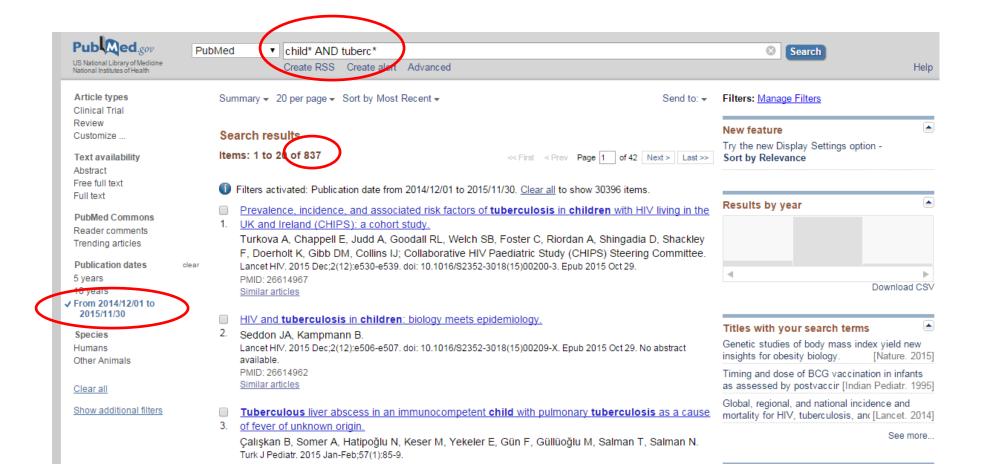
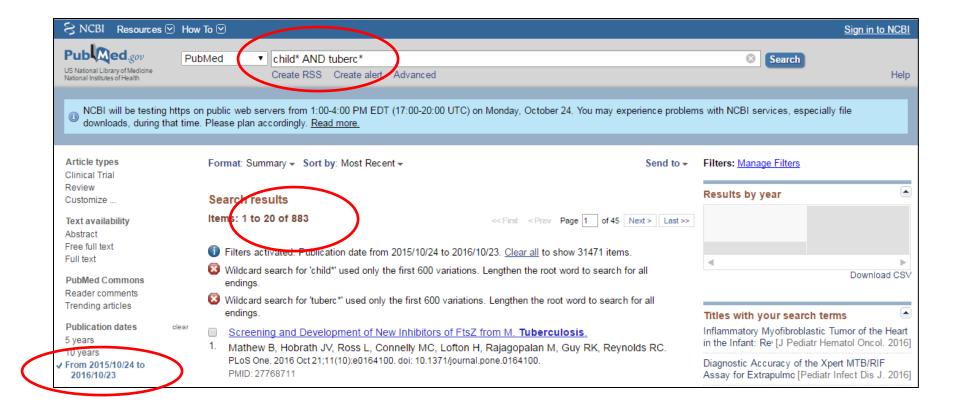
## Imperial College London

# Update on significant recent research papers

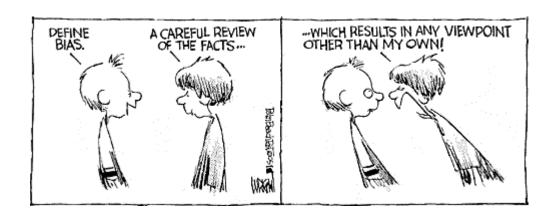
James Seddon

Childhood Tuberculosis Sub-Group 26<sup>th</sup> October 2016





# My biases



- 883 studies identified on PubMed
- On review of title selected 71 that I thought looked interesting
- Review of abstracts brought down to 35
- Few basic science studies as rarely paediatric specific
- Reflects my own interests and biases
- Really hard to decide as so many awesome articles
- PLEASE forgive me if I have not included your paper!!!

