits researcher involved: Susan T Meiring (NICD), Jeremy Nel, Colin Menezes, Denasha L Reddy (VIDA), Michelle Venter, Sarah Stacey, Nelesh Govender (NICD)

Although flucytosine is a key component of WHO-recommended induction treatment for HIV-associated cryptococcal meningitis, this antifungal agent is not widely available in low-income and middle-income countries due to limited production and cost. In 2018, a national flucytosine access programme was initiated in South Africa. This study aimed to determine the effectiveness of flucytosine-containing induction regimens in routine care to motivate for the urgent registration of flucytosine and its inclusion in treatment guidelines.

The median age for this study was 36 years, and 906 participants were male and 633 were female. The crude in-hospital case-fatality ratio was 23·9% in those treated with flucytosine-containing regimens and 37·2% in those treated with other regimens.

In-hospital mortality among patients treated with a flucytosine-containing regimen was comparable to reduced mortality reported in patients receiving a flucytosine-containing regimen in a recent multicentre African clinical trial. Flucytosine-based treatment can be delivered in routine care in a middle-income country with a substantial survival benefit.

*Read full study

Health-Centred Policy Design: Are Sugar Taxes Effective?

Wits Researcher and Founding Director of PRICELESS SA, Professor Karen Hofman was invited to speak at Princeton University's Princeton Pulse Podcast to discuss the efficiency of imposing a sugar tax for sweetened beverages. The discussion compared notes of the experiences of South Africa to those of the United States of America (USA) - State of Philadelphia.

Diabetes is one of the fastest-growing diseases globally and has seen an increase in the number of people living with this chronic disease rising from 108 million in 1980 to 422 million in 2014. In South Africa, diabetes has a high mortality rate with roughly 4, 2 million people of the population living with the condition. Whilst in the USA, the State of Philadelphia in particular has the highest prevalence of diabetes, with approximately 15.4% of all persons over 18 affected.

The World Health Organisation has attributed the prevalence of diabetes to low and middle-income countries as opposed to high-income countries. Despite this, the disease is also on a rise in high-income countries such as the USA, particularly for people with comorbidities like cardiovascular disease, chronic kidney disease, pneumonia, tuberculosis (TB) and others.

> While South Africa is still the epicenter of the HIV epidemic, it is now overtaken by diabetes and heart diseases," says Professor Hofman.

The drastic increase in the number of cases of blindness, kidney failure, heart attacks, stroke and lower limb amputations is also on a rise in low and middle-income countries. Professor Hofman shared that South African hospital wards are treating more diabetes patients who are more likely to have their limbs amputated before succumbing to the disease. She adds that even more concerning was the susceptibility of fatal COVID-19 infections to patients with underlying comorbidities, especially among the younger population.

In South Africa, calls by health and civil society organisations for the government to implement policies that would encourage the population to adopt a health-conscious lifestyle pre-dates the COVID-19 pandemic. However, it's the pandemic that highlighted the extent to which diseases like diabetes and TB pose a serious health risk to South Africans and a burden to the country's health system.

> ...in many of these patients, it [fatalities and amputations] could have been prevented well ahead of time if we had paid attention to this

The SAMRC/Wits Centre for Health Economics and Decision Science Research Unit (PRICELESS SA) advocated for the "Taxation of Sugar-Sweetened Beverages" policy (also known as the Health Promotion Levy) in South Africa which the government implemented in April 2018. Since then, other countries have also followed suit.

The sugar tax policies in both South Africa and Philadelphia, are used as a corrective tool to address soaring figures of obesity and other non-communicable diseases. Professor Hofman says that more front food labelling is essential as it makes nutritional information easier to locate, especially for low-literacy individuals. She says that in so doing, this

Cont.

*information will also assist parents with making informed choices when purchasing children's food as obesity numbers in children are growing at an alarming rate globally.

Diabetes in Children

Also adding to the risk of children living with diabetes is the "deliberate and relentless marketing" of sugary products to the sub-Saharan population as a target growth market by multinational corporations. Professor Hofman noted that such efforts by corporations distinctly target "the poor", which has translated to the rise of diabetic people living in sub-Saharan Africa.

This supports the notion that high sugar intake has a ripple effect on social and economic costs in low and middle-income countries particularly relating to healthcare and social services.

Professor Hofman compared experiences with her fellow guest on the podcast, Dwayne Wharton, who is an advocate for health fairness and supported Philadelphia's beverage tax policies. The discussion juxtaposed their learnings in policy design and highlighted related equality issues. They both cited the importance that research played in developing these policies in both contexts.

Professor Hofman says their research found that the sugar tax is effective in reducing consumers' appetite for sugary beverages. She says that before the application of the sugar tax, teenagers in Soweto would drink an average of ten cans of frizzy drinks a week. However, since the implementation of the Health Promotion Levy, this has since been reduced to four cans a week.

