TOP 5 ARTICLES

Prof Rachel Jewkes

Article:

DOI: 10.1371/journal.pmed.1001849.
Impact Factor: 14.429

Summary:
The mistreatment of women in childbirth has been documented by researchers for over three decades in all global regions. The scale of the problem is indicated by a systematic review conducted by Meghan Bohren and colleagues, which provides a foundation from which a typology of violence can be developed and used as a basis for developing measurement instruments and tools. This is a valuable complement to other work that is currently underway in this area. A multicountry study on the mistreatment of women during childbirth could be extremely valuable in generating comparable information on prevalence, risk groups and facilities, and the health consequences (physical and mental, including future health-seeking practices and expectations). It would provide the foundation needed for developing health policy, monitoring its impact, and advocating for proper resources.
**Prof Tanya Douglas**

**Article:**


**Summary:**

Children with fetal alcohol spectrum disorders (FASD) may exhibit craniofacial dysmorphology, neurobehavioral deficits, and reduced brain volume. Studies of cortical thickness in FASD have yielded contradictory findings, with 3 reporting thicker cerebral cortex in frontal and temporal brain regions and 2 showing thinner cortex across multiple regions. All 5 studies included subjects spanning a broad age range, and none have examined continuous measures of prenatal alcohol exposure. We investigated the relation of extent of in utero alcohol exposure to cortical thickness in 78 preadolescent children with FASD and controls within a narrow age range. A whole-brain analysis using FreeSurfer revealed no significant clusters where cortical thickness differed by FASD diagnostic group. However, alcohol dose/occasion during pregnancy was inversely related to cortical thickness in 3 regions-right cuneus/pericalcarine/superior parietal lobe, fusiform/lingual gyrus, and supramarginal/postcentral gyrus. The effect of prenatal alcohol exposure on IQ was mediated by cortical thickness in the right occipitotemporal region. It is noteworthy that a continuous measure of maternal alcohol consumption during pregnancy was more sensitive than FASD diagnosis and that the effect on cortical thickness was most evident in relation to a measure of maternal binge drinking.
Summary:

**Introduction:** We evaluated pneumococcal conjugate vaccine (PCV) effectiveness against hospitalisation for presumed bacterial pneumonia (PBP) in HIV-uninfected South African children. 7-valent PCV was introduced in April 2009 using a 2+1 schedule (doses at age 6, 14 and 39 weeks), superseded with 13-valent PCV in May 2011.

**Methods:** A matched case-control study was conducted at three public hospitals (Soweto, Cape Town and KwaZulu-Natal) between April 2009 and August 2012. PBP cases had either WHO defined radiographically confirmed pneumonia or 'other infiltrate' on chest radiograph with C-reactive protein ≥40 mg/L. Hospitalised controls were children admitted with a disease unlikely to be pneumococcal and matched for case age, site and HIV infection status. Age-matched community controls were enrolled from Soweto. Adjusted vaccine effectiveness (aVE) was estimated using conditional logistic regression.

**Results:** Of 1444 HIV-uninfected enrolled PBP cases, 1326 had ≥1 hospital controls (n=2075). Overall, aVE of an up-to-date PCV schedule was 20.1% (95% CI -9.3% to 41.6%) in children aged ≥8 weeks and 39.2% (95% CI 8.46% to 59.6%) among children 16-103 weeks of age. There were 889 PBP cases in Soweto with hospital controls and ≥1 community control (n=2628). The aVE using community controls was similar compared with hospital controls in Soweto, including 32.1% (95% CI 4.6% to 51.6%) and 38.4% (95% CI 7.7% to 58.8%), respectively, in age group ≥8 weeks and 52.7% (95% CI 25.7% to 69.9%) and 53.8% (95% CI 19.5% to 73.5%), respectively, in age group 16-103 weeks.