# A blood RNA signature for tuberculosis disease risk: a prospective cohort study

Daniel EZak\*, Adam Penn-Nicholson\*, Thomas J Scriba\*, Ethan Thompson†, Sara Suliman†, Lynn M Amon, Hassan Mahomed, Mzwandile Erasmus, Wendy Whatney, Gregory D Hussey, Deborah Abrahams, Fazlin Kafaar, Tony Hawkridge, Suzanne Verver, E Jane Hughes, Martin Ota, Jayne Sutherland, Rawleigh Howe, Hazel M Dockrell, W Henry Boom, Bonnie Thiel, Tom H M Ottenhoff, Harriet Mayanja-Kizza, Amelia C Crampin, Katrina Downing, Mark Hatherill, Joe Valvo, Smitha Shankar, Shreemanta K Parida, Stefan H E Kaufmann, Gerhard Walzl, Alan Aderem, Willem A Hanekom, for the ACS and GC6-74 cohort study groups‡

#### **ARTICLE**

Received 21 Dec 2015 | Accepted 22 Feb 2016 | Published 12 Apr 2016 | Updated 6 May 2016

DOI: 10.1038/ncomms11290

**OPEN** 

# T-cell activation is an immune correlate of risk in BCG vaccinated infants

Helen A. Fletcher<sup>1,2</sup>, Margaret A. Snowden<sup>3</sup>, Bernard Landry<sup>3</sup>, Wasima Rida<sup>4</sup>, Iman Satti<sup>1</sup>, Stephanie A. Harris<sup>1</sup>, Magali Matsumiya<sup>1</sup>, Rachel Tanner<sup>1</sup>, Matthew K. O'Shea<sup>1</sup>, Veerabadran Dheenadhayalan<sup>3</sup>, Leah Bogardus<sup>3</sup>, Lisa Stockdale<sup>1,2</sup>, Leanne Marsay<sup>5</sup>, Agnieszka Chomka<sup>6</sup>, Rachel Harrington-Kandt<sup>1</sup>, Zita-Rose Manjaly-Thomas<sup>1</sup>, Vivek Naranbhai<sup>7</sup>, Elena Stylianou<sup>1</sup>, Fatoumatta Darboe<sup>8</sup>, Adam Penn-Nicholson<sup>8</sup>, Elisa Nemes<sup>8</sup>, Mark Hatherill<sup>8</sup>, Gregory Hussey<sup>8</sup>, Hassan Mahomed<sup>8</sup>, Michele Tameris<sup>8</sup>, J Bruce McClain<sup>3</sup>, Thomas G. Evans<sup>3</sup>, Willem A. Hanekom<sup>8</sup>, Thomas J. Scriba<sup>8</sup> & Helen McShane<sup>1</sup>

Harris et al. BMC Medicine (2016) 14:138 DOI 10.1186/s12916-016-0685-4

## **BMC** Medicine



### RESEARCH ARTICLE

**Open Access** 



# The potential impact of BCG vaccine supply shortages on global paediatric tuberculosis mortality

Rebecca C. Harris<sup>1\*</sup>, Peter J. Dodd<sup>2</sup> and Richard G. White<sup>1</sup>



Contents lists available at ScienceDirect

### Vaccine

journal homepage: www.elsevier.com/locate/vaccine



Delayed BCG immunization does not alter antibody responses to EPI vaccines in HIV-exposed and -unexposed South African infants

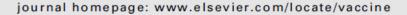


Anneke C. Hesseling a,\*, Anna K. Blakney b,c, Christine E. Jones b,d,e, Monika M. Esserf, Corena de Beerg, Louise Kuhnh, Mark F. Cotton i,1, Heather B. Jaspan b,j,1



Contents lists available at ScienceDirect

### Vaccine





Comparable CD4 and CD8 T cell responses and cytokine release after at-birth and delayed BCG immunisation in infants born in Australia



Nicole Ritz <sup>a,b,c,d,\*</sup>, Dan Casalaz <sup>e</sup>, Susan Donath <sup>f</sup>, Marc Tebruegge <sup>a,b,c,g</sup>, Binita Dutta <sup>c</sup>, Tom G. Connell <sup>a,b,c</sup>, Roy Robins-Browne <sup>a,b,c,h</sup>, Warwick J. Britton <sup>i</sup>, Willem A. Hanekom <sup>j</sup>, Nigel Curtis <sup>a,b,c</sup>

Usher et al. Archives of Public Health (2016) 74:28 DOI 10.1186/s13690-016-0141-0