> "the volumes consumed by consumers have gone down…the amount of sugar by volume came down as well as the amount of volume of the actual product [the liquids]" adds Professor Hofman

Further to the reduction of the sales of sugary drinks, she adds that bottled water has seen an increase in sales as a healthier and cheaper alternative. Although it is too soon to quantify the reduction of obesity as a direct result of the sugar tax implementation, Professor Hofman says their mathematical modelling predicts that a 20% sugar tax rate would decrease obesity by approximately 250 000 people per year.

Although this health campaign has yielded positive results, the biggest threat to its further success is the pushback and political interference in the favour of multinational corporations.

Although many such corporations have vowed to not market and sell their products at primary schools to alleviate diabetes in children, the "voluntary pledge" approach taken for this process means that corporations are not obliged to comply. This continues to be a setback in combating the upward trend of a diabetic nation.

Read more of Professor Hofman's research work on this topic.

Fungal HIV Global Health Research

Wits University partners in a new NIHR-funded Global Health Research Group on HIV-associated Fungal Infections (IMPRINT).

Serious fungal infections are a global threat to human health. Many of these severe infections occur in people living with HIV. Four HIV-associated fungal infections - Cryptococci meningitis, histoplasmosis, Pneumocystis pneumonia (PCP) and talaromycosis - are responsible for over 20% of all AIDS-related deaths globally.

However, these diseases have been neglected and medical mycology (the study of fungal diseases in humans) is underfunded receiving <1.5% of funds allocated to infectious diseases research globally.

Research into better tests for diagnosis and better treatment of fungal infections and use of these improved tests and treatments in routine healthcare are essential to reduce deaths and disability. The World Health Organization (WHO) has recognised that AIDS deaths cannot be reduced until the major fungal complications of advanced HIV disease are effectively addressed; in its 2022 Fungal Pathogens Priority List, the WHO has flagged Cryptococcus, Histoplasma, Pneumocystis and Talaromyces as priority diseases for public health intervention, research and development.

The NIHR has funded a new Global Health Research Group on HIV-associated Fungal Infections through the London School of Hygiene and Tropical Medicine (LSHTM) as the contracting organisation. Jointly led by Professor Joe Jarvis (LSHTM) and Professor Nelesh Govender (Wits), the group is named IMPRINT, an acronym for International Mycoses Prevention, Research, Implementation, Networks and Training.

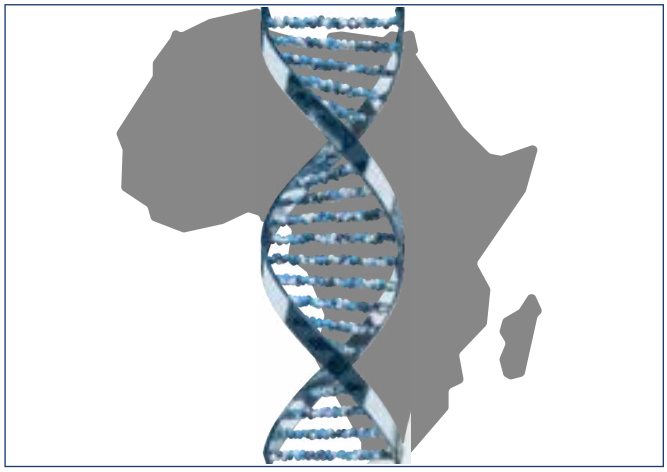
The group aims to improve the diagnosis and of the four major HIV-associated fungal infections of public health importance and to ensure that these improvements are made widely available to populations most affected in Africa (Democratic Republic of Congo, Mozambique, Guinea, Malawi, Botswana, South Africa), and Southeast Asia (Vietnam). This will brings together leading academic researchers, clinical and public health leaders, non-governmental organisations including Médecins Sans Frontières and the Drugs for Neglected Diseases initiative, and community and patient representatives.

> Most people don't realise that fungal infections can cause serious disabilities or be life-threatening in people living with HIV. The fungal infections which our new NIHR-funded group will research were listed as global or regional priorities by the World Health Organization just a few weeks ago. These infections are most common in people living in countries with the fewest health resources" says co-leader and Wits research, Professor Nelesh Govender.

The partnerships will be equitable, with leadership shared across six work packages delivered from 2022 through to 2026, insights from qualitative research and guidance from a steering committee and community advisory board. In addition to the direct impact of the work that will be undertaken, the group will liaise with national, regional, and international bodies (ministries of health, major NGOs, UNITAID, WHO, Africa CDC) in order to effectively scale up the results and impact of its work.

