Evaluating the costs, benefits and cost-effectiveness of multi-pathogen point-of-care tests for sexually transmitted infections in symptomatic genitourinary medicine clinic attendees

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Background

- Point-of-care tests (POCTs) for sexually transmitted infections (STIs) may improve Sexual Health Clinic (SHC) care pathway efficiencies and patient outcomes\(^1\).
- Nucleic acid amplification test (NAAT) POCTs, which simultaneously test for multiple pathogens, are currently being developed\(^2\).

We estimated costs, benefits and cost-effectiveness of three accurate 30-minute NAAT POCT strategies that detect different STI combinations, compared with standard care (SC) (laboratory-based NAAT for Chlamydia trachomatis (CT) and Neisseria gonorrhoeae (NG)).

Results

- Micro-costing: SC was the cheapest strategy costing £113,058,655.
- Tariff costing: POCT C was the cheapest strategy costing £145,912,757.
- All POCT strategies provided more benefits than SC.

POCT C

- Dominating SC for all secondary outcomes.
- Was most cost-effective POCT strategy relative to SC with ICER of £36,585 per QALY gained (micro-costing).

- Cost-effectiveness acceptability curves (CEACs) (Figure 1) illustrated the probability of cost-effectiveness given a range of willingness to pay (WTP) thresholds per QALY gained. CEACs indicated that different strategies may be cost-effective for different patient sub-groups (women, men-who-have-sex with women (MSW), men-who-have-sex-with-men (MSM)), depending on the WTP threshold.

- Scenario analyses showed that cost was most affected by amount of presumptive treatment given and POCT unit cost.

Methods

- Decision tree model to simulate a hypothetical cohort of 965,988 patients symptomatic for lower genitourinary tract infection, estimated from real data\(^3\).
- POCT strategies compared to SC were:
  A) CT and NG
  B) CT-NG and Mycoplasma genitalium (MG)
  C) CT-NG-MG and Trichomonas vaginalis (TV)

- SHC costs considered were for:
  i. Delivery of testing and management (i.e. costs to SHC, micro-costing approach)
  ii. Reimbursement (tariff) based on attendance (i.e. cost to commissioners)

- Primary outcomes were: i) total cost; ii) benefits (i.e. Quality Adjusted Life Years (QALYs)); iii) incremental cost-effectiveness ratios (ICERs).
- Secondary outcomes: i) inappropriate treatment of STIs; ii) onward transmission; iii) PID in women; iv) time to cure; v) total attendances.

Conclusions

- The CT-NG-MG-TV POCT strategy was the cheapest using tariff costing. It offered the most benefits, which in turn may have wider public health impacts through rapid and accurate STI diagnosis and management.
- Different testing strategies may be more cost-effective in different SHCs and patient groups, but whether this is practical and/or acceptable requires further investigation.
- Further evidence is needed to capture the diversity of STI prevalence and management of patients across clinical services to better inform economic analyses.

References


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