## SUPPLEMENTARY APPENDIX

Background:

Rapid diagnostics for STIs/BV improve case detection and reduce overtreatment and its associated costs, particularly given the high rates of asymptomatic infections (15, 45, 46). Therefore, it is of paramount importance to establish the cost-effectiveness of this screening intervention to compare the costs and health outcomes of other STI diagnostic interventions in current use. For instance, the syndromic approach may cost much less but would also miss the majority of infections which are asymptomatic and therefore not treated (19). In contrast, laboratory based tests may be more accurate but are limited by non-availability of resources, are expensive, frequently focus on single pathogens, take long to process, all of which affect the health outcomes (11, 47).

Additional information about the three selected sites:

The Desmond Tutu HIV Foundation Youth Centre [DTHFs, Cape Town) managed by a non-governmental organization (NGO), provides reproductive and sexual health services to youth between 12 to 22 years of age, provided by two nurses, a general practitioner, and a youth health educator. the University of Cape Town (UCT) Student Wellness Services Clinic funded by private sources and the government offers a comprehensive outpatient health services, inclusive of reproductive sexual health services and provided by four nurses and three medical practitioners to all UCT students. The South African government health clinic (Spencer Road Clinic, Woodstock, Cape Town) offers general HIV care, child health, family planning and STI management services provided by four nurses and two HIV counsellors.

Additional information about the costing process:

For shared resources, we estimated the building costs by multiplying the total building space by the current replacement cost per square metre, sourced from an assessment tool developed by the Council for Scientific and Industrial Research (CSIR) of South Africa (48). Building space was allocated according to the utilization rate, and the service distribution within the clinic rooms. Furniture and equipment costs were sourced from company catalogues and sales quotations and, allocated proportionally to the family planning patients visits. Overhead and maintenance costs were estimated based on the family planning utilization rates. Staff costs inclusive of administrative and support staff were estimated using the time spent on service provision and valued using facility specific wages. We excluded any research costs (staff costs, fieldwork costs). We empirically costed the family planning services at facility level and excluded any programmatic costs. In the top-down approach we divided the total expenditure for overheads and maintenance by the utilization rate; for the bottom-up approach we identified the resources for the other cost categories, allocated a value to them and added them to calculate the unit cost (25).

Additional information about the budget impact analysis:

The budget impact analysis aimed to estimate costs associated with screening based on the contraception prevalence rate (CPR) within South Africa. This reflects the number of women attending family planning clinics, which is the potential population to be screened. The level of coverage uses the proportion of the potential groups attending public and private health facilities (28), and aims to provide insight on the most feasible level of implementation given the current levels of infrastructure and capacity development. The estimates comprised of the incremental costs of screening and were inclusive of a limited degree of capacity development necessary to implement scaled-up activities within existing levels of infrastructure. The scale-up costs excluded the costs of additional etiological screening required as this analysis mainly focuses on GIFT screening. The cost of the levels of implementation that require wholesale changes in infrastructure were not included. Additionally, possible economies of scope that might arise by providing related health services were not considered due to lack of data.

Government clinics cover the larger national pool of women accessing family planning services in South Africa (80%) (28), and only the Spencer road clinic expenditure estimates are accurate for the budget impact analysis for the public sector. However, possible economies of scope that might arise by providing related health services were not considered due to lack of data.

The proportion of the total national budget that is allocated to the health sector has remained steady over the recent years from 13.5% in 2014 to 13.8% in 2017 (49). This may provide a challenge for the prioritization of the GIFT screening over other new or already implemented interventions.

Additional information about the sensitivity analyses:

There were several areas of uncertainty that were assessed through univariate sensitivity analyses. These were 1. The personnel costs were varied based on the salary scales of different types of health facilities, 2. That the test device was yet to be piloted and the price was an estimation from the manufacturing company, and 3. That the utilization rate used for allocation of costs of resources was dependent on the main health service (family planning) provided by facilities.