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- To measure the liquid absorbency of tampons provided by Daye.
- To assess the level of liquid recovery from tampons using 20mL and 50mL syringes.
- To assess the feasibility and sensitivity of detecting HPV mRNA in tampons using simulated material.
- To determine the optimal pre-analytical processes for recovering HPV from tampons.

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graph TD
    subgraph Identification
        A[Records identified through database searching (n = 204)]
        B[Records removed before screening: Duplicate records removed (n = 130)]
        A --> B
    end
    subgraph Screening
        C[Titles and abstracts screened for eligibility (n = 74)]
        D[Studies excluded (n = 39)]
        C --> D
    end
    subgraph Eligibility
        E[Full-text articles assessed for eligibility (n = 35)]
        F[Studies excluded (n = 11)  
Reasons for exclusion:  
• Only conference abstract available (n = 3)  
• Intervention used device other than tampons (n = 3)  
• Non-English Text (n = 1)  
• Outcomes measured unclear (n = 1)]
        E --> F
    end
    subgraph Included
        G[Studies included in review (n = 24)  
• Included in quantitative synthesis (n = 3)  
• Included in qualitative synthesis (n = 24)]
    end
    A --> C
    C --> E
    E --> G
```

Identification

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Included

Studies included in review (n = 24)

- Included in quantitative synthesis (n = 3)
- Included in qualitative synthesis (n = 24)

1. 80% glycerol solution and SiHa cell lines were prepared.
2. A serial dilution of glycerol and SiHa cell suspension was performed.
3. Daye tampons were inserted into each of the falcon tubes containing different suspension concentrations and incubated for 30 minutes. The tampons were removed and stored in specimen bags for 24 hours at room temperature.
4. The tampons were placed into their respective specimen pots and added PreservCyt before syringing and vortexing them.
5. Aliquots from each specimen pot were tested using APTIMA HPV assay.

by the pre-analytical processes at the concentrations used.

Systematic Review

3 studies were pooled in a meta-analysis of the diagnostic accuracy of tampons in HPV-associated cervical diseases. **[A]** The sensitivity of the studies was 75% (95% CI: 66% - 82%). **[B]** The specificity was 65% (95% CI: 60% - 69%). **[C&D]** The random effect was used to pool positive and negative likelihood ratios and their results were 2.85 (95% CI 1.56 - 5.19) and 0.37 (95% CI 0.27 - 0.50). **[E]** The summary receiver operating characteristic (SROC) plot displays the SROC curve in blue lines along with standard error (SE). The Q* marks where the SROC curve intersects the diagonal, where sensitivity equals specificity. The red dots plotted on the sensitivity versus 1-specificity axes represent each study with the dot size indicating the study's sample size.

Technical Optimisation

CONCLUSION

- The maximum absorbance of Daye tampons is 10 ml of glycerol suspension; using a larger syringe may enhance the sample yield.
- Serially diluted samples extracted via both syringing and vortexing successfully recover HPV from tampons, indicating the sensitivity of HPV detection is not affected by the pre-analytical processes at the concentrations used.

Systematic Review

Technical Optimisation