Archives of Public Health

## RESEARCH

**Open Access** 

# Evaluating the neonatal BCG vaccination programme in Ireland



Cara Usher<sup>1\*</sup>, Roisin Adams<sup>1</sup>, Susanne Schmitz<sup>1,2</sup>, Jennifer Kieran<sup>1,2</sup>, Darina O'Flanagan<sup>4,5</sup>, Joan O'Donnell<sup>4,5</sup>, Kevin Connolly<sup>4,5</sup>, Brenda Corcoran<sup>5,6</sup>, Karina Butler<sup>5,7</sup>, Michael Barry<sup>1,2</sup> and Cathal Walsh<sup>1,3</sup>



# BCG vaccination at birth and early childhood hospitalisation: a randomised clinical multicentre trial

Lone Graff Stensballe, <sup>1</sup> Signe Sørup, <sup>2</sup> Peter Aaby, <sup>3</sup> Christine Stabell Benn, <sup>4,5</sup> Gorm Greisen, <sup>6</sup> Dorthe Lisbeth Jeppesen, <sup>7</sup> Nina Marie Birk, <sup>7</sup> Jesper Kjærgaard, <sup>8,9</sup> Thomas Nørrelykke Nissen, <sup>7</sup> Gitte Thybo Pihl, <sup>10,11</sup> Lisbeth Marianne Thøstesen, <sup>10,11</sup> Poul-Erik Kofoed, <sup>10,11</sup> Ole Pryds, <sup>7</sup> Henrik Ravn<sup>5,12</sup>



International Journal of Epidemiology, 2016, 1–11 doi: 10.1093/ije/dyw120 Original article



Original article

Vaccinations against smallpox and tuberculosis are associated with better long-term survival: a Danish case-cohort study 1971–2010

Andreas Rieckmann, <sup>1,3,\*</sup> Marie Villumsen, <sup>1</sup> Signe Sørup, <sup>1</sup> Line Klingen Haugaard, <sup>4,5</sup> Henrik Ravn, <sup>1,3</sup> Adam Roth, <sup>6,7</sup> Jennifer Lyn Baker, <sup>4,5</sup> Christine Stabell Benn <sup>1,3</sup> and Peter Aaby <sup>1,2,3</sup>

# A Multicenter Study on the Utility and Safety of EBUS-TBNA and EUS-B-FNA in Children

Sahajal Dhooria, MD, DM, <sup>1</sup> Karan Madan, MD, DM, <sup>2</sup> Vallandramam Pattabhiraman, MD, <sup>3</sup> Inderpaul Singh Sehgal, MD, DM, <sup>1</sup> Ravindra Mehta, MD, <sup>4</sup> Gella Vishwanath, MD, DM, <sup>5</sup> Arjun Srinivasan, MD, DM, <sup>3</sup> Mahadevan Sivaramakrishnan, MD, <sup>3</sup> Anant Mohan, MD, <sup>2</sup> Joseph L. Mathew, MD, <sup>6</sup> Sushil K. Kabra, MD, <sup>7</sup> Randeep Guleria, MD, DM, <sup>2</sup> Digambar Behera, MD, <sup>1</sup> and Ritesh Agarwal, MD, DM, <sup>1\*</sup>

The Pediatric Infectious Disease Journal Publish Ahead of Print

DOI: 10.1097/INF.0000000000001342

Cost-Effectiveness of Diagnostic Algorithms for Tuberculosis in Children Less than 5

Years of Age

Amanda K. Debes<sup>1</sup>, PhD, Robert H. Gilman<sup>1</sup>, MD, Carolyne Onyango-Makumbi<sup>2</sup>,

MBChB, MS, Andrea Ruff<sup>1</sup>, MD, Richard Oberhelman<sup>3</sup>, MD, and David W. Dowdy<sup>4</sup>,

MD, PhD

#### **RESEARCH ARTICLE**

Open Access

CrossMark

Performance of interferon-y release assays in the diagnosis of confirmed active tuberculosis in immunocompetent children: a new systematic review and meta-analysis

