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Mapping patient pathways and estimating resource use for point of care versus standard testing and treatment of chlamydia and gonorrhoea in genitourinary medicine clinics in the UK

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TITLE

Research: Patient care pathways using chlamydia and gonorrhoea tests are evolving: point of care nucleic acid amplification tests may reduce genitourinary medicine service delivery costs.

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Point of care technology, diagnostic test, gonorrhoea, chlamydia, costs and cost analysis

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ABSTRACT

Objectives

We aimed to explore patient pathways using a chlamydia/gonorrhoea point of care (POC) nucleic acid amplification test (NAAT), and estimate and compare the costs of the proposed POC pathways with the current pathways using standard laboratory-based NAAT testing.

Design/Participants

Workshops were conducted with health care professionals at four sexual health clinics representing diverse models of care in the UK. They mapped out current pathways that used chlamydia/gonorrhoea tests, and constructed new pathways using a POC NAAT. Healthcare professionals' time was assessed in each pathway.

Outcome measure

The proposed POC pathways were then priced using a model built in Microsoft Excel, and compared to previously published costs for pathways using standard NAAT-based testing in an off-site laboratory.

Results

Pathways using a POC NAAT for asymptomatic and symptomatic patients and chlamydia/gonorrhoea-only tests were shorter and less expensive than most of the current pathways. Notably, we estimate that POC testing as part of a sexual health screen for symptomatic patients, or as stand-alone chlamydia/gonorrhoea testing, could reduce costs per patient by as much as £16 or £6, respectively. In both cases, health care professionals' time would be reduced by approximately 10 minutes per patient.

Conclusions

POC testing for chlamydia/gonorrhoea in a clinical setting may reduce costs and clinician time, and may lead to more appropriate and quicker care for patients. Further study is warranted on how to best implement POC testing in clinics, and on the broader clinical and cost implications of this technology.

STRENGTHS AND LIMITATIONS OF THIS STUDY

- The main strength of this study is that it presents the first estimates of the costs of implementing chlamydia and gonorrhoea point of care testing compared to standard care (off-site laboratory processing of samples) in genitourinary medicine clinics, presenting a consensus from four clinics across England representing a range of service delivery models.
- The main limitation is that this is based on expert clinical opinion, rather than prospectively collected data, as point of care testing for chlamydia and gonorrhoea had not yet been implemented in England when this study was conducted.

INTRODUCTION

Chlamydia trachomatis and *Neisseria gonorrhoea* are common sexually transmitted infections, and if untreated may cause pelvic inflammatory disease, which can result in serious reproductive sequelae such as tubal factor infertility and ectopic pregnancy.[1-3]

Typically the nucleic acid amplification test result for chlamydia and gonorrhoea is available within a week from an off-site laboratory, but it can sometimes be over two weeks until the patient receives treatment, and some patients may not return for treatment.[4,5] If the results of these tests could be available at a single visit, outcomes could be improved by achieving earlier treatment and partner notification, minimising the risk of onward transmission and developing complications.[6-8] Such a service would also likely be more convenient for patients.[7-9]

This could be achieved with sensitive and specific NAAT point of care tests (POCTs), which have recently become available. One such test, Cepheid Xpert® CT/NG (Cepheid, Sunnyvale, CA, USA), has at least equivalent performance to traditional laboratory based NAATs, providing results within 90 minutes of specimen collection.[10]

We have developed a model that enables us to evaluate the components of care pathways and associated costs. In this report we review current patient pathways in sexual health clinics that include chlamydia and gonorrhoea testing and treatment, explore and map new pathways to incorporate chlamydia and gonorrhoea POC testing

efficiently in GUM (genitourinary medicine) clinics in the UK, estimate the costs of the new pathways and compare the costs with the current pathways using standard laboratory-based NAATs.

METHODS

Patient pathways using chlamydia/gonorrhoea POCTs were developed during workshops at four sexual health clinics, attended by three to fifteen staff members across all clinic staff grades. To increase applicability of the pathways across different service types, we chose a range of clinics with diverse services and service delivery. Urban and rural clinics (two in the South West of England and two in London), those providing either GUM or integrated sexual health services, and those serving higher-risk populations were represented. Based on staff input, patient pathways were constructed to model the consecutive clinical steps involved in testing and treatment, both for POC pathways and also current service delivery (standard care).

A model was built in Microsoft Excel to replicate pathway steps and estimate costs. We assumed the perspective of the National Health Service (NHS) and only clinical costs were included (£UK2012); patient time and associated costs were excluded. The staff cost per minute included indirect and overhead costs. Standard off-site laboratory-based chlamydia/gonorrhoea testing costs and all other cost inputs were taken from previously published sources using an identical modelling approach,[11] to allow for direct comparison between current standard pathways and proposed POC pathways (Table A in the Supplementary material online). POCT costs were based on use of the only currently commercially available chlamydia/gonorrhoea POCT, the Cepheid Xpert CT/NG system, with a baseline assumed cost of £18, which includes the cartridge, machine rental, service, and maintenance, assuming 15,000 tests are done annually (i.e., 60 tests/day, Monday-Friday), plus an additional £1.71 for the Cepheid sample collection materials (data from Cepheid). We varied the POCT cost from £13/test (assuming 20,000 tests or more annually) to £25 (assuming one test/day). These costs exclude staff training (likely to be 30 minutes per person). This compares to an assumed baseline cost of £12 for the standard test plus £1.35 for the sample collection materials.

The outputs of the model were the costs of each testing pathway as a primary pathway (delivered on its own) and as an additional pathway (delivered in conjunction with other clinical services). To estimate the cost of additional pathways, staff time was weighted by the proportion of additional time, but all non-staff inputs are included at full value.

The total pathway cost = (Cost Step 1) + (Cost Step 2) + … + (Cost Step N).

Detailed descriptions of patient pathway development and cost modelling are available as Supplementary methods online.

RESULTS

Patient testing pathways consist of a set of standard steps: patient registration, consultation, clinical examination, sample collection (blood, urine, and/or vaginal swab), health promotion counselling, off-site laboratory-based sample processing, on-site POC testing, microscopic analysis of specimens in the clinic, results counselling, results management (data entry and notifying patients of results), and contacting patients who test positive to ensure follow-up treatment. Detailed descriptions of each step are available in Table B in the Supplementary material online. The standard and POC pathways differ in which steps are used, time for each, and order of steps. Chlamydia and gonorrhoea testing may be carried out as either stand-alone testing or as part of a full sexual health screen including additional testing for syphilis and HIV. The sexual health screen for asymptomatic versus symptomatic patients differs in that the latter includes a clinical examination, culture for gonorrhoea, and microscopy. The steps of these pathways are shown, along with costs and clinician time, in Figure 1A. There are two proposed sexual health screen pathways using POC testing, given as POC1 and POC2.

[Insert Figure 1]

The lengthiest and most costly pathway for chlamydia/gonorrhoea testing is the sexual health screen for symptomatic patients. A proposed POC pathway could reduce this cost from £99 to £92 per patient (averaging POC1 and POC2), and reduce health care professional time from 47 to 44 minutes per patient as a primary pathway. There was a difference in the two proposed POC pathways for symptomatic patients; namely, POC1 includes a slightly longer consultation for patients (15 minutes versus 10 minutes) and an additional step for health promotion with a Health Adviser for 6 minutes. A portion of the cost savings arises from eliminating the need for gonorrhoea culture in symptomatic patients, except for those testing positive by POCT. Reductions in cost and time with POC testing are also expected for stand-alone chlamydia/gonorrhoea testing and for asymptomatic sexual health screen pathways, when delivered as primary pathways.

In some clinics, asymptomatic patients may be offered a rapid sexual health screen, which utilises laboratory-based chlamydia/gonorrhoea testing but reduces costs and clinician time by combining certain steps. The rapid sexual health screen is the most cost- and time-efficient sexual health screen pathway (Table C in the Supplementary material online) but may not be appropriate for all patients. In addition, stand-alone

chlamydia/gonorrhoea self-service testing is offered in some clinics, but only to asymptomatic patients; however, incorporating a POCT into this pathway would increase costs compared to standard care (Table C in the Supplementary material online).

