Implications of insufficient quality antenatal care coverage for the implementation of a Group B Streptococcus (GBS) vaccine

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Objective:

To identify potential challenges and barriers in implementing a GBS vaccine, with a focus on challenges related to equity, quality and access to antenatal care coverage

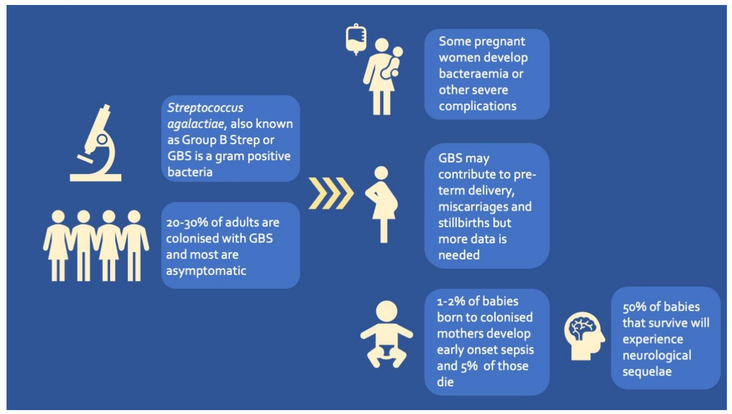

Figure 1. Epidemiology of Group B Streptococcus. (1)

Background

- The context of GBS vaccination is illustrated in Figure 1 (1)
- IAP is rarely implemented in low-resource contexts, and in high-resource countries there is a lack of consensus on screening processes
- A hexavalent vaccination against Group B streptococcus is currently in stage 2 clinical trials and promises a reduction in perinatal mortality if delivered during pregnancy (2)
- This may be a promising alternative where IAP in unfeasible, but is not a panacea
- Significant challenges exist in translating study efficacy to real-life effectiveness in both high-resource and low-resource contexts
- Delivery of the hexavalent vaccine is anticipated to be through pre-existing antenatal care

Implementation: Equity in Access to Antenatal Care

- Access is often restricted by geography and costs of care
- Regional differences are clear in both the US and Uganda (see handout)
- 1.7% of births in the US in 2018 were to mothers who had no previous antenatal care (3); 1.9% of women 15-49 who had a live birth between 2011-2016 in Uganda received no antenatal care (4)

- Beyond ANC coverage, content is variable. In 10 LMICs, less than one third of women with less than 4 attendances received all 6 key interventions such as blood pressure measurement at any point in their antenatal care (5)

Implementation: Learning lessons from maternal tetanus vaccination

- Highly successful program with only 12 countries not having eliminated neonatal tetanus by June 2020 (6)
- Barriers to effective delivery are likely to be common to GBS vaccination programs (6)
  - Individual level barriers: lack of attendance at ANC, lack of knowledge regarding tetanus and vaccination
  - Provider level barriers: knowledge and communication to patients, logistics
  - Health system level barriers: financing, logistics, surveillance and reporting

Case study 1: The United States of America

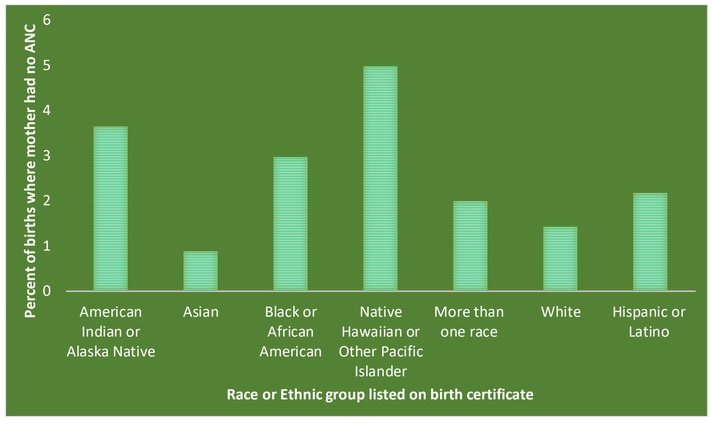

Figure 2. ANC coverage by race or ethnic group in the USA in 2018 (3)

The current US policy is intrapartum antibiotic prophylaxis (IAP) with universal screening at 35-37 weeks' gestation (7)

- Rate of EOD from 2-3 cases per 1000 in the 1990s to 0.26 cases per 1000 in 2018 (8)

- Access to antenatal care in the US appears high as the average number of ANC visits is 11.3 (3)
  - This conceals inequalities between states, racial and ethnic groups and forms of insurance
- 63, 587 of births in 2018 were to women who received no antenatal care (3)
- 4% of births in the US in 2018 were to women who did not have health insurance and self-paid for delivery
- 7% of those births were to women who had no antenatal care, compared to 1.5% of insured women who received no antenatal care (3)

- In 2017, tetanus vaccination coverage during pregnancy among women who had a live birth was 50.4% (48.8%) (9)

Case Study 2: Uganda

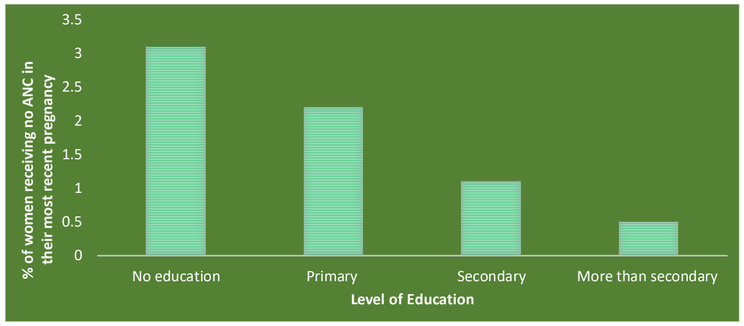

Figure 3. ANC coverage by highest attained level of education in Uganda in 2016 (4)

There is no national policy on IAP in Uganda.

- Coverage of any ANC is generally good, with 98% of women having at least 1 ANC contact, however frequency of ANC contact is low, with only 60% of women having 4 or more ANC contacts (4)
- Coverage of any ANC is higher amongst those who have a higher level of education, as shown in Figure 3, and those who are in the wealthiest quintile, however this difference is small (88% vs 82% for the least wealthy quintile) (4)
- Content of ANC is inconsistent- for example 28% of those who attend ANC do not have any blood pressure measurement (4)
- Assuming 50% of women who have more than 4 ANC attendances are vaccinated with an anticipated 70% efficacy, a universal vaccination program would avert one third of neonatal cases and deaths due to GBS in Uganda (10)

- Tetanus vaccination coverage is 80.6% of live births, according to the 2016 DHS survey (4), and Uganda has achieved elimination status of tetanus, however, has received significant support with this.

Conclusion

GBS vaccination promises a simpler, more efficacious method of preventing GBS infection and disease, but will be subject to many of the same weaknesses as other maternal immunization programmes, and even of IAP. A vaccine cannot fix systemic weaknesses and inequalities within a health system. Therefore, health system capacity, and antenatal coverage, must be equitably improved to support the development and roll-out of new preventative tools and programmes.

Use your phone's camera to scan the QR code on the right and access supplemental materials and a full list of references.

Legend: ANC (antenatal care); LMIC (low and middle income countries); GBS (Group B Streptococcus); IAP (Intrapartum Antibiotic Prophylaxis); EOD (Early Onset Disease, disease occurring < 7 days after birth)