Patrizia Laurenti, Matteo Raponi\*, Chiara de Waure, Marta Marino, Walter Ricciardi and Gianfranco Damiani

Clinical Infectious Diseases

#### MAJOR ARTICLE







HIV/AIDS

Performance of Xpert MTB/RIF and Alternative Specimen Collection Methods for the Diagnosis of Tuberculosis in HIV-Infected Children

Olivier Marcy,<sup>1,2</sup> Vibol Ung,<sup>3,4</sup> Sophie Goyet,<sup>1</sup> Laurence Borand,<sup>1</sup> Philippe Msellati,<sup>5</sup> Mathurin Tejiokem,<sup>6</sup> Ngoc Lan Nguyen Thi,<sup>7</sup> Boubacar Nacro,<sup>8</sup> Sokleaph Cheng,<sup>9</sup> Sara Eyangoh,<sup>10</sup> Thu Hang Pham,<sup>7</sup> Abdoul-Salam Ouedraogo,<sup>8</sup> Arnaud Tarantola,<sup>1</sup> Sylvain Godreuil,<sup>11,12</sup> Stéphane Blanche,<sup>13</sup> and Christophe Delacourt<sup>14</sup>; for the PAANTHER study group

Dilemma of managing asymptomatic children referred with 'culture-confirmed' drug-resistant tuberculosis

Marian Loveday, <sup>1</sup> Babu Sunkari, <sup>2</sup> Ben J Marais, <sup>3</sup> Iqbal Master, <sup>2</sup> James C M Brust <sup>4</sup>

### ORIGINAL STUDIES

# The Effect of Deworming on Tests of Tuberculosis Infection in Children With Recent Tuberculosis Exposure

#### A Randomized Controlled Trial

Marieke M. Van der Zalm, MD, PhD,\* Nelda van Soelen, MD, MPH, MBA,\* Anna M. Mandalakas, MD, PhD,† Marc Jacobsen, PhD,‡ Anne K. Detjen, MD,§ Florian M. Marx, MD, MSc,¶ Harleen M. S. Grewal, MD, PhD,\*\*†† Mark F. Cotton, MD, PhD,‡‡ Gerhard Walzl, MD, PhD,§§ and Anneke C. Hesseling, MD, PhD\*

INT J TUBERC LUNG DIS 19(12):1428–1434 © 2015 The Union http://dx.doi.org/10.5588/ijtld.15.0201

## An evaluation of chest X-ray in the context of community-based screening of child tuberculosis contacts

R. Triasih, \*† C. Robertson, † J. de Campo, § T. Duke, † L. Choridah, ¶ S. M. Graham†#

# Implementation of isoniazid preventive therapy in children aged under 5 years exposed to tuberculosis in Benin

M. Adjobimey,\* E. Masserey,† C. Adjonou,\* G. Gbénagnon,‡ V. Schwoebel,§ S. Anagonou,\* J-P. Zellweger¶

# SAFETY AND ADHERENCE FOR 12 WEEKLY DOSES OF ISONIAZID AND RIFAPENTINE FOR PEDIATRIC TUBERCULOSIS INFECTION

Andrea T. Cruz, MD, MPH, and Jeffrey R. Starke, MD

## Pharmacokinetics of Rifampin, Isoniazid, Pyrazinamide, and Ethambutol in Infants Dosed According to Revised WHO-Recommended Treatment Guidelines

A. Bekker, H. S. Schaaf, H. R. Draper, L. van der Laan, S. Murray, L. Wiesner, P. R. Donald, H. M. McIlleron, A. C. Hesseling

## Low Serum Concentrations of Rifampicin and Pyrazinamide Associated with Poor Treatment Outcomes in Children with Tuberculosis Related to HIV Status

Geetha Ramachandran, PhD,\* A. K. Hemanth Kumar, PhD,\* T. Kannan, MSc, MPhil,† P. K. Bhavani, MB BS,‡ S. Ramesh Kumar, MB BS,‡ N. Poorana Gangadevi, MB BS, PGDPH,‡ V. V. Banurekha, MB BS,‡ V. Sudha, MSc, MPhil,\* S. Venkatesh, MSW,\* N. Ravichandran, MB BS, MD,§ S. Kalpana, MD,¶ G. Mathevan, MD, ¶ G. N. Sanjeeva, MD,\*\* Dipti Agarwal, MD,†† and Soumya Swaminathan, MB BS, MD,‡