*Read full article

Genetic risk scores could predict disease in Africans



Wits (SBIMB) researchers involved: Tinashe Chikowore

Using genetic risk scores to predict which individuals have a higher risk genetically of developing a particular disease is set to revolutionise medicine. The genetic risk scores (GRS) approach to predicting disease risk enables early detection and treatment in a personalised way.

GRS has shown significant progress and potential in European populations. However, applying the approaches developed from European data to African populations shows that GRS are 4.5 times less accurate. This is partly due to the fact that people of African ancestry account for only 1.1% of the global participants in genomic studies.

A study by scientists at the Sydney Brenner Institute for Molecular Bioscience (SBIMB), with colleagues in Uganda and the UK, set out to understand how compiling genetic information into genetic risk scores from African Americans, Europeans, and multiple ancestries (Asians, Europeans and African Americans) could help identify people who are likely to have high and low lipid levels in African populations.

Lipid (fats) levels refer to the amount of cholesterol and fats (called triglycerides) in the blood. These measurements give doctors a snapshot of lipids in a person's blood. Lipids such as cholesterol and triglycerides in the blood can clog arteries, making a person more likely to develop heart disease.

The study, titled Transferability of genetic risk scores in Africa, was published in *Nature Medicine*. It gives insights into genetic information that can be compiled into genetic risk scores to identify African people with high and low lipid levels. This is essential for the early identification of people who are most likely to have elevated levels of lipids in the future. These individuals can then benefit from early interventions that will reduce their chances of having heart and blood vessel-related diseases in the future.

Dr Tinashe Chikowore, a Wellcome Trust Fellow in the SBIMB and in the Wits-South African Medical Research Council (SAMRC) Developmental Pathways to Health Research Unit (DPHRU) co-authored the paper with Professor Segun Fatumo from the African Computational Genomics Group (TACG), the Uganda Virus Research Institute, and London School of Hygiene and Tropical Medicine (LSHTM). Dr Abram Kamiza, a scientist at the SBIMB and TACG, was first author of the study.

Chikowore says,

> We found that constructing genetic risk scores using information from African Americans led to predictions that were 5.1 times less accurate compared to those from Europeans, and 1.3 times better than combining genetic information from multiple ancestries in Africa for blood cholesterol levels. However, we found that genetic prediction varies in Africa, performing well in urban South African people compared with those in rural Uganda, due to differences in age, lifestyles, environments, and genetics.

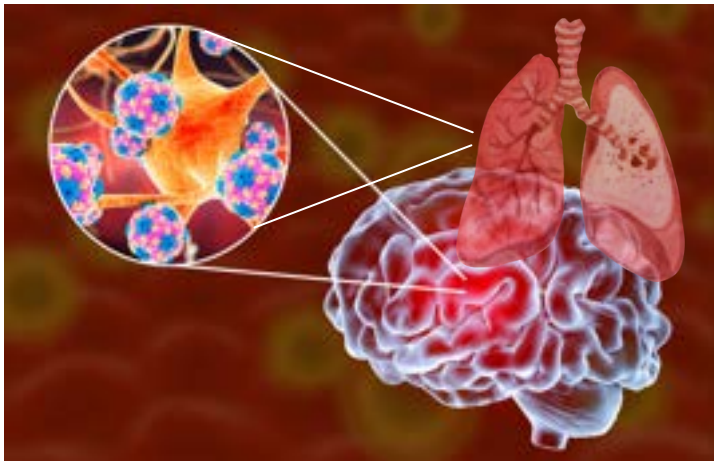
Genetic risk scores added to conventional risk factors – which include age, sex, body mass index and type 2 diabetes – improved the ability to identify people with high lipid levels by 48%, according to the study. This means that increasing the proportion of Africans in global genetic studies will ensure that more accurate genetic risk scores can be constructed for disease prediction in Africa.

Professor Michèle Ramsay, the National Research Foundation South African Research Chairs Initiative Chair of Genomics and Bioinformatics in African populations and Director of the SBIMB, says,

> …it is gratifying that this study, spearheaded by young African scientists and published in a high-impact journal, is highlighting transferability of genetic risk algorithms to African populations.

*Read full study

The global burden of HIV-associated cryptococcal infection in adults in 2020: a modelling analysis



Wits researchers involved: Nelesh Govender

Cryptococcal meningitis is the most common cause of meningitis in adults living with HIV in sub-Saharan Africa. The estimates of national, regional, and global burden of cryptococcal meningitis are essential to guide prevention strategies and determine needs for diagnostic tests and treatments. This study presents a 2020 estimate of the global burden of HIV-associated cryptococcal infection (antigenaemia), cryptococcal meningitis, and cryptococcal associated deaths.

