

# Risk factors associated with neurodevelopmental impairment in infants exposed to GBS disease in low- and middle-income countries

Seedat F, Dangor Z, Leahy S, Sanchez-Yanotti C, Libster R, Bardaji A, Mucasse H, Santhanam S, Ponmudi NJ, Mwangome E, Nasambu C, Chandana J, Paul P, Goncalves BP, Horváth-Puhó E, Lawn JE with **the GBS LMIC collaborative group**



## BACKGROUND

- Invasive GBS disease is associated with neurodevelopmental impairment (NDI)
- BUT there is little information on the risk factors associated with NDI in babies with iGBS in low- and middle-income countries



## AIMS & METHODS

- What risk factors are associated with moderate/severe NDI in children with iGBS history vs matched controls?
- Matched cohort study of 91 iGBS survivors (15 with moderate/severe NDI) and 182 unexposed children (12 with NDI) in Argentina, India, and South Africa
- Adjusted logistic regressions based on factors in a hierarchical framework

## FRAMEWORK OF RISK FACTOR ASSOCIATION

### 1. Socio-demographic

SES Maternal age Ethnicity Maternal education  
Country Overcrowding Healthcare access

### 2. Maternal (antenatal)

GBS colonisation IAP HIV status ART Parity  
Maternal disease

### 3. Perinatal

Sex Gestational age Intrapartum complications  
Congenital complications Mode of delivery Birthweight

### 4. GBS disease severity

GBS onset Meningitis, sepsis or pneumonia Seizures  
Hospital duration ICU Anthropometry CRP  
Respiratory support/Ventilation Platelet count WBC  
Neurological abnormality

### 5. Childhood

Healthcare utilisation Anthropometry/Growth  
Special needs services

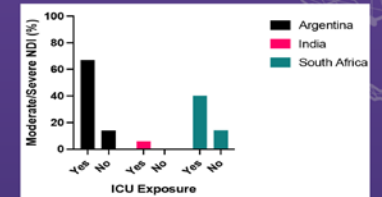
**NEURODEVELOPMENTAL  
IMPAIRMENT**



## PRELIM. RESULTS

- GBS severity indicators suggestive of increased NDI risk:
  - Meningitis versus sepsis (OR 1.9, 95%CI 0.5-7.2)
  - ICU admission or ventilation (6.7, 1.5-30.2)
  - Seizures (3.0, 0.5-19.5), abnormal WBC (2.2, 0.4-10.8)
  - CRP (2.7, 0.3-25.9)
- Trend for LBW and c-section association with NDI

E.g. ICU / ventilation



## TAKE-AWAYS

- Largest study on risk factors of NDI after iGBS across LMICs (to add Kenya & Mozambique)
- Risk factors useful to direct early rehabilitative therapy for NDI and prioritise scarce resources

“ Fig 1: New hierarchical framework that can conceptualise association between risk factors & NDI ”



**Dr Farah Seedat**

LSHTM, UK NSC, UK DHSC

@SeedatFarah

farah.seedat@lshtm.ac.uk