Figure 1B outlines the clinical steps and costs of treating patients for chlamydia or gonorrhoea. Pathway steps specific to treatment include: gonorrhoea culture for confirmation and antimicrobial sensitivity testing, treatment with antibiotics, counselling and, if requested, support/assistance with partner notification. A benefit of POC testing is that patients can initiate treatment during the same visit at which they receive positive diagnosis, eliminating the need for a follow-up treatment visit, resulting in lower overall cost. For example, under current practice, it would cost £114.66 to screen and treat a chlamydia positive patient having an asymptomatic screen (primary screen, £79.77; primary treatment at second attendance, £34.89). This could be reduced to £100.49 with a POCT, as the patient would be treated as part of the same attendance (primary screen, £75.50 [average of POC1 and POC2]; additional treatment, £24.99).

Furthermore, under current practice, some symptomatic patients and partners of positive patients are treated empirically at their testing visit before laboratory-confirmed results are available. Symptomatic patients treated presumptively for chlamydia or gonorrhoea infection incur costs of £124.37 and £201.24 per patient, respectively (primary symptomatic sexual health screen, £99.38; plus additional chlamydia treatment, £24.99; or gonorrhoea treatment including a four-week follow up test of cure, £101.86). If a POCT were used on these symptomatic patients, the cost of the testing and treatment pathways (averaging POC1 and POC2) would be less than standard care (chlamydia, £117.42; gonorrhoea, £200.18), and the number of patients treated inappropriately would be reduced. This could enable more appropriate treatment if a non-specific genital tract infection is suspected, or potentially no treatment at all which would reduce costs by £24.99 for chlamydia and £101.86 for gonorrhoea.

DISCUSSION

Our results indicate that the total cost of most chlamydia/gonorrhoea testing pathways in GUM clinics would be similar or reduced by using POC testing in place of off-site laboratory-based testing, and staff time would be reduced. In addition to these benefits, POC technologies have the potential to significantly improve sexual health care, enabling for the first time accurate chlamydia and gonorrhoea specific diagnoses to be made and appropriately treated in a single visit. This may reduce the number of onward transmissions, inappropriate treatments in patients who are chlamydia or gonorrhoea negative but treated presumptively, and prevent pelvic

inflammatory disease in women.[6] By reducing loss to follow-up, chlamydia/gonorrhoea POC testing could be particularly useful with groups who are less likely to return for treatment,[2,5,7] including high-risk groups, such as men who have sex with men, and commercial sex workers. Patients who do not return, or are lost to follow-up, may comprise up to 10% of all chlamydia diagnoses,[5] although this may be less in GUM clinics. Chlamydia/gonorrhoea POC pathways could also be implemented in non-GUM settings, such as termination of pregnancy or contraception clinics. Women infected with chlamydia or gonorrhoea are at increased risk of developing pelvic inflammatory disease following insertion of an intra-uterine device or termination of pregnancy,[12,13] and would benefit from a rapid diagnosis.[6] With POCTs, novel ways of testing are imaginable, e.g. POCTs could be used in outreach, with the platform situated in a mobile sexual health testing unit that travels to particular groups such as commercial sex workers.

However, as with any new technology, potential benefits must be weighed with concerns, such as how to best manage the 90 minute delay before results are available, although this may be more of an issue for clinicians than patients.[8,9] Due to variation in the way that GUM services are configured and delivered across England, the best way to implement a POC pathway may depend on the specific clinic, based on factors including size of the clinic, location (e.g. rural vs. urban), patient mix, staff mix, etc. For example, in urban clinics, patients could attend in the morning to register, provide a self-collected sample, and book a slot for later in the day to see a clinician for a consultation, blood tests, results and treatment if needed. This system of having patients drop off a sample at the beginning of the day and book in to be seen later may be attractive to patients in an urban setting, where they could either go back to work/school before their appointment, or spend time in the city centre. Clinics that currently offer a slot system such as this would easily transition to this type of system using a point of care test, and patients' treatment could be started on the same day of testing. This system may not work in practice, however, as patients might give a sample but would not return later. In many rural areas it is not feasible to make two visits on the same day to the clinic since patients may have a long journey to the GUM clinic. As many clinics experience long waits to be examined and tested, it is possible that patients would be willing to wait in clinic until the results are back, so as to be treated at the same visit. Alternatively, patients could register, have a brief consultation with a clinician, have blood samples taken, and lastly provide a self-collected urine or vaginal swab sample before leaving the clinic. The clinic would later notify patients of their results with positive patients returning later in the day or the next day. While it would not offer an instantaneous result, there could still be significant benefits to patients if they were treated the next day rather than waiting 1-2

weeks as under standard care. Additional benefits and concerns of POC pathways are presented in Table D in the Supplementary material online.

We anticipate that POC testing may also reduce costs associated with testing and treating partners of chlamydia/gonorrhoea positive patients and improve antimicrobial stewardship, an international priority.[14,15] Standard practice is to offer chlamydia and gonorrhoea treatment presumptively to partners of positive patients (epidemiological treatment) when they attend for screening.[16,17] As the routine NAAT result is not available at the time of testing it cannot be used to inform the decision of whether treatment is actually indicated and contacts will be treated unnecessarily. Currently the results of testing, at the time of epidemiological treatment of partners, are used for surveillance purposes and if positive, additional partner notification when indicated. If 87.9% and 85.7% of partners of chlamydia and gonorrhoea-positive patients are tested for chlamydia/ gonorrhoea at the same time they receive treatment [1] and 36.8% and 33.2% of the partners are positive, respectively, we estimate that using a POC NAAT on partners before treatment would save £19 and £62 for partners of chlamydia and gonorrhoea-positive individuals, compared to standard care. For gonorrhoea, we estimate there would be a cost savings if the positivity is less than 93% in partners and 50% undergo chlamydia/gonorrhoea testing, as the gonorrhoea management pathway is expensive compared to testing. Hence, efficiency savings may be gained if the prevalence in partners is low, but it would be more costly to use a POC NAAT on partners first before treatment if a high proportion of partners are positive. However, both scenarios would reduce overtreatment and therefore improve antimicrobial stewardship in genitourinary medicine.[14,15,18]

Our study proposes several novel chlamydia/gonorrhoea testing pathways using POC technologies which may reduce costs and health care professionals' time in GUM clinics. Although our study is based on use of the only currently commercially available chlamydia/gonorrhoea POCT, the Cepheid Xpert CT/NG system, we anticipate that results would be applicable to other tests with similar performance characteristics. If other tests become available, their pathway costs could be estimated and compared using the same model. This is a modelling study based on theoretical pathways and we did not aim to test that the pathways would work in practice or validate the steps. Once these tests are in clinics, rigorous evaluation is required in order to ensure that they are delivering the promised benefits at no additional overall cost.

FIGURE 1 TITLE

Comparison of current and proposed POC clinical pathways for chlamydia and gonorrhoea testing and treatment.

FIGURE 1 LEGEND

The clinical pathway steps for chlamydia and gonorrhoea (A) testing and (B) treatment are shown along with cost per patient and minutes of health care professionals' time for each pathway when delivered as either a primary or an additional pathway. The first step, patient registration, is common to all pathways and is not shown. Alternative POC pathways proposed by different clinics are reported as POC1 and POC2. The cost of POC pathways may vary by -£5/+£7 based on volume of tests performed. NG, *Neisseria gonorrhoeae*. TOC, test of cure performed four weeks after initial treatment for gonorrhoea. *Urine/vulvo-vaginal swab collected for chlamydia and gonorrhoea testing. †Blood sample collected for HIV and syphilis testing. ‡Patients would drop off sample and book an appointment later in the day for their consultation and results.

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CONTRIBUTOR STATEMENT

PH and EA conceived the study idea, EA conducted the workshops, supervised the project, planned the pathway model, analysed and interpreted the model results and drafted the manuscript. PH provided clinical input on the pathways, interpreted model results, and helped draft the manuscript. KS built the pathway model in Excel. AE helped draft the manuscript and provided study support. PH and JM provided expert opinion on the parameter choices and guidance on the structure of the model. SG provided expert knowledge regarding the use of point of care tests from a microbiological context. RM helped draft the manuscript. VP provided expert advice about the

sexual health pathways and commissioning/funding. EA, PH, JM and SG contributed to the study design. All authors critically reviewed the paper for content and approved the final submitted version.