**Conclusions:** PCV implemented using a 2+1 schedule in the routine infant immunisation programme was effective at preventing PBP in HIV-uninfected children. Effectiveness estimates were similar to efficacy measured by earlier randomised controlled trials using different vaccination schedules.
Summary:
Regulation of the rate of cell ingrowth into and within a matrix is desirable for efficient tissue regeneration. Polyethylene glycol hydrogels crosslinked with matrix metalloproteinase (MMP) susceptible peptide sequences permit cell-controlled invasion. In this study, hydrogels of the same stiffness polymerised using different ratios of a readily degradable MMP peptide sequence (PAN-MMP) and a MMP peptide with a limited degradation capacity (MMP-9) were assessed both in vitro and in vivo for cellular invasion. The degree of invasion into the various hydrogels was found to be tightly linked to the relative proportion of each peptide both in vitro and in vivo. Furthermore a good correlation between in vitro and in vivo ingrowth was observed. These findings demonstrate a highly tunable model for regulating cellular invasion which is readily translatable to in vivo models. This finding may allow for further optimisation of aspects of regenerative scaffolds such as tissue invasion, growth factor release and cellular encapsulation.

Statement of Significance:
Degradable hydrogels are used in a wide range of tissue regeneration approaches. A particularly advantageous variant of these hydrogels is where due to peptide based crosslinking of the polymeric hydrogels, cell invasion rate is dependent on cellular enzymatic activity. This present study demonstrates a further refinement whereby both cellular and tissue invasion rates are finely regulated through the polymerisation of a hydrogel with varying combinations of enzymatically degradable peptides. Importantly this allows for invasion rates to be controlled without altering the biomechanical properties of the hydrogel such as stiffness. The latter can further influence cellular behaviour thus potentially interfering with the desired outcome.
Prof Shabir Madhi

Article:
Impact Factor: 5.997

Summary:
Background: We evaluated the immunogenicity of trivalent inactivated influenza vaccine (IIV3) in HIV-infected and uninfected pregnant women and the persistence of hemagglutination-inhibition (HAI) antibodies in mothers and infants.

Methods: Antibodies were measured pre-vaccination, one month post-vaccination, at delivery and 24 weeks post-partum in mothers and within one week of birth and at 8, 16 and 24 weeks of age in infants.

Results: We enrolled 98 HIV-uninfected and 100 HIV-infected pregnant women including 93% with ≥200 CD4+ cells/µL. Compared with HIV-uninfected, HIV-infected women had lower seroconversion rates (63%-92% vs. 36%-40%), lower antibody titers through 24 weeks post-partum, and overlapping antibody half-lives (106-121 vs. 87-153 days). Infant titers were lower than the maternal titers within one week of delivery regardless of vaccine strain and HIV-exposure status. Compared with HIV-unexposed, HIV-exposed infants had similar transplacental influenza-antibody transfer ratio; lower titers and frequency of titers ≥1:40 (82%-95% vs. 43%-79%) at birth; and higher antibody half-lives (43-45 vs. 56-65 days).

Conclusion: Compared with HIV-uninfected, HIV-infected pregnant women had lower antibody responses and persistence thereof. Compared with HIV-unexposed, HIV-exposed infants had lower antibodies at birth, but similar after 8 weeks of life. Early IIV3 administration during pregnancy did not decrease infant birth antibody titers.
1. **INTRAMURAL RESEARCH UNITS**

**Alcohol, Tobacco and Other Drug**

   DOI: 10.1097/QAI.0000000000000627.
   **Impact Factor: 4.556**

**Biostatistics**

   DOI: 10.4314/ahs.v15i2.5.
   **Impact Factor: 0.722**

   DOI: 10.1136/thoraxjnl-2014-206105.
   **Impact Factor: 8.290**

**Burden of Disease**

   DOI: 10.3402/gha.v8.27016.
   **Impact Factor: 1.930**

**Centre for Tuberculosis**

   **Impact Factor: 2.470**

**Gender and Health**

   DOI: 10.1371/journal.pmed.1001849.
   **Impact Factor: 14.429**

**Health Systems**

   DOI: 10.7448/IAS.18.1.19843.
   **Impact Factor: 5.090**


**HIV Prevention**


**MRC Office of Tuberculosis**


**Non-Communicable Disease**

1. **Global Burden of Disease Study 2013 Collaborators (Includes: Kengne AP; Matzopoulos RG; Parry CD; Sliwa K; Stein DJ).** Global, regional, and national incidence, prevalence, and years lived with disability for 301 acute and chronic diseases and injuries in 188 countries, 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013. Lancet. 2015 Jun 7. DOI: 10.1016/S0140-6736(15)60692-4. **Impact Factor: 45.217**


