CELEBRATES SCIENCE

JANUARY 2018

THE SOUTH AFRICAN MEDICAL RESEARCH COUNCIL

INFORMATION SERVICES DIVISION
Article:

DOI: 10.1016/S0140-6736(17)33362-7
Impact Factor: 47.831

Summary:

Sexual assault and rape are in the media spotlight in the face of unfolding revelations of abuse of women in the entertainment industry and sports. These disclosures by public figures highlight some aspects of sexual abuse—namely, that it is often pervasive, an expression of power (rather than just about sex) and rooted in ideas of male sexual entitlement, and an experience that victims find shameful and often conceal.1,2 Far from the lights of Hollywood, many children and adolescents in Low-Income and Middle-Income Countries (LMICs) face sexual abuse and often have little recourse to assistance.
Director: Prof Stephen Tollman

Article:
DOI: 10.1093/ije/dyx247
Impact Factor: 7.738

Summary:
Population ageing is a global phenomenon. The United Nations estimates that the world population aged over 60 will have increased 3-fold from 1950 to 2050, to reach 21% of the population.1 This compositional shift is happening fastest in low- and middle-income countries (LMIC).2 South Africa in particular is undergoing a dramatic demographic and epidemiological transition, and little is known about the socioeconomic determinants or consequences of transition. This study, following important findings in previous studies in Agincourt3–6 and South Africa in general,7–9 is set up to inform us about morbidity, mortality and aetiological factors shaping these trends. Various ageing studies, including the Studies on Global Ageing and Adult Health (SAGE) and the 2015 Global Burden of Disease, found that non-communicable diseases, driven mainly by population growth and.
Summary:

DDT [1, 1, 1-trichloro-2,2-bis (p-chlorophenyl)-ethane] compounds are used for indoor residual spraying (IRS) to control malaria mosquitoes. DDT is an endocrine disruptor chemical in experimental conditions, but little is known of adverse effects related to living conditions with continual uptake across a time span by all possible means of exposure. Based on estrogenic and/or anti-androgenic effects found in animal studies, we hypothesized that chronic DDT/DDE exposures in men may be associated with changes in male reproductive hormones. We tested this hypothesis by compared the magnitude and direction of associations between DDT and DDE (1,1-dichloro-2,2-bis(p-chlorophenyl) ethylene) concentrations and male reproductive hormones in samples collected from IRS and non-IRS areas. We sampled a cross-section of 535 men (aged 18-40 years). Men living in IRS villages had significantly higher DDT and DDE concentrations compared with men from non-IRS villages. Men with DDT or DDE uptake (as reflected in detectable plasma concentrations) had significantly higher total-, free and bio-available testosterone (T), and lower follicle stimulating hormone (FSH) concentrations; lower luteinizing hormone (LH) concentrations were only evident with DDT uptake. To establish a dose-dependent effect, four sub-categories were defined. Men with the highest DDT (74-519 μg/g) and DDE (173-997 μg/g) concentrations had significantly higher total-, free and bio-available T, and lower FSH concentrations compared with subjects with non-detectable isomer concentrations. Estradiol concentrations were significantly higher in men with DDT and DDE concentrations in both the third (DDE: 27-172 μg/g; DDT: 5-73 μg/g) and fourth (DDE: 173-997 μg/g; DDT: 74-519 μg/g) categories. Men from IRS villages were significantly more likely to have higher total and bioavailable T as well as higher estradiol concentrations OR = 2.5 (95% CI 1.2, 3.2); OR 2.5 (95% CI 1.6, 4.0) and OR = 2.3 (95% CI 1.3, 4.1) compared to men from non-IRS villages, after controlling for age, BMI, personal use of pesticides, and smoking. Men living in IRS villages with life-long exposure (17.6 (±6) years) at the current residence with multiple exposure modalities incurred the highest degree of physiological imbalance over and above circulating isomer concentrations. Further studies are needed to elucidate the health implications of these findings.
Summary:
The precise mechanisms leading to development of T helper type (Th)2-driven allergic responses are unknown. We aimed to determine how IL-4 receptor alpha (IL-4Rα) signaling on CD11c+ cells influences allergen-induced Th2 responses in mice. CD11ccreIL-4Rα−/lox mice, deficient in IL-4Rα on dendritic cells and alveolar macrophages, were compared to IL-4Rα−/− littermate controls in models of allergic airway disease induced by OVA/alum, OVA alone or house dust mite. Cytokine responses, eosinophil and neutrophil infiltration into the lungs, airway hyperreactivity and mucus hypersecretion were evaluated after allergen challenge. In the OVA/alum model, CD11ccreIL-4Rα−/lox mice had similar airway hyperreactivity, eosinophil infiltration, Th2-type cytokine production and mucus hypersecretion but reduced Th2-type cytokine production and eosinophils, suggesting alum overrides the requirement for IL-4Rα signaling on CD11c+ cells in enhancing Th2-type responses. In the house dust mite model, CD11ccreIL-4Rα−/lox mice showed similar mucus secretion, but reduced Th2 responses, eosinophils, neutrophils and airway hyperreactivity, unlike previously tested LysMcreIL-4Rα−/lox mice, which lack IL-4Rα on alveolar macrophages but not on dendritic cells. Therefore, our results indicate that IL-4Rα signaling on dendritic cells promotes allergen-induced Th2 responses and eosinophil infiltration into the lung.
Director: Prof Rob Warren