Cryptococcosis is unique among AIDS-related opportunistic infections in that cryptococcal antigen (CrAg) is detectable in the blood (antigenaemia) weeks to months before the onset of meningitis symptoms.

This Article presents an updated estimate of the global burden of HIV-associated cryptococcal infection (antigenaemia), cryptococcal meningitis, and cryptococcal-associated deaths using 2020 data.

Methods

The article defined advanced HIV disease as adults with a CD4 count of less than 200 cells/µL, as this group is at highest risk for cryptococcosis. Although children younger than 5 years with HIV are considered to have advanced disease, children are not considered in this analysis as the risk of opportunistic infections such as cryptococcosis, along with screening and treatment recommendations, differ substantially from those for adults.

To summarise cryptococcal antigenaemia prevalence, the study identified all published studies and conference abstracts from Jan 1, 1989, to Dec 31, 2021. It included studies from both outpatient and inpatient settings. CrAg prevalence among people with a CD4 count of less than 200 cells/µL was analysed by country, along with the associated 95% CIs, calculated using Fisher's exact test.

Results

In 2020, UNAIDS estimated that 36,7 million adults (range 28,9–43,2) worldwide were living with HIV, of which 23,8 million (19,5–28,5) reside in sub-Saharan Africa. Globally, 27,5 million (range 16,2–38,0) adults were receiving ART. This study estimated that 4,3 million (IQR 3,0–4,8) adults globally had advanced HIV disease (defined as CD4<200 cells//µL and corresponding to 12% of people living with HIV [range 10-15]), of whom 2,5 million (58%) live in sub-Saharan Africa.

In sub-Saharan Africa (combining southern and eastern with western and central African regions), where historically the burden of cryptococcal infection has been the greatest, an estimated 97000 adults (IQR 73000–120 000) had cryptococcal antigenaemia in 2020, 82 000 adults (61 000–101000) developed cryptococcal meningitis, and 71 000 (52000–88 000) cryptococcal-related deaths occurred (accounting for 63% of all cryptococcal-related deaths; figure 4).

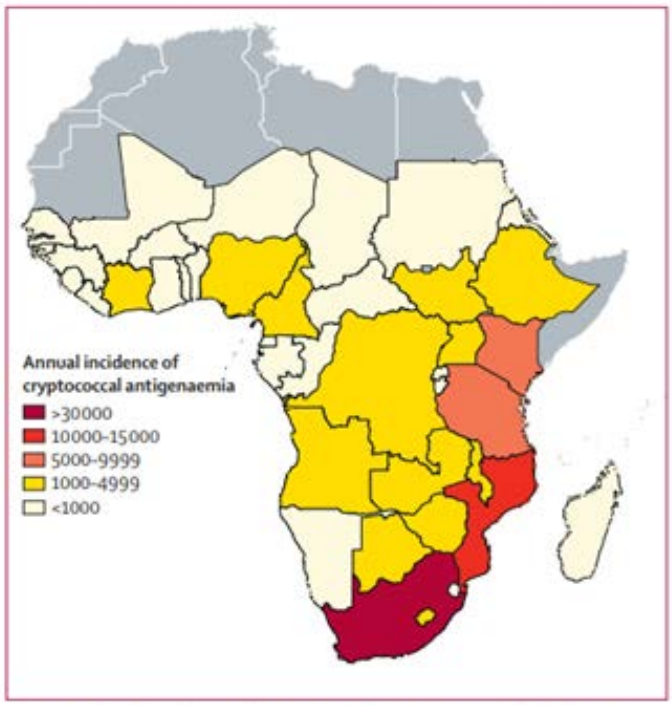


Figure 4: **Annual incidence of cryptococcal antigenemia in sub-Saharan Africa**
Top 10 countries, in terms of incidence of cryptococcal antigenaemia are South Africa, Mozambique, Kenya, DR Congo, Tanzania, Zambia, Nigeria, Malawi, Zimbabwe, and Ethiopia (appendix p 12).

*Read full study

Widely used kidney function tests underestimate scale of kidney disease in Africa

Wits researchers involved: June Fabian, Eustasius Musenge

A commonly used blood test which measures how well a person's kidneys are working may not pick up kidney disease for people in Africa. This means that many people could miss early diagnosis and life-saving treatment.

A study, titled Measurement of kidney function in Malawi, South Africa, and Uganda: a multicentre cohort study and published in The Lancet Global Health, was the largest study to analyse kidney disease testing and prevalence in Africa.

Researchers from the African Research on Kidney Disease (ARK) Consortium ran the study, which focused on more than 2 500 people in Malawi, South Africa and Uganda.