COMPETING INTERESTS

EA has received funding from Atlas Genetics, Astra Zeneca, Bristol University, Cepheid, Gilead, Hologic the Office for Sexual Health, Pathway Analytics and St Georges University and for sexual health consultancy and lectures; PH has received funding from HEFC, BASHH, the Bristol University, Imperial College London, the CPS and Hologic for consultancy, lectures, patents, and providing evidence; KT has received funding from for NIHR for a personal fellowship, and from NHS Bristol Hospitals Health Trust, the Office for Sexual Health and NICE for consultancy. SG has received funding from Cepheid for travel and accommodation for work not related to this submission. EA, SG, RM, VP, Bristol University (PH & JM), AE and KS received funding from Aquarius Population Health for this work. No other conflicts of interest.

Authors are independent for the purposes of publication and Cepheid did not have any role in the writing of this paper or veto over any results published. Cepheid provided funding to Aquarius Population Health to conduct the study and estimates of the cost of their proprietary Point of Care Test. Other similar tests are, or are soon to be commercially available. The results presented could be applicable to any other point of care test with similar performance, cost and usability. We do not make any recommendation as to which test, if any, a clinic should use.

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Figure 1: Comparison of current and proposed POC clinical pathways for chlamydia and gonorrhea testing and treatment

Pathway	Clinical Steps	As Primary Pathway		As Additional Pathway	
		Cost per patient	Time (min)	Cost per patient	Time (min)
A) Testing Pathways					
	Chlamydia and gonorrhea only				
Current	Consultation → Sample collection* → Health promotion → Off-site sample processing (1-2 weeks) → Results management → Contact positives	£45.34	32.8	£28.65	15.7
POC	Consultation → Sample collection* → POCT (90 minutes) → Results management → Contact positives	£38.76	21.8	£32.59	13.4
	Sexual health screen for asymptomatic patients				
Current	Consultation → Sample collection*,† → Health promotion → Off-site sample processing (1-2 weeks) → Results management → Contact positives	£79.77	37.2	£54.86	12.3
POC1	Consultation → Sample collection*,† → POCT (90 minutes) → Results management (POCT) → Off-site sample processing (1-2 weeks) → Results management (HIV,syphilis)→ Contact positives	£77.42	31.2	£69.43	21.1
POC2	Sample collection*,‡→POCT (90 minutes) → Consultation/Results (POCT) → Sample collection† → Off-site sample processing (1-2 weeks) → Results management (HIV, syphilis) → Contact positives	£73.57	26.2	£65.57	16.1
	Sexual health screen for symptomatic patients				
Current	Consultation → Exam/Sample collection*,† → Microscopy → Health promotion → Off-site sample processing (1-2 weeks) → Results management → Contact positives	£99.38	47.2	£73.82	22.3
POC1	Consultation → Exam/Sample collection*,† → POCT (90 minutes) → Microscopy → Health promotion → Results management (POCT) → Off-site sample processing (1-2 weeks) → Results management (HIV, syphilis) → Contact positives	£100.39	52.2	£74.98	27.3
POC2	Sample collection*,‡ → POCT (90 minutes) → Consultation/Results (POCT) → Exam / Sample collection† → Microscopy → Off-site sample processing (1-2 weeks) → Results management (HIV, syphilis)→ Contact positives	£84.46	36.2	£70.72	21.1
B) Treatment Pathways					
Chlamydia	Results → Treatment → Partner notification → Supported partner notification	£34.89	23.5	£24.99	13.5
Gonorrhoea 1st visit	Exam / Sample collection* (for NG culture) → Treatment → Health promotion / Partner notification → Off-site sample processing → Supported partner notification	£72.07	51.0	£61.88	38.0
Gonorrhoea 2nd visit TOC Current	Sample collection* (for NG culture and NAAT) → Off-site sample processing (1-2 weeks) → Results management	£39.98	20	£32.89	10
Gonorrhoea 2nd visit TOC POC	Sample collection* (for NG culture and POCT) → POCT (90 min) → Off-site sample processing (for NG culture, 2-4 days) → Results management	£45.87	20	£38.77	10

Figure 1. Comparison of current and proposed POC clinical pathways for chlamydia and gonorrhoea testing and treatment. The clinical pathway steps for chlamydia and gonorrhoea **(A)** testing and **(B)** treatment are shown along with cost per patient and minutes of health care professionals' time for each pathway when delivered as either a primary or an additional pathway. The first step, patient registration, is common to all pathways and is not shown. Alternative POC pathways proposed by different clinics are reported as POC1 and POC2. The cost of POC pathways may vary by -£5/+£7 based on volume of tests performed. NG, *Neisseria gonorrhoeae*. TOC, test of cure performed four weeks after initial treatment for gonorrhoea. *Urine/vulvo-vaginal swab collected for chlamydia and gonorrhoea testing. †Blood sample collected for HIV and syphilis testing. ‡Patients would drop off sample and book an appointment later in the day for their consultation and results.

ONLINE SUPPLEMENTARY MATERIALS

Clinical care pathways using chlamydia and gonorrhoea tests are evolving: point of care nucleic acid amplification tests may reduce genitourinary medicine service delivery costs

Supplementary Methods

A) Clinical pathways and steps

Each of the pathways comprises a number of steps; each step has a number of elements which have costs associated with them or are used to scale the costs (e.g. the proportion of patients who go through that step). These elements are:

Step components:

- Proportion of patients who go through the step (activity)
- Length of time (minutes) to complete the step
- Grade of staff/staff blend
- Non-staff resources required: consumables, drugs and pathology
- Proportion of the time, if the step is delivered in conjunction with another pathway

For most steps in the pathway a blend of staff is likely to be involved, for example, any grade of nurse. These were explicitly modelled and such combinations were taken from the Integrated London Sexual Health Tariff [1,2].

If two pathways are delivered at the same time, one would be considered as the primary pathway and the other as an additional pathway, in terms of costing. Efficiencies with staff time are generated when more than one pathway is delivered during a consultation, but the full amount of non-staff inputs are still needed as these are specific to the pathway being delivered. For example, the initial registration or health promotion steps would not occur twice, but any non-staff consumables would be required at 100%.

B) GUM Clinic Workshops

We chose a variety of clinics for the workshops to obtain as wide a range of opinions as possible given a small sample size. These included a traditional GUM clinic, a fully integrated sexual health clinic with STI and contraception offered, and one with a large proportion of individuals from high-risk groups. A lead clinician at each clinic was asked to invite his or her coworkers, and to encourage a wide range of participation. These workshops were organized during allocated staff training sessions so as not to interfere with normal working hours. Staff were all made aware of the purpose of the workshop, that detailed notes would be taken on what was said during the workshops, and that the information would be used to build consensus pathways and cost them out. All staff were made aware that the goal was to present our findings as a peer reviewed publication; consent

was implicitly given by attendance. Workshops were attended by a range of clinical and administrative staff including, at a minimum, one consultant, one nurse (Band 7/8), one health advisor, and one administrator. Each workshop lasted between 60-90 minutes.

C) Building chlamydia and gonorrhea clinical pathways

The pathways were created using an iterative methodology. First, the research team reviewed the current pathways from the published Integrated London Sexual Health Tariff [1] and proposed new patient pathways using a chlamydia/gonorrhoea POCT to prompt discussions at the first workshop. During each workshop we asked open-ended questions about the clinic's current care pathways and possible modifications if a chlamydia/gonorrhoea POC NAAT were available. Questions considered patient flow, time from test to treatment, and the total number of clinical steps or time which would be reduced by using POC NAAT. We also captured the benefits and limitations of using and implementing a chlamydia/gonorrhoea POC NAAT in clinical practice. Subsequent workshops built on the pathways generated at previous workshops, refining them or creating new ones if their care delivery varied significantly. Costs were not considered during the workshops. We returned all of the pathways to the study team and workshop participants at the end of the study, asking for any final comments and to obtain consensus around the pathway detail.

C) Cost model

The total pathway cost = (Cost Step 1) + (Cost Step 2) + … + (Cost Step N).

$$Cost\ Step\ N_{Primary} = A \times \left(M \times ((C_{s1} \times Q_{s1}) + (C_{s2} \times Q_{s2}) + \cdots + (C_{sN} \times Q_{sN})) + \sum C_{Cons} \times Q + \sum (\right.$$

If the proportion additional is 0, then Cost Step $N_{Additional} = 0$, else

$$Cost\ Step\ N_{Additional} = A \times \left(Add \times M \times ((C_{s1} \times Q_{s1}) + (C_{s2} \times Q_{s2}) + \cdots + (C_{sN} \times Q_{sN})) + \sum C_{Cons} \times Q \right.$$

Where A is the activity, M is the number of minutes, C is the cost, Q is the quantity/proportion, s_1, s_2 … s_N are the different staff grades/blends, Cons is consumables, Path is pathology and Add is the proportion additional.

