CALL FOR DATA ON LONG TERM OUTCOMES AFTER INFANT GROUP B STREPTOCOCCUS

BACKGROUND

What data do we have regarding GBS? Group B *Streptococcus* (GBS; *Streptococcus agalactiae*) is a leading cause of infant sepsis and meningitis. The first systematic estimates of the worldwide GBS burden were presented in a recent publication series in *Clinical Infectious Diseases* containing 11 papers from 103 authors coordinated by London School of Hygiene & Tropical Medicine (LSHTM)[1]. Estimates suggested 21.7 million pregnant women carry GBS, with 219,000 early and late onset infant GBS cases, 90,000, deaths in infants <3 months of age in 2015 and at least 57,000 stillbirths.[2]

Scope for a GBS maternal vaccine? The World Health Organization (WHO) identified as a priority the development of GBS vaccines suitable for maternal immunization in pregnancy and use in low, and middle-income countries (LMIC). LSHTM is working with WHO to assess in more detail the burden of disease, including Disability Adjusted Life Years (DALYs) and evaluate the economic burden, notably estimating cost of illness and programmes as well as gains through vaccination.

What data do we need? Papers published to date have identified priority data gaps particularly long-term outcomes especially after early/late onset GBS invasive disease (sepsis or meningitis), and from LMIC where the burden is highest. Data on disability, sub-optimal development and the economic impact for individuals (such as earning potential and costs to families), are essential in order to more accurately assess health (e.g. DALYs) and economic burden.

Call for data: This call requests data to address the gap in information on long-term sequelae of infant GBS infections.
Expected existing data types lending themselves to addressing the need may include the following (please see next page for more details);

- Large (eg national) datasets in which data contributors can cross-link exposure data with long term outcomes (eg child development and/or education) in cases and controls
- Observational designs such as cohorts, following up infants after GBS sepsis or meningitis
- Cross-sectional studies with known GBS sepsis and/or meningitis. Such studies may not currently have follow-up but could have the potential to re-enrol participants to capture information on long term outcomes and economic data.

The advantage to you for helping us fill the gap? If you contribute such data and they are included in analyses you will be invited as co-authors on relevant papers from this work in scientific journals. Data from each individual study could be also published by your team as a separate paper. Some seed funding might be available for re-enrolment of cohorts with high quality exposure data in LMIC contexts, especially Africa and South Asia.

How to enquire re data suitability?
If you think you may have partial or full data of relevance please fill the table with aggregate numbers and types of questionnaires and contact Artemis.Koukounari@lshtm.ac.uk. If you do not have all the requested data, we would still like to hear from you if you think what you have may be relevant. Please reply by end of May. Ideally the data would be available by end of December 2018 but please let us know if this timeline is not feasible for you.

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[1] The burden of Group B *streptococcus* worldwide for pregnant women, stillbirths, and children. Clinical Infectious Diseases. 2017;65(S2) https://academic.oup.com/cid/issue/65/suppl_2
[2] Seale AC et al Clinical Infectious Diseases. 2017;65(S2):S200-19

DATA REQUEST INFORMATION

Exposure:
Required: GBS isolated by culture or detected by PCR from a normally sterile site (blood or CSF) from an infant on day 0-89 of life (at least 10 post discharge surviving cases)

Desired: Information on the clinical syndrome (bacteremia, meningitis, pneumonia). How have these syndromes been defined in the cohort?

Follow up:
Cases aged at least 3 years and ideally to young adulthood
Expected or known loss to follow up: ideally less than <20% loss to follow up
(or % missing cases if using cross-linked dataset, eg national data)

Outcome Measures:
Child development or educational assessment already done or the possibility to collect these data now.
Eg Wechsler pre-school and primary scale of intelligence (WPPSI) for participants aged 3–6 years, or the Wechsler abbreviated scale of intelligence (WASI) for those aged 7 years or older.
Eg Bayley III, young children < 42 months
Eg. Educational attainment, employment prospect

Controls:
Uninfected GBS individuals (i.e. did not have evidence of invasive GBS disease) matched on age and sex (similar to those with GBS infection)

Additional data re economic burden and re functioning;
- Costs for care, such as acute healthcare costs or days as inpatient (hospital, ICU); healthcare costs for sequelae, household costs
- QUALYs [EQ5D (5 domains are evaluated such as mobility, self-care, usual activities, pain-discomfort, anxiety-depression)]
- Activities of daily living

FORM REGARDING DATA AVAILABLE				
Contact details	**Name** **Email**			
Context	**Country**			
Type of study	**What is the type of your study** 1. Large linked dataset eg national 2. Cohort with follow up (i.e. done prospectively) 3. Cross sectional or case-control, or case-series (pls give details if possible to now follow up the case) 4. Other (pls specify)			
Exposure	***Early or late onset GBS***	***GBS cases***	***Deaths***	***Births (denominator)***

	1. Meningitis 2. Sepsis How was case defined? ----------			
outcome	**Outcome:** 1. Up to what age/is this done prospectively? 2. Lost to follow-up or % of missing data 3. Assessment of impairment? a. Vision b. Hearing c. Motor d. Other 4. Which tool used to assess developmental outcome?* a. Bayley III (older versions are also acceptable) b. WPPSI c. WASI d. other 5. Which tool used to assess educational outcome? (Pls give tool and age tool used) 6. Anthropometric measures a. Height for age b. Weight for age			
Additional data re functioning and economic burden	**Can you please circle from the list below what additional data re functioning and economic burden you already have or have the potential to collect?** 1. Costs for care (eg acute healthcare costs (hospital, ICU); healthcare costs for sequelae 2. Household costs 3. QUALYs [EQ5D (5 domains are evaluated such as mobility, self-care, usual			

	activities, pain-discomfort, anxiety-depression)] 4. Activities of daily living	
Confounders	**Can you please circle from the list below what additional data on potential confounders you might have?** 1. Socioeconomic status (family wealth, income indicators) 2. Deprivation index 3. Ethnicity 4. Urban/rural area	
Controls (i.e. GBS uninfected)	**Do you have information on uninfected GBS individuals with similar age and sex as those with GBS infection ? If so how many?**	

*Next phase of data assessment/pooling we will consider if tools have been locally adapted