Testing how well kidneys function is essential to diagnosing kidney disease in individuals and predicting the burden of kidney disease in populations. Glomerular filtration rate (GFR) is the most common way to assess kidney function and is a measure of how much blood the kidneys are filtering per minute. Testing kidney function involves measuring how much creatinine or cystatin C is in a person's blood.

To study the most accurate way to measure kidney function in African populations, the ARK Consortium compared the widely used creatinine and cystatin C-based tests with a benchmark test called the iohexol measured glomerular filtration rate (mGFR). The ARK researchers found that creatinine-based tests were inaccurate for predicting kidney disease in African populations.

The creatinine-based test was shown to be inaccurate for predicting kidney disease and this may be because it does not account for unique biological characteristics in African populations.

Africans, for example can have lower creatinine levels due to inadequate nutrition (especially low protein ingestion), short stature and low muscle bulk. Creatinine may also be excreted differently in African populations.

"The equation that is used to test kidney function is wrong for 1.4 billion people – Africans," says co-lead author of the study, Dr June Fabian of Wits University, South Africa. "Kidney disease can be debilitating and ultimately fatal if left untreated. Blood tests are useful to spot early signs of kidney problems – and can help identify people who would benefit from treatment."

ARK researchers used the results of their study, along with population data from Burkina Faso, Ghana, Kenya, Malawi, South Africa and Uganda, to estimate overall levels of kidney disease.

The results suggest that kidney disease prevalence may be substantially higher in Africa than previously thought, increasing from about 1 in 30 people to about 1 in 8 people.

Tests based on cystatin C worked better than creatinine as an indicator of poor kidney function – but the cystatin C testing is not widely used or available in Africa.

The cystatin C test, which would be more suitable in Africa, costs around R320 [US$19], significantly more expensive than the widely-used but less accurate creatinine, at just R67 [US$4].

*Read full study

Quasi-experimental evaluation of a financial incentive for first-dose COVID-19 vaccination among adults aged ≥60 years in South Africa

Wits HE2RO researcher involved: Candice Maylene Chetty-Makkan, Simamkele Bokolo, Lawrence Long, Jacqui Miot, Sophie J S Pascoe

COVID-19 vaccination coverage in South Africa (RSA) remains low despite increased access to vaccines. On 1 November 2021, RSA introduced the Vooma Voucher programme which provided a small guaranteed financial incentive, a Vooma Voucher redeemable at grocery stores, for COVID-19 vaccination among older adults, a population most vulnerable to serious illness, hospitalisation and death. However, the association of financial incentives with vaccination coverage remains unclear.

Methods

This study evaluated the association of the conditional economic incentive programme with first-dose vaccination rates among adults (aged ≥60 years) through a quasi-experimental cohort study.

The Vooma Voucher programme was a nationwide vaccination incentive programme implemented for adults aged ≥60 years from 1 November 2021 to 28 February 2022. The study ran ITS models to evaluate the Vooma Voucher programme at national and provincial levels. Data between 1 October 2021 and 27 November 2021 was used in models estimated at the daily level. Individuals who received their first vaccine dose received a text message to access a ZAR100 ($~7) voucher that was redeemable at grocery stores.

Results

The Vooma Voucher programme was associated with a 7.15%–12.01% increase in daily first-dose vaccinations in November 2021 compared with late October 2021. Overall, the incentive accounted for 6476–10 874 additional first vaccine doses from 1 November to 27 November 2021, or 8.31%–13.95% of all doses administered to those aged ≥60 years during that period. This result is robust to the inclusion of controls for the number of active vaccine delivery sites and for the nationwide Vooma vaccination weekend initiative (12 November to 14 November), both of which also increased vaccinations through expanded access to vaccines and demand creation activities.

Conclusions

Financial incentives for COVID-19 vaccination led to a modest increase in first-dose vaccinations among older adults in RSA. Financial incentives and expanded access to vaccines may result in higher vaccination coverage.

*Read full Report

African Academy of Sciences awards Wits alumnus pharmacist for scientific discovery and innovation

The African Academy of Sciences (AAS) named Wits alumnus and Professor Yahya Choonara as the winner of its Olusegun Obasanjo Prize for Scientific Discovery and Technological Innovation. The prize is the highest honour conferred by the AAS to honour exceptional African scientists.

Professor Choonara, the Co-Founder and Director of the Wits Advanced Drug Delivery Platform (WADDP) research unit, was selected as the winner from more than 200 applicants who exemplify international leadership and nurturing the spirit of scientific innovation on the African continent.

Choonara's research continues to be at the forefront of producing advanced lifesaving 21st Century medicines influencing global health, be it for infectious, hereditary, or lifestyle diseases.

The WADDP is a flagship research unit of Wits University and Africa's largest in the pharmaceutical sciences. It is Africa's first and only integrated pharmaceutical advanced drug delivery, nanomedicine and bioengineering (regenerative medicine) research unit.