We made some general assumptions about the pathways when information was not available from the focus groups. This was done to ensure some consistency in the pathways. There were:

- Patient registration step – 5 minutes, 100% admin clerical, 0% as an additional pathway. The cost of patient registration is included in the total pathway cost, but is not shown in Figure 1 for simplicity.
- Both standard care and POCT testing pathways require sample collection instructions, gloves, urine pot and vulvo-vaginal swab.
- For asymptomatic patients, 70% would be a urine sample and 30% would be a vulvo-vaginal swab. This is based on 100% of men providing urine, and 60% of women providing a urine sample.
- The health promotion step always includes the consumables: KY lubricant (x2), STI literature (x3), male condoms (x10). Where no health promotion step is included, we added the same consumables to the consultation.
- For standard care pathways, the results management step is done by a 5/6 Nurse (6 minutes), 95% SMS text message, 2% letter notification, 3% telephone notification.
- For POCT pathways, the results management step is done by a 5/6 Nurse (6 minutes), with all patients receiving results by SMS text message, and of those 2% and 3% also receive results by letter or telephone notification, respectively.
- For standard care and POCT pathways, the step for contacting those with a positive or equivocal test results requires 90% SMS text message, 5% letter notification, 5% telephone notification.
- Microscopy is done for all symptomatic patients and is 10 minutes of a 5/6 Nurse, using blotting paper, gloves, gram stain, immersion oil, loops and a slide.
- Blood tests all include bandages/plaster, blood tube, cotton wool, gloves, needle, sterets/antiseptic wipe, syringe, transport tube and vacutainer.
- The proportion additional time was taken from pathways in the Integrated London Sexual Health Tariff [1] as this was not specifically discussed in the focus groups.

Table A: Cost inputs used in the model; taken from the Integrated Sexual Health Tariff [1,2]

Type	Item	Cost	Unit
Staff	Blend Doctor - N7/8	1.45	Minute
Staff	Blend Nurse 7/8	1.10	Minute
Staff	Blend all com SRH N2 - Dr	1.06	Minute
Staff	Blend Health Adviser	1.03	Minute
Staff	Blend Nurse 5/6/7/8	0.89	Minute
Staff	Blend Nurse 5/6	0.75	Minute
Staff	Admin/clerical	0.53	Minute
Pathology	Cepheid PoC CT/GC Test	18.00	Sample
Pathology	Chlamydia & Gonorrhoea NAAT	12.51	Sample
Pathology	GC Culture/typing - lab processing	7.55	Sample
Pathology	GC NAAT	12.00	Sample
Pathology	Gonorrhoea Culture	4.54	Sample
Pathology	HIV Serology	52.80	Sample
Pathology	HIV Serum test (4th Generation)	12.78	Sample
Pathology	Syphilis Immunoassy - Total antibody (IgG & IgM)	16.50	Sample
Consumables	Bandages/ plasters	0.07	Item
Consumables	Blood tube	0.12	Item
Consumables	Blotting paper	0.05	Item
Consumables	Chlamydia - Local Leaflet	0.06	Item
Consumables	Chlamydia - National Leaflet	0.06	Item
Consumables	Cotton Wool	0.01	Item
Consumables	Cover Slip	0.65	Item
Consumables	CT/GC Swab (cervical/endocervical)	1.56	Item
Consumables	Culture plate	1.04	Item
Consumables	Culture swab- GC	1.04	Item
Consumables	Dark ground microscopy kit	0.21	Use
Consumables	Gloves	0.05	Pair
Consumables	Gonorrhoea Leaflet	0.06	Item
Consumables	Gram Stain	0.20	Procedure
Consumables	Immersion oil	0.02	Sample
Consumables	Kit assembly costs - Chlamydia	3.22	Item
Consumables	KY Lubricant	0.30	Application
Consumables	Lab Request form with bag	0.10	Item
Consumables	Laboratory/pathology request form	0.26	Item
Consumables	Letter notification	0.58	Item
Consumables	Literature (STI)	0.06	Item
Consumables	Loops	0.60	Item
Consumables	Male Condom	0.06	Item
Consumables	Microscope slide (qty 1)	0.07	Item
Consumables	Needle	0.03	Item

Type	Item	Cost	Unit
Consumables	Paper	0.02	Item
Consumables	pH paper	0.10	Item
Consumables	Phone call	0.07	Minute
Consumables	PN slip	0.05	Item
Consumables	Saline	0.20	Item
Consumables	Sample Collection Instructions	0.05	Item
Consumables	Slide	0.05	Item
Consumables	SMS Text message	0.10	Item
Consumables	Speculum	0.82	Item
Consumables	Stains for microscopy	0.65	Item
Consumables	Sterets/antiseptic wipe	0.02	Item
Consumables	Swab	0.02	Item
Consumables	Syringe 10ml Luer Slip Syringe	0.11	Item
Consumables	Transport tube	0.26	Item
Consumables	Urine Pot, sterile collection	0.23	Item
Consumables	Urine Specimen Container (PCR Tube and Pipette)	1.04	Item
Consumables	Vacutainer	0.02	Item
Consumables	Vulvo-vaginal swab	0.16	Sample
Drugs	Azithromycin (1000 mg)	4.50	Treatment Course
Drugs	Ceftriaxone (500 mg)	5.09	Treatment Course

Table B: Descriptions of clinical steps involved in chlamydia / gonorrhoea testing and treatment pathways.

Step name	Activity
Consultation	Meet with clinician, discuss reason for attendance and any other issues, e.g. risk behaviour.
Contact positives	For patients with a positive or equivocal test result, extra time is allocated to ensure that they receive their result and attend for treatment, e.g. extra phone calls and follow-up.
Exam	Clinical examination including physical genital exam, with swabs or samples taken as appropriate.
Health Promotion	Discussion around safer sex and reducing risk behaviours.
Microscopy	Samples (genital swabs) prepared and read in the clinic laboratory.
Off-site sample processing	External step – sample is sent off-site for laboratory processing.
Partner notification	Discussion around importance of having partners notified and treated, and whether patients need assistance in reaching partners.
Patient registration	The patient registers, either face to face with a receptionist/administrator, or using an electronic kiosk or computer, and asked about reason for attendance, symptoms, risk factors, etc. A pro forma is often used. This step includes time to retrieve patient notes.
POCT	Chlamydia/gonorrhoea point of care test: staff process urine sample or swab, prepare cartridge for POC NAAT machine, and retrieve and review results.
Prepare test kits	Make the test kits for the self-service machines in clinics.
Receive samples	Process and prepare self-collected samples to be sent for off-site sample processing or processed in POC test.
Results	Consultation with patients about their positive results (negative result generally does not require a consultation).
Results management	Managing the results when they come in from the laboratory (e.g. inputting on IT system) or the POCT if patients have already left the clinic, notifying patients of their results by text message (~95%), letter or by telephone call, and requesting that positive patients return for treatment
Sample collection	Urine or vaginal swab samples taken for chlamydia and gonorrhoea NAAT testing, and/or blood samples obtained for HIV and syphilis testing, and/or swabs taken for gonorrhoea culture. Staff process samples and prepare for testing (either sent to an off-site laboratory or POCT in the clinic).
Supported partner notification	Clinic staff will notify partners for patients requesting assistance.
Treatment	Drugs given in clinic, along with advice on safer sex.

Table C: Additional chlamydia and gonorrhoea testing and treatment pathways.

