Clinical and Economic Benefits of Cervical Cancer Co-Testing with 3- and 5-Year Intervals

Background
- Cervical cancer screening by co-testing incorporates Papanicolaou (Pap) testing for cytology plus DNA- or RNA-based testing for the human papilloma virus.
- Current cervical cancer screening guidelines recommend co-testing every 5 years for women from 30 to 65 years of age.\(^1\)
- Screening at more frequent intervals is expected to result in a lower lifetime risk of cervical cancer, but also an increased rate of invasive follow-up procedures for false-positive test results.\(^1,2\) Determination of an optimum screening interval is based on balancing these factors, among others.\(^1\)
- **Objective:** The investigators compared the clinical and economic benefits of cervical cancer co-testing at 3- and 5-year intervals.

Methods
- A Markov cost-utility model was developed based on published clinical, epidemiological, and cost data.\(^3\)
- The model used a simulated cohort of 1 million women who received cervical cancer co-testing.
- Three- and five-year co-testing intervals were modeled for 40 years, from 30 to 70 years of age.
- Outcomes analyzed included
  - Invasive cervical cancer (ICC) cases
  - ICC-related deaths
  - Quality-adjusted life years (QALYs)
  - Costs in 2016 dollars

Results
- For a 3-year co-testing interval compared with a 5-year co-testing interval, the cost-utility model predicted the following over a 40-year time frame:
  - **Incidence of ICC:** 40% lower with 3-year intervals (57.6 vs 96.5 per 10,000 women)
  - **Incidence of ICC-related deaths:** 39% lower with 3-year intervals (23.1 vs 37.6 per 10,000 women)
  - **QALYs:** 0.02 gain with 3-year intervals (23.0084 vs 22.9883)
  - **Cost:** $363 net increase in cost per woman over 40 years with 3-year intervals
    - Screening costs: $477 increase per woman
    - Cervical cancer prevention and treatment: $114 savings per woman
  - **Incremental cost/utility ratio:** $18,060 per QALY gained with 3-year intervals

Conclusions
- This model predicts co-testing at 3-year intervals compared with 5-year intervals to be a cost-effective strategy for reducing the incidence of ICC and ICC-related deaths.