Summary:
Bovine tuberculosis is a zoonotic disease with largely unknown impact in Africa, with risk factors such as HIV and direct contact with animals or consumption of Mycobacterium bovis infected animal products. In order to understand and quantify this risk and design intervention strategies, good epidemiological studies are needed. Such studies can include molecular typing of M. bovis isolates. The aim of this study was to apply these tools to provide novel information concerning the distribution of bovine tuberculosis in cattle in Mozambique and thereby provide relevant information to guide policy development and strategies to contain the disease in livestock, and reduce the risk associated with transmission to humans. A collection of 178 M. bovis isolates was obtained from cattle in Mozambique. Using spoligotyping and regions of difference analysis, we classified the isolates into clonal complexes, thus reporting the first characterisation of M. bovis strains in this region. Data from MIRU-VNTR typing was used to compare isolates from a number of African countries, revealing a deeply geographically structured diversity of M. bovis. Eastern Africa appears to show high diversity, suggesting deep evolution in that region. The diversity of M. bovis in Africa does not seem to be a function of recent importation of animals, but is probably maintained within each particular region by constant reinfection from reservoir animals. Understanding the transmission routes of M. bovis in Mozambique and elsewhere is essential in order to focus public health and veterinary resources to contain bovine tuberculosis.
1. INTRAMURAL RESEARCH UNITS
Alcohol, Tobacco and Other Drug

1. Temmingh HS, Williams T, Siegfried N, Stein DJ. Risperidone versus other antipsychotics for people with severe mental illness and co-occurring substance misuse. Cochrane Database of Systematic Reviews. 2018 Jan 22;1: CD011057. DOI: 10.1002/14651858.CD011057.pub2
   Impact Factor: 6.264

   DOI: 10.1080/14681994.2017.1419559
   Impact Factor: 1.188

   DOI: 10.1111/dar.12654
   Impact Factor: 2.822

   DOI: 10.1111/dar.12650
   Impact Factor: 2.822

   DOI: 10.1007/s11469-017-9865-5
   Impact Factor: 1.179

   DOI: 10.1002/14651858.CD008525.pub3
   Impact Factor: 6.264

Biomedical Research and Innovation Platform

   DOI: 10.1111/bcp.13490
   Impact Factor: 3.493

   DOI: 10.1055/s-0044-100622
   Impact Factor: 2.342
Biostatistics
   Impact Factor: None

Centre for Tuberculosis
   Impact Factor: 3.712

   Impact Factor: 6.429

   Impact Factor: 27.959

   Impact Factor: 3.834

Environment and Health
   Impact Factor: 0.474
Gender and Health

   DOI: 10.1186/s12889-018-5029-1
   **Impact Factor: 2.265**

   DOI: 10.1080/17441692.2018.1427276
   **Impact Factor: 1.614**

   DOI: 10.1016/S0140-6736(17)33362-7
   **Impact Factor: 47.831**

Health Systems

   DOI: 10.1002/14651858.CD012909
   **Impact Factor: 6.264**

   DOI: 10.5588/ijtld.17.0371
   **Impact Factor: 2.468**

   DOI: 10.1002/14651858.CD012907
   **Impact Factor: 6.264**

   DOI: 10.1080/17441692.2018.1427277
   **Impact Factor: 1.614**

   DOI: 10.1186/s13012-017-0689-2
   **Impact Factor: 3.354**
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**Impact Factor: None**


**Impact Factor: 6.264**

### Non-Communicable Disease


**Impact Factor: 6.189**


**Impact Factor: 3.706**


**Impact Factor: 3.550**

### Office of AIDS


**Impact Factor: 2.806**

### Primate


**Impact Factor: 0.814**


**Impact Factor: None**
South African Cochrane Centre
   Impact Factor: 6.264

   Impact Factor: 1.827

Violence, Injury and Peace
   Impact Factor: 2.056

   Impact Factor: 1.290

   Impact Factor: 2.056

   Impact Factor: 0.875
2. EXTRAMURAL RESEARCH UNITS

Common Epithelial Cancer
   Impact Factor: 2.343

Developmental Pathways for Health
   Impact Factor: 3.550

   Impact Factor: 2.806

   Impact Factor: 2.848

   Impact Factor: None

Drug Discovery and Development
   Impact Factor: 1.723

Gynaecological Cancer
   Impact Factor: 2.806
**Herbal Drugs**
   DOI: 10.1016/j.phytol.2017.11.018
   **Impact Factor: 1.418**