# Isoniazid hair concentrations in children with tuberculosis: a proof of concept study

- V. Mave,\*† A. Chandanwale,\* A. Kinikar,\* S. Khadse,\* A. Kagal,\* N. Gupte,\*† N. Suryavanshi,\*
- S. Nimkar,\* H. Koli,\* S. Khwaja,\* R. Bharadwaj,\* S. Joshi,\* H. Horng,<sup>‡</sup> L. Z. Benet,<sup>‡</sup>
- G. Ramachandran, K. E. Dooley, A. Gupta, M. Gandhi



**Cochrane** Database of Systematic Reviews

Six months therapy for tuberculous meningitis (Review)

Jullien S, Ryan H, Modi M, Bhatia R

Pouplin et al. BMC Infectious Diseases (2016) 16:144 DOI 10.1186/s12879-016-1470-x

**BMC Infectious Diseases** 

#### **RESEARCH ARTICLE**

**Open Access** 

Naïve-pooled pharmacokinetic analysis of pyrazinamide, isoniazid and rifampicin in plasma and cerebrospinal fluid of Vietnamese children with tuberculous meningitis



Thomas Pouplin<sup>1,2\*†</sup>, Nguyen Duc Bang<sup>3,4†</sup>, Pham Van Toi<sup>3</sup>, Pham Nguyen Phuong<sup>3</sup>, Nguyen Huy Dung<sup>4</sup>, Tran Ngoc Duong<sup>4</sup>, Maxine Caws<sup>2,3,5</sup>, Guy E. Thwaites<sup>2,3</sup>, Joel Taming<sup>1,2</sup> and Jeremy N. Day<sup>2,3</sup>

## Pediatric Tuberculous Meningitis: Model-Based Approach to Determining Optimal Doses of the Anti-Tuberculosis Drugs Rifampin and Levofloxacin for Children

RM Savic<sup>1</sup>, R Ruslami<sup>2</sup>, JE Hibma<sup>1</sup>, A Hesseling<sup>3</sup>, G Ramachandran<sup>4</sup>, AR Ganiem<sup>2</sup>, S Swaminathan<sup>4</sup>, H McIlleron<sup>5</sup>, A Gupta<sup>6</sup>, K Thakur<sup>6</sup>, R van Crevel<sup>7</sup>, R Aarnoutse<sup>7</sup> and KE Dooley<sup>6</sup>

## Original Studies

# Linezolid is Associated with Improved Early Outcomes of Childhood Tuberculous Meningitis

Huimin Li, MD,\* Jie Lu, PhD,\*†Jinrong Liu, MD,\* Yuhong Zhao, MD,\* Xin Ni, MD,\*† and Shunying Zhao, MD\*

# Loss to follow-up among adolescents with tuberculosis in Gaborone, Botswana

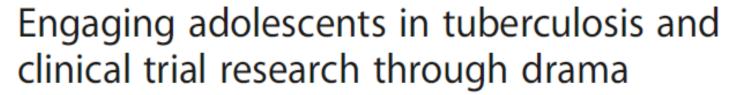
- L. A. Enane,\*† E. D. Lowenthal,†\* T. Arscott-Mills,† M. Matlhare,† L. S. Smallcomb,\*
- B. Kgwaadira, S. E. Coffin, \* A. P. Steenhoff\*

Schmidt et al. Trials (2016) 17:177 DOI 10.1186/s13063-016-1291-7

Trials

## RESEARCH

**Open Access** 





Bey-Marrié Schmidt<sup>1</sup>, Amber Abrams<sup>2,3</sup> and Michele Tameris<sup>1\*</sup>