Choonara says,

> Many newly-discovered drug molecules – for example, aimed at treating infectious diseases that disproportionately affect Africa – fail to reach patients due to the absence of an appropriate drug delivery system.

The WADDP team of pharmacists, clinicians, chemists, and expert pharmaceutical scientists work within world-class pharmaceutical laboratories across Africa due to the many public-academic-private partnerships that Choonara established.

> Our research at the WADDP closes this crucial gap and contributes to the global pipeline of newly discovered drug molecules by successfully translating them into clinically meaningful, life-saving medicines, using innovative drug delivery formulations and nanomedicine designed in our labs at Wits.

Explains Choonara.

As a researcher, Choonara is an author of more than 336 ISI-accredited international publications in the field with more than 10 500 citations (H-index=51) to his work. As a pharmacist and leading pharmaceutical scientist, he holds the largest pharmaceutical patent portfolio in Africa, focused on:

- treating infectious diseases
- advancing therapeutics for oncology
- designing drug-eluting [wash out or extract] devices
- smart 3D-bioprinted drug delivery systems
- neuro-therapeutics, and
- bio-inspired tissue engineered scaffolds for wound healing and neuro-trauma interventions including spinal cord and peripheral nerve injury.

In addition to his innovative scientific endeavours, Choonara is passionate about developing the much-needed human capacity to industrialize the innovative pharmaceutical industry in Africa.

He says that Pharmaceutical R&D ensures sustainable healthcare, although this comes with challenges for low-and middle-income countries [LMICs], due to the urgent need to train more pharmaceutical scientists on the continent.

To mitigate these challenges, Choonara leads a distinguished Human Capital Development (HCD), mentorship and pharmaceutical science career development programme that is pivotally linked to the R&D activities of the WADDP.

*Read full article

GRADUATIONS

Prof Laetitia Rispel

A Wits alumna and celebrated Public Health Professor, Laetitia Rispel, becomes the first African woman to obtain a Doctor of Science in Medicine Degree.

Her thesis was entitled *"Transformation of Human Resources for Health in South Africa: Contributions to knowledge and policy"*.

Professor Rispel's DSc (Med) thesis profiles her contributions to knowledge and policy in the transformation of human resources for health in South Africa over more than two decades.

This research is a major cross-cutting issue that complements the scholarly contribution is health policy engagement, influence, and capacity building.

Prof Frederick Raal

The Wits Head of the Division of Endocrinology and Metabolism and Director of the Carbohydrate and Lipid Metabolism Research Unit was awarded a Doctor of Science in Medicine degree from Wits.

His thesis was entitled *"Familial hypercholesterolaemia (FH) –three decades of advances in therapy"*.

Professor Raal is an A-rated NRF (South African National Research Foundation) researcher. He continues to play a pivotal role in advancing the treatment for FH both locally and internationally, his thesis describes these advances in therapy over the past three decades.

Prof Deborah Glencross

Professor Deborah Glencross was awarded a Doctor of Science degree from Wits. Her thesis was entitled "*Panleucogated (PLG) CD4 HIV Immune Monitoring: a difference by disruption"*.

Professor Glencross' research focus has primarily been on the development of novel and affordable laboratory monitoring assays for HIV/AIDS; of note especially, was her development of the substantively cheaper and better quality CD4 test, called panleucogated or PLG CD4.

Since the inception of the South African HIV treatment programme in 2004, more than 40 million PLG-CD4 tests have been across the South African State Health Lab Services, with cumulative savings to South Africa exceeding R8 billion.

RESEARCHER AND ALUMNA GOLD AWARD CONFERRED AT GRADUATION CEREMONY

Prof Aimeé Stewart

A Wits alumna and renowned physiotherapist, Professor Aimee Stewart received a Gold Medal from the University, which is awarded to individuals who have made a noteworthy contribution to the University or rendered exceptional service to the community.

Stewart played a pivotal role in curriculum design and the accreditation of physiotherapy in South Africa and beyond. In her acceptance speech at the Faculty of Health Sciences graduation ceremony on the 14 December 2022, she urged young grandaunts to go over their Oath and consider what they have said they would be, and what they would do.