Pathway	Clinical steps	As Primary Pathway		As Additional Pathway	
		Cost per patient	Time (min)	Cost per patient	Time (min)
A) Rapid sexual health screening for asymptomatic patients.					
Asymptomatic Rapid SHS (current)	Consultation / Sample collection*,† → Off-site sample processing (1-2 weeks) → Results management → Contact positives	£62.16	21.2	£54.17	11.1
B) Current and proposed self-service pathways for asymptomatic patients.					
Asymptomatic Self-service (current)	Prepare kits → Receive sample → Off-site sample processing (1-2 weeks) → Results management → Contact positives	£24.37	14.9	£23.70	14.2
Asymptomatic Self-service POC (proposed)	Prepare kits → Receive sample → POCT (90 min) → Results management → Contact positives	£32.60	14.9	£31.94	14.2
C) Gonorrhoea follow up visit for second line treatment after failure of initial treatment.					
2nd Gonorrhea treatment (current)	Exam → Treatment → Health promotion / Partner notification	£41.07	35.0	£33.97	25.0

Table C: Additional chlamydia and gonorrhea testing and treatment pathways. Pathway steps, cost per patient, and health care professionals' time is shown. The first step, patient registration, is common to all pathways and is not shown. Detailed descriptions of all clinical steps are provided in Table B. **(A) Rapid sexual health screening for asymptomatic patients.** After registration, patients have a combined short consultation and blood test for syphilis and HIV, provide a self-collected sample for chlamydia and gonorrhoea (urine for men and self-taken vaginal swab for women), and then leave the clinic. In some cases, a rapid HIV test would be given instead of the standard HIV laboratory test if deemed appropriate and available, such as in high-risk groups like men who have sex with men or those with multiple partners. *Urine/vulvo-vaginal swab collected for chlamydia and gonorrhoea testing. †Blood sample collected for HIV and syphilis testing. **(B) Current and proposed self-service pathways for asymptomatic patients.** In self-service testing, patients register at a machine, and if no symptoms are reported, they are offered a chlamydia/gonorrhoea test and/or pregnancy test. Patients then drop off a self-provided sample in the clinic and leave, with no direct clinical contact. Results management follows, in which most patients would receive a text message (SMS) of their results, with extra time allowed to ensure positives are contacted and attend for treatment. **(C) Gonorrhoea follow up visit for second line treatment after failure of initial treatment.** In the case of primary treatment failure, a follow-up visit is necessary for second-line gonorrhoea treatment with cefixime and azithromycin.

Table D: Potential benefits and limitations of a POC NAAT for chlamydia and gonorrhoea in a GUM clinic.

Benefits	Concerns/considerations
Same day diagnosis and treatment for positive patients, improving treatment rates and preventing onward transmission, reducing the risk of complications	Staff time would be diverted from patient contact to running the test
Quicker results for patients, alleviating anxiety	Staff would need to be trained in running the test and reporting results
One clinic visit for positive patients rather than two visits (one for the test and one for treatment)	Changes in how services are managed and workflow
Reducing overtreatment from presumptive treatment, to minimise development of antimicrobial resistance	Some patients may get results in two hours, others may have to wait longer if capacity has not been planned properly, although capacity is very flexible and can be changed easily
Potential to reduce the number of clinic visits, which means more time available to other patients	Implications of reducing the number of samples sent to laboratories, e.g. clinics may have contracts in place, and loss of business to central laboratories
Greater confidence for clinicians in providing quick and appropriate treatment	Clinics may need to assume responsibility for quality assurance of testing and reporting
Attracting new clients who would not normally come in for a test	Other tests may become available in the near future, yet clinics would be tied into a contract if they are early adopters
Reduces the number of people lost to follow up i.e. test positive but do not return for treatment	Could result in loss of income to clinic in standard first / follow up tariff payment system
Fast track testing service for partners reducing the need for presumptive treatment	Patients may need to wait in the clinic for their results for 2 hours
Efficiencies realised in clinic enable capacity to be released and utilised elsewhere	

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Patient care pathways using chlamydia and gonorrhoea tests are evolving: point of care nucleic acid amplification tests may reduce genitourinary medicine service delivery costs.

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Research: Patient care pathways using chlamydia and gonorrhoea tests are evolving: point of care nucleic acid amplification tests may reduce genitourinary medicine service delivery costs.

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ABSTRACT

Objectives

We aimed to explore patient pathways using a chlamydia/gonorrhoea point of care (POC) nucleic acid amplification test (NAAT), and estimate and compare the costs of the proposed POC pathways with the current pathways using standard laboratory-based NAAT testing.

Design/Participants

Workshops were conducted with health care professionals at four sexual health clinics representing diverse models of care in the UK. They mapped out current pathways that used chlamydia/gonorrhoea tests, and constructed new pathways using a POC NAAT. Healthcare professionals' time was assessed in each pathway.

Outcome measure

The proposed POC pathways were then priced using a model built in Microsoft Excel, and compared to previously published costs for pathways using standard NAAT-based testing in an off-site laboratory.

Results

Pathways using a POC NAAT for asymptomatic and symptomatic patients and chlamydia/gonorrhoea-only tests were shorter and less expensive than most of the current pathways. Notably, we estimate that POC testing as part of a sexual health screen for symptomatic patients, or as stand-alone chlamydia/gonorrhoea testing, could reduce costs per patient by as much as £16 or £6, respectively. In both cases, health care professionals' time would be reduced by approximately 10 minutes per patient.

Conclusions

POC testing for chlamydia/gonorrhoea in a clinical setting may reduce costs and clinician time, and may lead to more appropriate and quicker care for patients. Further study is warranted on how to best implement POC testing in clinics, and on the broader clinical and cost implications of this technology.

STRENGTHS AND LIMITATIONS OF THIS STUDY

- The main strength of this study is that it presents the first estimates of the costs of implementing chlamydia and gonorrhoea point of care testing compared to standard care (off-site laboratory processing of samples) in genitourinary medicine clinics, presenting a consensus from four clinics across England representing a range of service delivery models.
- The main limitation is that this is based on expert clinical opinion, rather than prospectively collected data, as point of care testing for chlamydia and gonorrhoea had not yet been implemented in England when this study was conducted.

INTRODUCTION

Chlamydia trachomatis and *Neisseria gonorrhoea* are common sexually transmitted infections, and if untreated may cause pelvic inflammatory disease, which can result in serious reproductive sequelae such as tubal factor infertility and ectopic pregnancy.[1-3]

Typically, the nucleic acid amplification test result for chlamydia and gonorrhoea is available within a week from an off-site laboratory, but it can sometimes be over two weeks until the patient receives treatment, and some patients may not return for treatment.[4,5] If the results of these tests could be available at a single visit, outcomes could be improved by achieving earlier treatment and partner notification, minimising the risk of onward transmission and developing complications.[6-8] Such a service would also likely be more convenient for patients.[7-9]

This could be achieved with sensitive and specific NAAT point of care tests (POCTs), which have recently become available. One such test, Cepheid Xpert® CT/NG (Cepheid, Sunnyvale, CA, USA), has at least equivalent performance to traditional laboratory based NAATs, providing results within 90 minutes of specimen collection.[10]

We have developed a model that enables us to evaluate the components of care pathways and associated costs. In this report we review current patient pathways in sexual health clinics that include chlamydia and gonorrhoea testing and treatment, explore and map new pathways to incorporate chlamydia and gonorrhoea POC testing efficiently in GUM (genitourinary medicine) clinics in the UK, estimate the costs of the new pathways, and compare the costs with the current pathways using standard laboratory-based NAATs.

METHODS

Patient pathways using chlamydia/gonorrhoea POCTs were developed during workshops at four sexual health clinics, attended by three to fifteen staff members across all clinic staff grades. Pathways were based on expert opinion given to us during the workshops, rather than any actual patient flow data. To increase applicability of the pathways across different service types, we chose a range of clinics with diverse services and service delivery. Urban and rural clinics (two in the South West of England and two in London), those providing either GUM or integrated sexual health services, and those serving higher-risk populations were represented. Based on staff input, patient pathways were constructed to model the consecutive clinical steps involved in testing and treatment, both for POC pathways and also current service delivery (standard care).

A model was built in Microsoft Excel to replicate pathway steps and estimate costs. We assumed the perspective of the National Health Service (NHS), and only clinical costs were included (£UK2012); patient time and associated costs were excluded. The staff cost per minute included indirect and overhead costs. Standard off-site laboratory-based chlamydia/gonorrhoea testing costs and all other cost inputs were taken from previously published sources using an identical modelling approach,[11] to allow for direct comparison between current standard pathways and proposed POC pathways (Table A in the Supplementary material online: File 1). POCT costs were based on use of the only currently commercially available chlamydia/gonorrhoea POCT, the Cepheid Xpert® CT/NG system, with a baseline assumed cost of £18, which includes the cartridge, machine rental, service, and maintenance, assuming 15,000 tests are done annually (i.e., 60 tests/day, Monday-Friday, an estimated number of tests for an average genitourinary medicine clinic in England), plus an additional £1.71 for the Cepheid sample collection materials (data from Cepheid). We varied the POCT cost from £13/test (assuming 20,000 tests or more annually, i.e. large clinic) to £25 (assuming one test/day, very small clinic). These costs exclude staff training (likely to be 30 minutes per person). This compares to an assumed baseline cost of £12 for the standard test plus £1.35 for the sample collection materials. We assumed that the standard test cost included all aspects of test processing including any transportation costs.

