

Background

- The vaginal microbiota plays an important role in reproductive health and disease.¹
- Vaginal communities deplete in *Lactobacillus spp.* associate with an increased risk of preterm birth (PTB).²
- In contrast, *Lactobacillus spp.* dominance particularly by *L. crispatus*, is protective against PTB.²
- Live biotherapeutics are defined as live microorganisms administered to reduce human disease.³
- L. crispatus* CTV-05 (LACTIN-V, Osel) is a live vaginal biotherapeutic containing a naturally occurring strain of *L. crispatus* that has recently been shown to reduce recurrence of bacterial vaginosis.

Objectives

- To explore safety, tolerability and acceptability of LACTIN-V in pregnancy.

Methods

- The study was conducted at Imperial College Healthcare NHS Trust (2019 - 2021).
- Pregnant women at risk of PTB (Figure 1) were offered a course of LACTIN-V for 5 consecutive days followed by once weekly for 6 weeks.
- Applicators contained 2 x 10⁹ colony-forming units of *L. crispatus* CTV-05 powder (Figure 2)

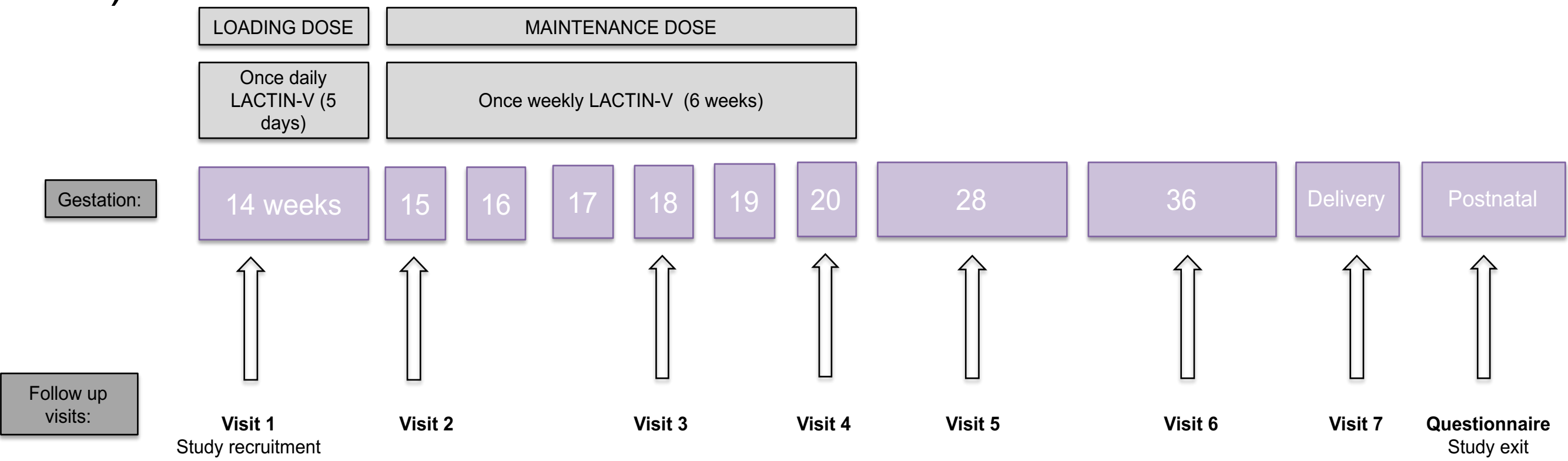


Figure 1 – Study design and LACTIN-V dosing regimen

- At follow up visits adverse events (AE) and compliance were monitored.
- An exit questionnaire assessed acceptability.



Figure 2 – Vaginal applicator

Methods

Table 1– Risk factors for PTB

History of:

PTB (<37 weeks)

Mid trimester loss (<16 weeks)

Short cervix (<25mm)

Large loop excision of the transformation zone, cone biopsy or trachelectomy

Cervical tear

Caesarean section at full dilatation

Congenital uterine anomaly

- Women were recruited from the PTB prevention clinic at Imperial College Healthcare NHS Trust.
- Women were eligible if they had a risk factor for spontaneous PTB (Table 1).
- Ethical approval was granted by the London-Surrey Borders Research Ethics Committee (IRAS 262987). Health Research Authority approval was given (REC 19/LO/1018).
- Trial registration: www.clinicaltrials.gov.uk (NCT03992534).

Results

Safety and Tolerability

- 73 women were recruited, of which 8 withdrew, leaving a final cohort size of 61.
- AEs were recorded for 69 women including those who completed LACTIN-V (n=61) as well as women who withdrew (n=8) but commenced LACTIN-V.
- There were no serious adverse events.
- Only one participant withdrew due to mild burning associated with use.
- AEs were reported in 13 women (19%).
- The most common unsolicited AE was a change in vaginal discharge (10%).