Some of her notable contributions include receiving a six-year National Research Foundation niche area grant to explore the management of chronic disease and disability, including HIV/Aids. This was the first time that someone from the therapeutic sciences had been awarded the grant. Read more

OUTSTANDING ACHIEVEMENTS

Prof Helen Rees

Executive Director of Wits RHI, was awarded the prestigious Ministerial COVID-19 Special Award at the National Batho Pele Excellence Awards in the Platinum Category in recognition of her contributions to the COVID-19 pandemic

Prof Karen Hofman

Founding Director of PRICELESS SA was bestowed with Assaf Science for Society Gold Medal for her application of scientific thinking in the service of society

Professor Yahya Choonara

Head of Wits Pharmacology and Director of WADDP received the 2020 Olusegun Obasanjo Prize for Scientific Breakthrough and Technological Innovation from the African Academy of Sciences (awarded in 2022)

Prof Derick Raal

Head of the Wits Division of Endocrinology and Metabolism has for the third time been named as a Highly Cited Researcher. He is ranked in the top 1% by citations for a field or fields and publication year in the Web of Science™

FACULTY OF HEALTH SCIENCES

Drs Mantoa Mokhachane and Ann George

Director of UUME and Senior Lecturer at CHSE won an award at AMEE 2022 for their research paper "*Rethinking Professional Identity Formation amidst Protests and Social Upheaval: An African Journey*"

Prof Thesla Palanee-Phillips

Director of Clinical Trials at Wits RHI obtained a promotion and Joint Appointment to Affiliate Associate Professor with the University of Washington, Department of Epidemiology

FACULTY OF HEALTH SCIENCES

Dr Farzahna Mohamed

Wits Endocrinology lecturer received the L'Oreal-UNESCO For Women in Science Award for her research paper "Glucose and lipid metabolism in severe acute respiratory distress syndrome (SARS-CoV-2)"

2023 ACADEMIC STAFF PROMOTIONS

PROMOTION TO PERSONAL PROFESSOR

Professor Kevin Behrens
Professor Pradeep Kumar
Professor Abdullah Laher
Professor Sithembiso Velaphi