The outputs of the model were the costs of each testing pathway as a primary pathway (delivered on its own) and as an additional pathway (delivered in conjunction with other clinical services). To estimate the cost of additional pathways, staff time was weighted by the proportion of additional time, but all non-staff inputs are included at full value.

The total pathway cost = (Cost Step 1) + (Cost Step 2) + … + (Cost Step N).

Detailed descriptions of patient pathway development and cost modelling are available as Supplementary materials online: File 1.

RESULTS

Patient testing pathways consist of a set of standard steps: patient registration, consultation, clinical examination, sample collection (blood, urine, and/or vaginal swab), health promotion counselling, off-site laboratory-based sample processing, on-site POC testing, microscopic analysis of specimens in the clinic, results counselling, results management (data entry and notifying patients of results), and contacting patients who test positive to ensure follow-up treatment. Detailed descriptions of each step are available in Table B in the

Supplementary material online. The standard and POC pathways differ in which steps are used, time for each, and order of steps. Chlamydia and gonorrhoea testing may be carried out as either stand-alone testing or as part of a full sexual health screen including additional testing for syphilis and HIV. The sexual health screen for asymptomatic versus symptomatic patients differs in that the latter includes a clinical examination, culture for gonorrhoea, and microscopy. The steps of these pathways are shown, along with costs and clinician time, in Table 1A. There are two proposed sexual health screen pathways using POC testing, given as POC1 and POC2. Details of all resources used are given in the online Supplementary materials online: File 2.

Table 1: Comparison of current and proposed point of care clinical pathways for chlamydia and gonorrhoea testing and treatment

Pathway	Clinical Steps	As Primary Pathway		As Additional Pathway	
		Cost per patient	Time (min)	Cost per patient	Time (min)
A) Testing Pathways					
	Chlamydia and gonorrhoea only				
Current	Consultation → Sample collection* → Health promotion → Off-site sample processing (1-2 weeks) → Results management → Contact positives	£45.34	32.8	£28.65	15.7
POC	Consultation → Sample collection* → POCT (90 minutes) → Results management → Contact positives	£38.76	21.8	£32.59	13.4
	Sexual health screen for asymptomatic patients				
Current	Consultation → Sample collection*,† → Health promotion → Off-site sample processing (1-2 weeks) → Results management → Contact positives	£79.77	37.2	£54.86	12.3
POC1	Consultation → Sample collection*,† → POCT (90 minutes) → Results management (POCT) → Off-site sample processing (1-2 weeks) → Results management (HIV, syphilis)→ Contact positives	£77.42	31.2	£69.43	21.1
POC2	Sample collection*,‡→POCT (90 minutes) → Consultation/Results (POCT) → Sample collection† → Off-site sample processing (1-2 weeks) → Results management (HIV, syphilis) → Contact positives	£73.57	26.2	£65.57	16.1
	Sexual health screen for symptomatic patients				
Current	Consultation → Exam/Sample collection*,† → Microscopy → Health promotion → Off-site sample processing (1-2 weeks) → Results management → Contact positives	£99.38	47.2	£73.82	22.3
POC1	Consultation → Exam/Sample collection*,† → POCT (90 minutes) → Microscopy → Health promotion → Results management (POCT) → Off-site sample processing (1-2 weeks) → Results management (HIV, syphilis) → Contact positives	£100.39	52.2	£74.98	27.3
POC2	Sample collection*,‡ → POCT (90 minutes) → Consultation/Results (POCT) → Exam / Sample collection† → Microscopy → Off-site sample processing (1-2 weeks) → Results management (HIV, syphilis)→ Contact positives	£84.46	36.2	£70.72	21.1
B) Treatment Pathways					
Chlamydia	Results → Treatment → Partner notification → Supported partner notification	£34.89	23.5	£24.99	13.5
Gonorrhoea 1st visit	Exam / Sample collection* (for NG culture) → Treatment → Health promotion / Partner notification → Off-site sample processing → Supported partner notification	£72.07	51.0	£61.88	38.0
Gonorrhoea 2nd visit TOC Current	Sample collection* (for NG culture and NAAT) → Off-site sample processing (1-2 weeks) → Results management	£39.98	20	£32.89	10
Gonorrhoea 2nd visit TOC POC	Sample collection* (for NG culture and POCT) → POCT (90 min) → Off-site sample processing (for NG culture, 2-4 days) → Results management	£45.87	20	£38.77	10

Table 1. Comparison of current and proposed POC clinical pathways for chlamydia and gonorrhoea testing and treatment. The clinical pathway steps for chlamydia and gonorrhoea **(A)** testing and **(B)** treatment are shown along with cost per patient and minutes of health care professionals' time for each pathway when delivered as either a primary or an additional pathway. The first step, patient registration, is common to all pathways and is not shown. Alternative POC pathways proposed by different clinics are reported as POC1 and POC2. The cost of POC pathways may vary by -£5/+£7 based on volume of tests performed. NG, *Neisseria gonorrhoea*. TOC, test of cure performed four weeks after initial treatment for gonorrhoea. *Urine/vulvo-vaginal swab collected for chlamydia and gonorrhoea testing. †Blood sample collected for HIV and syphilis testing. ‡Patients would drop off sample and book an appointment later in the day for their consultation and results.

The lengthiest and most costly pathway for chlamydia/gonorrhoea testing is the sexual health screen for symptomatic patients. A proposed POC pathway could reduce this cost from £99 to £92 per patient (averaging POC1 and POC2), and reduce health care professional time from 47 to 44 minutes per patient as a primary pathway. There was a difference in the two proposed POC pathways for symptomatic patients; namely, POC1 includes a slightly longer consultation for patients (15 minutes versus 10 minutes) and an additional step for health promotion with a Health Adviser for 6 minutes. A portion of the cost savings arises from eliminating the need for gonorrhoea culture in symptomatic patients, except for those testing positive by POCT. Reductions in cost and time with POC testing are also expected for stand-alone chlamydia/gonorrhoea testing and for asymptomatic sexual health screen pathways, when delivered as primary pathways.

In some clinics, asymptomatic patients may be offered a rapid sexual health screen, which utilises laboratory-based chlamydia/gonorrhoea testing but reduces costs and clinician time by combining certain steps. The rapid sexual health screen is the most cost- and time-efficient sexual health screen pathway (Table C in the Supplementary material online: File 1) but may not be appropriate for all patients. In addition, stand-alone chlamydia/gonorrhoea self-service testing is offered in some clinics, but only to asymptomatic patients; however, incorporating a POCT into this pathway would increase costs compared to standard care (Table C in the Supplementary material online: File 1).

Table 1B outlines the clinical steps and costs of treating patients for chlamydia or gonorrhoea. Pathway steps specific to treatment include: gonorrhoea culture for confirmation and antimicrobial sensitivity testing, treatment with antibiotics, counselling and, if requested, support/assistance with partner notification. A benefit of POC testing is that patients can initiate treatment during the same visit at which they receive positive diagnosis, eliminating the need for a follow-up treatment visit, resulting in lower overall cost. For example, under current practice, it would cost £114.66 to screen and treat a chlamydia positive patient having an asymptomatic screen (primary screen, £79.77; primary treatment at second attendance, £34.89). This could be reduced to £100.49 with a POCT, as the patient would be treated as part of the same attendance (primary screen, £75.50 [average of POC1 and POC2]; additional treatment, £24.99).

Furthermore, under current practice, some symptomatic patients and partners of positive patients are treated empirically at their testing visit before laboratory-confirmed results are available. Symptomatic patients treated presumptively for chlamydia or gonorrhoea infection incur costs of £124.37 and £201.24 per patient, respectively (primary symptomatic sexual health screen, £99.38; plus additional chlamydia treatment, £24.99; or

gonorrhoea treatment including a four-week follow up test of cure, £101.86). If a POCT were used on these symptomatic patients, the cost of the testing and treatment pathways (averaging POC1 and POC2) would be less than standard care (chlamydia, £117.42; gonorrhoea, £200.18), and the number of patients treated inappropriately would be reduced. This could enable more appropriate treatment if a non-specific genital tract infection is suspected, or potentially no treatment at all which would reduce costs by £24.99 for chlamydia and £101.86 for gonorrhoea.