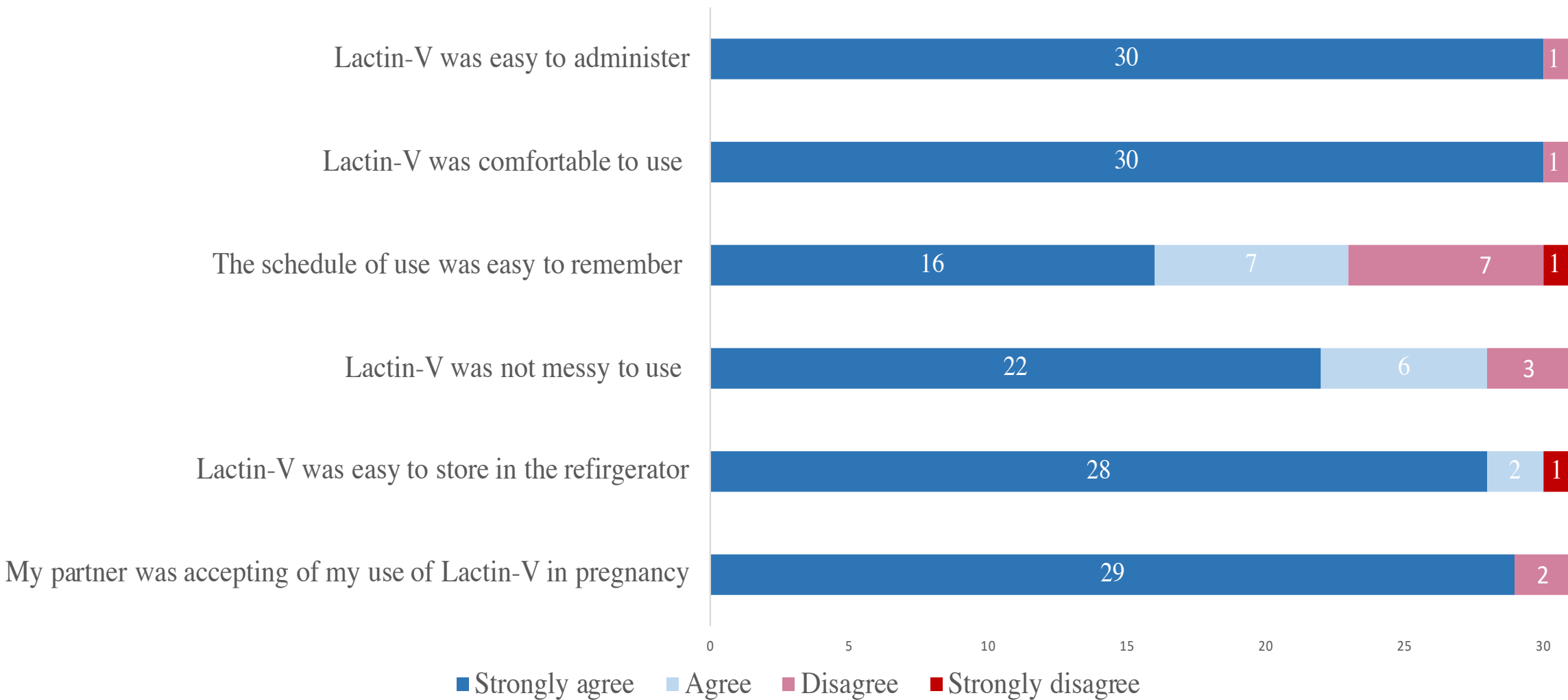


Figure 3 – Acceptability of LACTIN-V

- LACTIN-V was easy and comfortable to use.
- One quarter described the schedule difficult to remember, however compliance was not compromised.
- 97% expressed a desire to for future use.

Clinical Outcomes

- The rate of PTB <34 weeks in women receiving LACTIN-V was 3.3% compared to 7.0% in women from a historical cohort of n=2190. Where the risk factor was previous PTB or MTL, the rates of PTB were 7% and 14% respectively.

Discussion

- Phase 2a and phase 2b randomised control trials looking at LACTIN-V use to prevent the recurrence of bacterial vaginosis and urinary tract infections have shown LACTIN-V to be well accepted and safe.^{4,5}
- These randomised control trials report no serious adverse adverts and found altered vaginal discharge to be the most common AE.
- We observed lower PTB rates with LACTIN-V use when compared to our historical control cohort, particularly in women with a previous PTB or MTL.

Limitations & Future Work

- Our study did not include a placebo arm and was not powered to assess clinical outcomes.
- Further studies deigned to assess colonisation and host response to treatment are currently being undertaken.

Conclusion

In pregnancy, LACTIN-V is:

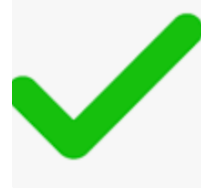
- Safe



- Tolerable



- Well accepted



References

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