3. **Laurie S, Faber M, Adebola P, Belete A.** Biofortification of sweet potato for food and nutrition security in South Africa. Food Research International. 2015 June 05. DOI: 10.1016/j.foodres.2015.06.001. **Impact Factor: 2.818**
   **Impact Factor: 2.397**

**South African Cochrane Centre**

   DOI: 10.1371/journal.pone.0131121.
   **Impact Factor: 3.234**

   DOI: 10.1093/ije/dyv111.
   **Impact Factor: 9.176**

**Violence, Injury and Peace**

   DOI: 10.1080/13691058.2015.1048527.
   **Impact Factor: 1.784**

   DOI: 10.1080/17457300.2015.1047870.
   **Impact Factor: 0.707**
2. **EXTRAMURAL RESEARCH UNITS**

**Child and Adolescent Lung Health**

   **Impact Factor:** 8.290

   **Impact Factor:** 2.599

   **Impact Factor:** 2.704

   **Impact Factor:** 2.704

**Developmental Pathways for Health**

   DOI: 10.1038/nutd.2015.7.
   **Impact Factor:** 2.654

   **Impact Factor:** 2.264

**Drug Discovery and Development**

   DOI: 10.1016/j.ejmech.2015.06.045.
   **Impact Factor:** 3.447

**Health Policy**

   DOI: 10.4314/ahs.v15i2.14.
   **Impact Factor:** 0.722
Human Genetics
   DOI: 10.1089/omi.2015.0039.
   Impact Factor: 2.362

Hypertension and Cardiovascular Disease
   DOI: 10.1111/jch.12599.
   Impact Factor: 2.851

Immunology of Infectious Disease
   DOI: 10.1093/nar/gkv646.
   Impact Factor: 9.112
   DOI: 10.1371/journal.ppat.1004964.
   Impact Factor: 7.562

Inter-university Cape Heart
   DOI: 10.1016/j.actbio.2015.06.009.
   Impact Factor: 6.025
   DOI: 10.1111/sms.12497.
   Impact Factor: 2.896

Maternal and Infant Health Care Strategies
   DOI: 10.2471/BLT.14.144683.
   Impact Factor: 5.089
Medical Imaging


Microbial Water Quality Monitoring

Prospective Gastrointestinal Cancer

Respiratory and Meningeal Pathogens


Rural Public Health and Health Transition


3. **GRANT FUNDED RESEARCH**
Grants and Scholarships Administration

   DOI: 10.4102/ajod.v4i1.137.
   **Impact Factor:** None

   DOI: 10.1016/j.molstruc.2015.05.053.
   **Impact Factor:** 1.602

   DOI: 10.1371/journal.pone.0128192.
   **Impact Factor:** 3.234

4. **RESEARCH UNITS WITH NO QUALIFYING PUBLICATIONS**

**INTRAMURAL**
- Environment and Health
- MRC Office of AIDS
- MRC Office of Cancer
- MRC Office of Malaria
- Diabetes Discovery Platform

**EXTRAMURAL**
- Antiviral Gene Therapy
- Anxiety and Stress Disorders
- Bioinformatics Capacity Development
- Cancer Epidemiology
- Common Epithelial Cancer Research Centre
- Diarrhoeal Pathogens
- Gynaecological Cancer
- Health Services to Systems
- Herbal Drugs
- HIV/TB Pathogenesis and Treatment
- Molecular Mycobacteriology
- Receptor Biology
- Stem Cell Research and Therapy
## 5. GRANTS AWARDED

### LIST OF NEW CONTRACTS – 30 JUNE 2015

<table>
<thead>
<tr>
<th>MRC Unit</th>
<th>Funder</th>
<th>Main Funder</th>
<th>Project Title/Description</th>
<th>Contract Value</th>
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<tr>
<td>ATODRU</td>
<td>MRC UK</td>
<td>DFID</td>
<td>Strengthening SA Health System through integrating treatment for mental illness into chronic disease care</td>
<td>-  £898 776.88</td>
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<td>Environmental Health</td>
<td>WITS</td>
<td>WITS</td>
<td>University registration and research operational expenditure for doctoral students in the field of Climate change and health project</td>
<td>R120 000</td>
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