DISCUSSION

Our results indicate that the total cost of most chlamydia/gonorrhoea testing pathways in GUM clinics would be similar or reduced by using POC testing in place of off-site laboratory-based testing, and staff time would be reduced. In addition to these benefits, POC technologies have the potential to significantly improve sexual health care, enabling for the first time, accurate chlamydia and gonorrhoea specific diagnoses to be made and appropriately treated in a single visit. This may reduce the number of onward transmissions, inappropriate treatments in patients who are chlamydia or gonorrhoea negative but treated presumptively, and prevent pelvic inflammatory disease in women.[6] Interestingly, many of the proposed POC pathways could inform redesign of standard pathways without swapping to a POCT. This highlighted that many clinics could improve efficiency in service delivery even before implementing a POCT.

By reducing loss to follow-up, chlamydia/gonorrhoea POC testing could be particularly useful with groups who are less likely to return for treatment,[2,5,7] including high-risk groups, such as men who have sex with men, and commercial sex workers. Patients who do not return, or are lost to follow-up, may comprise up to 10% of all chlamydia diagnoses,[5] although this may be less in GUM clinics. Chlamydia/gonorrhoea POC pathways could also be implemented in non-GUM settings, such as termination of pregnancy or contraception clinics. Women infected with chlamydia or gonorrhoea are at increased risk of developing pelvic inflammatory disease following insertion of an intra-uterine device or termination of pregnancy,[12,13] and would benefit from a rapid diagnosis.[6] With POCTs, novel ways of testing are imaginable, e.g. POCTs could be used in outreach, with the platform situated in a mobile sexual health testing unit that travels to particular groups such as commercial sex workers.

However, as with any new technology, potential benefits must be weighed with concerns, such as how to best manage the 90 minute delay before results are available, although this may be more of an issue for clinicians than patients.[8,9] Due to variation in the way that GUM services are configured and delivered across England,

the best way to implement a POC pathway may depend on the specific clinic, based on factors including size of the clinic, location (e.g. rural vs. urban), patient mix, staff mix, etc. For example, patients could attend in the morning to register, provide a self-collected sample, and book a slot for later in the day to see a clinician for a consultation, blood tests, results and treatment if needed. This system of having patients drop off a sample at the beginning of the day and book in to be seen later may be attractive to patients in an urban setting, where they could either go back to work/school before their appointment, or spend time in the city centre. Clinics that currently offer a slot system such as this would easily transition to this type of system using a point of care test, and patients' treatment could be started on the same day of testing. This system may not work in practice, however, as patients might give a sample but would not return later.

In many rural areas it is not feasible to make two visits on the same day to the clinic since patients may have a long journey to the GUM clinic. As many clinics experience long waits to be examined and tested, it is possible that patients would be willing to wait in clinic until the results are back, so as to be treated at the same visit. Alternatively, patients could register, have a brief consultation with a clinician, have blood samples taken, and lastly provide a self-collected urine or vaginal swab sample before leaving the clinic. The clinic would later notify patients of their results with positive patients returning later in the day or the next day. While it would not offer an instantaneous result, there could still be significant benefits to patients if they were treated the next day rather than waiting 1-2 weeks as under standard care. Additional benefits and concerns of POC pathways are presented in Table D in the Supplementary material online: File 1.

We anticipate that POC testing may also reduce costs associated with testing and treating partners of chlamydia/gonorrhoea positive patients and improve antimicrobial stewardship, an international priority.[14,15] Standard practice is to offer chlamydia and gonorrhoea treatment presumptively to partners of positive patients (epidemiological treatment) when they attend for screening.[16,17] As the routine NAAT result is not available at the time of testing it cannot be used to inform the decision of whether treatment is actually indicated and contacts will be treated unnecessarily. Currently the results of testing, at the time of epidemiological treatment of partners, are used for surveillance purposes and if positive, additional partner notification when indicated. If 87.9% and 85.7% of partners of chlamydia and gonorrhoea-positive patients are tested for chlamydia/ gonorrhoea at the same time they receive treatment [1] and 36.8% and 33.2% of the partners are positive, respectively, we estimate that using a POC NAAT on partners before treatment would save £19 and £62 for partners of chlamydia and gonorrhoea-positive individuals, compared to standard care. For gonorrhoea, we

estimate there would be a cost savings if the positivity is less than 93% in partners and 50% undergo chlamydia/gonorrhoea testing, as the gonorrhoea management pathway is expensive compared to testing. Hence, efficiency savings may be gained if the prevalence in partners is low, but it would be more costly to use a POC NAAT on partners first before treatment if a high proportion of partners are positive. However, both scenarios would reduce overtreatment and therefore improve antimicrobial stewardship in genitourinary medicine.[14,15,18] Caution may be warranted however, to ensure that potential positive partners are not missed if they fall outside of the window period for detecting infection.

The main limitation of the study, is that pathways are based on expert clinical opinion, rather than prospectively collected data. This is because at the time the workshops were conducted, point of care testing for chlamydia and gonorrhoea had not yet been implemented in England. Therefore, it was not possible to validate if the pathways generated in the workshops were indicative of what happens in actual practice. Our study proposes several novel chlamydia/gonorrhoea testing pathways using POC technologies which may reduce costs and health care professionals' time in GUM clinics. Although our study is based on use of the only currently commercially available chlamydia/gonorrhoea POCT, the Cepheid Xpert CT/NG system, we anticipate that results would be applicable to other tests with similar performance characteristics. If other tests become available, their pathway costs could be estimated and compared using the same model. However, these pathways may not be relevant for POCTs that have lower performance such as some of the previous generation tests. This is a modelling study based on theoretical pathways and we did not aim to test that the pathways would work in practice or validate the steps. Once these tests are in clinics, rigorous evaluation is required in order to ensure that they are delivering the promised benefits at no additional overall cost.

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CONTRIBUTOR STATEMENT

PH and EA conceived the study idea, EA conducted the workshops, supervised the project, planned the pathway model, analysed and interpreted the model results and drafted the manuscript. PH provided clinical input on the pathways, interpreted model results, and helped draft the manuscript. KS built the pathway model in Excel. AE helped draft the manuscript and provided study support. PH and JM provided expert opinion on the parameter choices and guidance on the structure of the model. SG provided expert knowledge regarding the use of point of care tests from a microbiological context. RM helped draft the manuscript. VP provided expert advice about the sexual health pathways and commissioning/funding. EA, PH, JM and SG contributed to the study design. All authors critically reviewed the paper for content and approved the final submitted version.

COMPETING INTERESTS

EA has received funding from Atlas Genetics, Astra Zeneca, Bristol University, Cepheid, Gilead, Hologic the Office for Sexual Health, Pathway Analytics and St Georges University and for sexual health consultancy and lectures; PH has received funding from HEFC, BASHH, the Bristol University, Imperial College London, the CPS and Hologic for consultancy, lectures, patents, and providing evidence; KT has received funding from for NIHR for a personal fellowship, and from NHS Bristol Hospitals Health Trust, the Office for Sexual Health and NICE for consultancy. SG has received funding from Cepheid for travel and accommodation for work not related to this submission. EA, SG, RM, VP, Bristol University (PH & JM), AE and KS received funding from Aquarius Population Health for this work. No other conflicts of interest.

Authors are independent for the purposes of publication and Cepheid did not have any role in the writing of this paper or veto over any results published. Cepheid provided funding to Aquarius Population Health to conduct the study and estimates of the cost of their proprietary Point of Care Test. Other similar tests are, or are soon to be commercially available. The results presented could be applicable to any other point of care test with similar performance, cost and usability. We do not make any recommendation as to which test, if any, a clinic should use.

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DATA SHARING STATEMENT

No additional data available

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TITLE

Research: Patient care pathways using chlamydia and gonorrhoea tests are evolving: point of care nucleic acid amplification tests may reduce genitourinary medicine service delivery costs.