# Global burden of drug-resistant tuberculosis in children: a mathematical modelling study



Peter J Dodd, Charalambos Sismanidis, James A Seddon

# Mycobacterium tuberculosis bacteremia in adults and children: a systematic review and meta-analysis

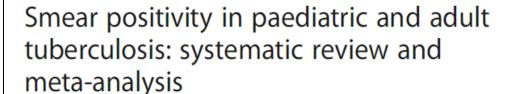
P. B. Pavlinac,\* E. M. Lokken,† J. L. Walson,\*†‡§ B. A. Richardson,\*†¶ J. A. Crump,# G. C. John-Stewart\*†‡§

Kunkel et al. BMC Infectious Diseases (2016) 16:282 DOI 10.1186/s12879-016-1617-9

**BMC Infectious Diseases** 

#### **RESEARCH ARTICLE**

**Open Access** 





Amber Kunkel<sup>1,2</sup>, Pia Abel zur Wiesch<sup>1,3,4</sup>, Ruvandhi R. Nathavitharana<sup>5</sup>, Florian M. Marx<sup>1,6</sup>, Helen E. Jenkins<sup>6</sup> and Ted Cohen<sup>1\*</sup>

## Prevalence, incidence, and associated risk factors of tuberculosis in children with HIV living in the UK and Ireland (CHIPS): a cohort study

Anna Turkova, Elizabeth Chappell, Ali Judd, Ruth L Goodall, Steven B Welch, Caroline Foster, Andrew Riordan, Delane Shingadia, Fiona Shackley, Katja Doerholt, Diana M Gibb, Intira J Collins, for the Collaborative HIV Paediatric Study (CHIPS) Steering Committee

Crook et al. BMC Medicine (2016) 14:50 DOI 10.1186/s12916-016-0593-7





#### **RESEARCH ARTICLE**

**Open Access** 



Tuberculosis incidence is high in HIV-infected African children but is reduced by co-trimoxazole and time on antiretroviral therapy

Angela M. Crook<sup>1\*</sup>, Anna Turkova<sup>1</sup>, Victor Musiime<sup>2,3</sup>, Mutsa Bwakura-Dangarembizi<sup>4</sup>, Sabrina Bakeera-Kitaka<sup>3,5</sup>, Patricia Nahirya-Ntege<sup>6</sup>, Margaret Thomason<sup>1</sup>, Peter Mugyenyi<sup>2</sup>, Philippa Musoke<sup>3,7</sup>, Adeodata Kekitiinwa<sup>5</sup>, Paula Munderi<sup>6</sup>, Kusum Nathoo<sup>4</sup>, Andrew J. Prendergast<sup>8</sup>, A. Sarah Walker<sup>1</sup>, Diana M. Gibb<sup>1</sup> and And The ARROW Trial Team

## MAJOR ARTICLE







# Human Tuberculosis Caused by *Mycobacterium bovis* in the United States, 2006–2013

Colleen Scott, 1,2 Joseph S. Cavanaugh, Robert Pratt, Benjamin J. Silk, Philip LoBue, and Patrick K. Moonan2

## High Discordance Between Pre-US and Post-US Entry Tuberculosis Test Results Among Immigrant Children

Is it Time to Adopt Interferon Gamma Release Assay for Preentry Tuberculosis Screening?

Phil Lowenthal, MPH, Pennan M. Barry, MD, and Jennifer Flood, MD

Clinical Infectious Diseases









# Baseline Predictors of Treatment Outcomes in Children With Multidrug-Resistant Tuberculosis: A Retrospective Cohort Study

Silvia S. Chiang,<sup>1,2</sup> Jeffrey R. Starke,<sup>1</sup> Ann C. Miller,<sup>2</sup> Andrea T. Cruz,<sup>1,3</sup> Hernán Del Castillo,<sup>4</sup> William José Valdivia,<sup>5</sup> Gabriela Tunque,<sup>5</sup> Fanny García,<sup>5</sup> Carmen Contreras,<sup>5</sup> Leonid Lecca,<sup>5</sup> Valentina A. Alarcón,<sup>6</sup> and Mercedes C. Becerra<sup>2,5</sup>

Compassionate use of new drugs in children and adolescents with multidrug-resistant and extensively drug-resistant tuberculosis: early experiences and challenges

## Conclusions

- Lots of paediatric work being done
- Previously neglected areas finally getting some attention