PROMOTION TO RESEARCH PROFESSOR

Professor Lisa Micklesfield

PROMOTION TO READER

Professor Alisha Wade

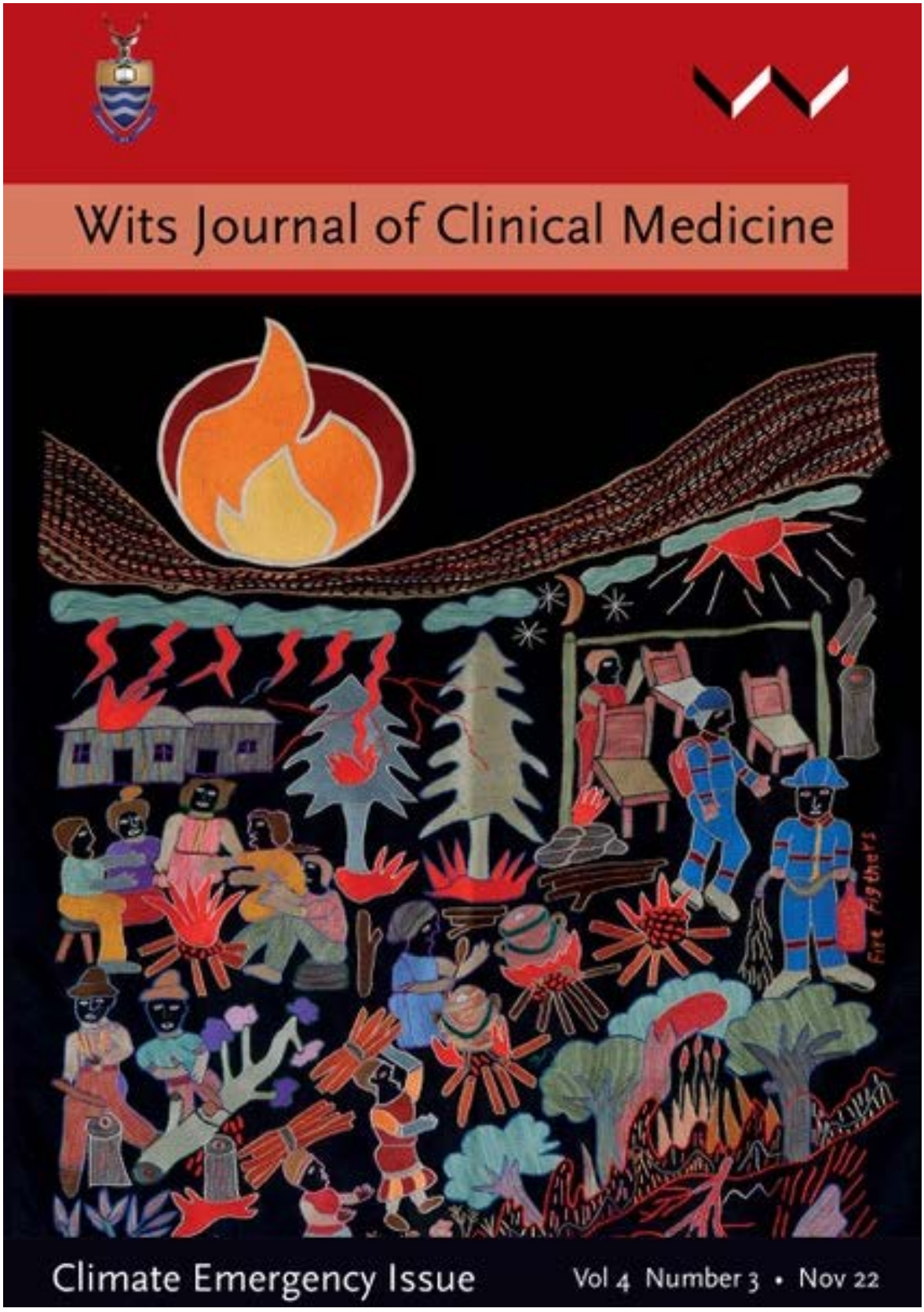
PROMOTION TO ASSOCIATE PROFESSOR

Dr Mary Kawonga
Dr Vindana Chibabhai
Dr Sumaya Mall
Dr Reubina Wadee
Dr Nqoba Tsabedze
Dr Antonia Wadley
Dr Tanya Augustine
Dr Pascaline Fru

PROMOTION TO ADJUNCT PROFESSOR

Dr Aubrey Makgotloe

PUBLICATIONS



Explore the WJCM

OPPORTUNITIES

CLOSING

FEB 28

PHD POSITIONS: HEALTH ANALYTICS & HEALTH INFORMATION SYSTEMS

The Department of Family Medicine and Primary Care is offering two full-time PhD positions in the field of Health Analytics and Health Information Systems Design. These fields of study are offered within the discipline of Health Systems Science. The application deadline has been extended to 28 February 2023

Apply

MAR 01

START-UP FUNDS 2023

The Health Sciences Research Office wishes to offer "start-up" funds of up to R 50 000.00 to newly appointed full-time academic staff including joint staff. Staff members must have been appointed between 1 January 2022 and 28 February 2023.

Apply

MAR 01

SEED FUNDING 2023

The Health Sciences Research Office wishes to offer "seed funding" for up to R50 000 to full-time academic staff including joint staff. This grant provides start-up funds for exceptional projects to allow these research areas to become established. Seed funding seeks to help researchers establish a programme of work to carry over into the next coming years.

Apply

MAR 02

FRC EQUIPMENT FUNDING 2023

The Call for Applications for Health Sciences Capex Equipment funding is now open. The call is intended to provide support for small pieces of equipment in order to augment equipment that is already available in the Faculty.

Apply

RESEARCH CONNECT

Postgraduate students and staff members are also encouraged to make use of RESEARCHConnect which is a search tool used to source funding.

Request login

To find out more about funding opportunities offered by the Faculty Research Office, visit website

EVENTS

FEB
20

Research Seminar: Computational Genomics

Dr. Yosuke Tanigawa, Postdoctoral Associate, Massachusetts Institute of Technology, USA, will be visiting the Sydney Brenner Institute for Molecular Bioscience (SBIMB) a Wits Research Entity based in the Faculty of Health Sciences.

He will give a talk titled Computational Genomics for Precision Medicine: Therapeutics, Polygenic Modeling, and Disease Subtypes Feb from 13h00-14h00.

Join the seminar in person at the SBIMB, 9 Jubilee Road, Parktown Johannesburg or register to attend virtually. Enquiries contact jocelyn.gayenga@wits.ac.za

In-person RSVP

Register for virtual

FEB
22

The LGBTQ Movement and the Intersex Baby: A Historical, Cultural and Physiological Perspective

This seminar will be led by the distinguished Emeritus Professor of the Medical University Of South Carolina - Professor Ian Aaronson. He is among the top paediatric urologists with an international reputation in his field.

RSVP

NOV
12–14

16th International Conference of the Society of Neuroscientists of Africa (SONA 2023)

This will be a week of Learning, Interactions, Networking and establishing Collaborations. This In-person meeting will take place in Johannesburg, South Africa.

RSVP

1 Nobel Prize winner

2 DSI/NRF Centres of Excellence

2 ANDI Centres of Excellence

7 research intensive Schools

8 DSI/NRF SARChI Chairs

28 Research Entities

96 NRF-rated scientists, 9 A-rated scientists

2022 Wits Faculty Of Health Sciences IN NUMBERS

WORLD RANKINGS

TOP 100
Public Health
Shanghai Ranking 2022

TOP 150
Clinical Medicine
Shanghai Ranking 2022

TOP 300
Medicine & Dentistry
Times Higher Education 2022

262ND WORLDWIDE
Life Sciences & Medicine
QS Ranking 2022

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