**HIV/TB Pathogenesis and Treatment**
   DOI: 10.1093/jac/dkx506
   **Impact Factor: 5.071**

**Hypertension and Cardiovascular Disease**
   DOI: 10.1038/s41440-017-0009-x
   **Impact Factor: 3.581**

   DOI: 10.1080/10715762.2017.1421314
   **Impact Factor: 3.188**

**Immunology of Infectious Disease**
1. Nieuwenhuizen NE, Kirstein F, Hoving JC, Brombacher F. House dust mite induced allergic airway disease is attenuated in CD11c(CRE)IL-4Ralpha(-/L) degrees (X) mice. Scientific Reports. 2018 Jan 17;8(1):885. 
   DOI: 10.1038/s41598-017-19060-9
   **Impact Factor: 4.259**

   DOI: 10.1016/j.jaci.2017.11.044
   **Impact Factor: 13.081**

**Maternal and Infant Health Care Strategies**
   DOI: 10.1371/journal.pmed.1002492
   **Impact Factor: 11.862**
Microbial Water Quality Monitoring
   **Impact Factor:** 1.832

Respiratory and Meningeal Pathogens
   **Impact Factor:** None

   **Impact Factor:** 2.263

   **Impact Factor:** 6.273

Risk and Resilience in Mental Disorders
   **Impact Factor:** 3.658

Rural Public Health and Health Transition
   **Impact Factor:** 2.806

   **Impact Factor:** 16.538

   **Impact Factor:** 11.862
Impact Factor: 2.369

Impact Factor: 2.797

Impact Factor: 7.738
3. GRANT FUNDED RESEARCH

   DOI:10.1039/C7CE01875D
   Impact Factor: 3.474

   DOI: 10.1126/science. aam8825
   Impact Factor: 37.205

   Impact Factor: 2.768

   DOI: 10.1007/s10943-017-0551-5
   Impact Factor: 0.873

   DOI: 10.1016/j.actbio.2018.01.005
   Impact Factor: 6.319

   DOI: 10.1016/j.bcp.2018.01.012
   Impact Factor: 4.581

   DOI: 10.1155/2018/9405617
   Impact Factor: 2.476

   DOI: 10.1016/j.bioorg.2018.01.004
   Impact Factor: 3.231

Impact Factor: 6.608


Impact Factor: 9.661


Impact Factor: 2.861
4. RESEARCH CENTRES

Advancing Care and Treatment (ACT) For TB/HIV

   DOI: 10.1371/journal.pone.0191608
   Impact Factor: 2.806

UP Centre for Sustainable Malaria Control

   DOI: 10.1016/j.envint.2017.12.039
   Impact Factor: 7.088

Wits Collaborating Centre for Multi-Disciplinary Research on Malaria

   DOI: 10.1186/s12936-018-2189-5
   Impact Factor: 2.715

5. CLOSED RESEARCH UNITS

Inter-University Cape Heart

   DOI:10.3389/fphar.2017.00989
   Impact Factor: 4.400

Medical Imaging

   DOI: 10.3389/fnhum.2017.00635
   Impact Factor: 3.209
6. RESEARCH UNITS WITH NO QUALIFYING PUBLICATIONS

Intramural
- Burden of Disease
- HIV Prevention
- Office of Cancer
- Office of Malaria
- Office of Tuberculosis

Extramural
- Antiviral Gene Therapy
- Bioinformatics Capacity Development
- Child and Adolescent Lung Health
- Diarrhoeal Pathogens
- Health Services to Systems
- Human Genetics
- Molecular Mycobacteriology
- Prospective Gastrointestinal Cancer
- Receptor Biology
- Stem Cell Research and Therapy

Research Centres
- Centre for Basic and Translational Human TB Research
- Centre for Tuberculosis Biomarker-Targeted Intervention
- Clinical and Community HIV-Tuberculosis Research Collaborating Centre
- Soweto Matlosana SAMRC Collaborating Centre for HIV/AIDS and TB
- TB Free through Research and Innovation
- Tuberculosis Collaborating Centre for Child Health (TB-CHILD)
- Tygerberg SAMRC Collaborating centre for HIV Laboratory Research
- UCT Collaborating Centre for Optimising Antimalarial Therapy in South Africa
- Wits Clinical HIV/TB Research Unit, WITS Health Consortium
- Wits RHI Collaborating Centre for HIV/AIDS
# 7. GRANTS AWARDED

## SAMRC LIST OF NEW CONTRACTS FOR JANUARY 2018

<table>
<thead>
<tr>
<th>SAMRC Unit</th>
<th>Funder</th>
<th>Main Funder</th>
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<td>HPRU</td>
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<td>HIV Vaccine Trials Network Protocol Funding Sub-award 890854</td>
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<td>NRF</td>
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