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KEYWORDS

Point of care technology, diagnostic test, gonorrhoea, chlamydia, costs and cost analysis

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ABSTRACT

Objectives

We aimed to explore patient pathways using a chlamydia/gonorrhoea point of care (POC) nucleic acid amplification test (NAAT), and estimate and compare the costs of the proposed POC pathways with the current pathways using standard laboratory-based NAAT testing.

Design/Participants

Workshops were conducted with health care professionals at four sexual health clinics representing diverse models of care in the UK. They mapped out current pathways that used chlamydia/gonorrhoea tests, and constructed new pathways using a POC NAAT. Healthcare professionals' time was assessed in each pathway.

Outcome measure

The proposed POC pathways were then priced using a model built in Microsoft Excel, and compared to previously published costs for pathways using standard NAAT-based testing in an off-site laboratory.

Results

Pathways using a POC NAAT for asymptomatic and symptomatic patients and chlamydia/gonorrhoea-only tests were shorter and less expensive than most of the current pathways. Notably, we estimate that POC testing as part of a sexual health screen for symptomatic patients, or as stand-alone chlamydia/gonorrhoea testing, could reduce costs per patient by as much as £16 or £6, respectively. In both cases, health care professionals' time would be reduced by approximately 10 minutes per patient.

Conclusions

POC testing for chlamydia/gonorrhoea in a clinical setting may reduce costs and clinician time, and may lead to more appropriate and quicker care for patients. Further study is warranted on how to best implement POC testing in clinics, and on the broader clinical and cost implications of this technology.

STRENGTHS AND LIMITATIONS OF THIS STUDY

- The main strength of this study is that it presents the first estimates of the costs of implementing chlamydia and gonorrhoea point of care testing compared to standard care (off-site laboratory processing of samples) in genitourinary medicine clinics, presenting a consensus from four clinics across England representing a range of service delivery models.
- The main limitation is that this is based on expert clinical opinion, rather than prospectively collected data, as point of care testing for chlamydia and gonorrhoea had not yet been implemented in England when this study was conducted.

INTRODUCTION

Chlamydia trachomatis and *Neisseria gonorrhoea* are common sexually transmitted infections, and if untreated may cause pelvic inflammatory disease, which can result in serious reproductive sequelae such as tubal factor infertility and ectopic pregnancy.[1-3]

Typically, the nucleic acid amplification test result for chlamydia and gonorrhoea is available within a week from an off-site laboratory, but it can sometimes be over two weeks until the patient receives treatment, and some patients may not return for treatment.[4,5] If the results of these tests could be available at a single visit, outcomes could be improved by achieving earlier treatment and partner notification, minimising the risk of onward transmission and developing complications.[6-8] Such a service would also likely be more convenient for patients.[7-9]

This could be achieved with sensitive and specific NAAT point of care tests (POCTs), which have recently become available. One such test, Cepheid Xpert® CT/NG (Cepheid, Sunnyvale, CA, USA), has at least equivalent performance to traditional laboratory based NAATs, providing results within 90 minutes of specimen collection.[10]

We have developed a model that enables us to evaluate the components of care pathways and associated costs. In this report we review current patient pathways in sexual health clinics that include chlamydia and gonorrhoea testing and treatment, explore and map new pathways to incorporate chlamydia and gonorrhoea POC testing

efficiently in GUM (genitourinary medicine) clinics in the UK, estimate the costs of the new pathways, and compare the costs with the current pathways using standard laboratory-based NAATs.

METHODS

Patient pathways using chlamydia/gonorrhoea POCTs were developed during workshops at four sexual health clinics, attended by three to fifteen staff members across all clinic staff grades. Pathways were based on expert opinion given to us during the workshops, rather than any actual patient flow data. To increase applicability of the pathways across different service types, we chose a range of clinics with diverse services and service delivery. Urban and rural clinics (two in the South West of England and two in London), those providing either GUM or integrated sexual health services, and those serving higher-risk populations were represented. Based on staff input, patient pathways were constructed to model the consecutive clinical steps involved in testing and treatment, both for POC pathways and also current service delivery (standard care).

A model was built in Microsoft Excel to replicate pathway steps and estimate costs. We assumed the perspective of the National Health Service (NHS~~)~~), and only clinical costs were included (£UK2012); patient time and associated costs were excluded. The staff cost per minute included indirect and overhead costs. Standard off-site laboratory-based chlamydia/gonorrhoea testing costs and all other cost inputs were taken from previously published sources using an identical modelling approach,[11] to allow for direct comparison between current standard pathways and proposed POC pathways (Table A in the Supplementary material online: File 1). POCT costs were based on use of the only currently commercially available chlamydia/gonorrhoea POCT, the Cepheid Xpert® CT/NG system, with a baseline assumed cost of £18, which includes the cartridge, machine rental, service, and maintenance, assuming 15,000 tests are done annually (i.e., 60 tests/day, Monday-Friday, an estimated number of tests for an average genitourinary medicine clinic in England), plus an additional £1.71 for the Cepheid sample collection materials (data from Cepheid). We varied the POCT cost from £13/test (assuming 20,000 tests or more annually, i.e. large clinic) to £25 (assuming one test/day, very small clinic). These costs exclude staff training (likely to be 30 minutes per person). This compares to an assumed baseline cost of £12 for the standard test plus £1.35 for the sample collection materials. We assumed that the standard test cost included all aspects of test processing including any transportation costs.

The outputs of the model were the costs of each testing pathway as a primary pathway (delivered on its own) and as an additional pathway (delivered in conjunction with other clinical services). To estimate the cost of

additional pathways, staff time was weighted by the proportion of additional time, but all non-staff inputs are included at full value.

The total pathway cost = (Cost Step 1) + (Cost Step 2) + … + (Cost Step N).

Detailed descriptions of patient pathway development and cost modelling are available as Supplementary ~~methods~~materials online: File 1.

RESULTS

Patient testing pathways consist of a set of standard steps: patient registration, consultation, clinical examination, sample collection (blood, urine, and/or vaginal swab), health promotion counselling, off-site laboratory-based sample processing, on-site POC testing, microscopic analysis of specimens in the clinic, results counselling, results management (data entry and notifying patients of results), and contacting patients who test positive to ensure follow-up treatment. Detailed descriptions of each step are available in Table B in the Supplementary material online. The standard and POC pathways differ in which steps are used, time for each, and order of steps. Chlamydia and gonorrhoea testing may be carried out as either stand-alone testing or as part of a full sexual health screen including additional testing for syphilis and HIV. The sexual health screen for asymptomatic versus symptomatic patients differs in that the latter includes a clinical examination, culture for gonorrhoea, and microscopy. The steps of these pathways are shown, along with costs and clinician time, in ~~Figure~~ Table 1A. There are two proposed sexual health screen pathways using POC testing, given as POC1 and POC2. Details of all resources used are given in the online Supplementary materials online: File 2.

~~[Insert Figure 1]~~

Table 1: Comparison of current and proposed POC clinical pathways for chlamydia and gonorrhoea testing and treatment

Pathway	Clinical Steps	As Primary Pathway		As Additional Pathway	
		Cost per patient	Time (min)	Cost per patient	Time (min)
A) Testing Pathways					
	Chlamydia and gonorrhoea only				
Current	Consultation → Sample collection* → Health promotion → Off-site sample processing (1-2 weeks) → Results management → Contact positives	£45.34	32.8	£28.65	15.7
POC	Consultation → Sample collection* → POCT (90 minutes) → Results management → Contact positives	£38.76	21.8	£32.59	13.4
	Sexual health screen for asymptomatic patients				
Current	Consultation → Sample collection*,† → Health promotion → Off-site sample processing (1-2 weeks) → Results management → Contact positives	£79.77	37.2	£54.86	12.3
POC1	Consultation → Sample collection*,† → POCT (90 minutes) → Results management (POCT) → Off-site sample processing (1-2 weeks) → Results management (HIV,syphilis)→ Contact positives	£77.42	31.2	£69.43	21.1
POC2	Sample collection*,‡→POCT (90 minutes) → Consultation/Results (POCT) → Sample collection† → Off-site sample processing (1-2 weeks) → Results management (HIV, syphilis) → Contact positives	£73.57	26.2	£65.57	16.1
	Sexual health screen for symptomatic patients				
Current	Consultation → Exam/Sample collection*,† → Microscopy → Health promotion → Off-site sample processing (1-2 weeks) → Results management → Contact positives	£99.38	47.2	£73.82	22.3
POC1	Consultation → Exam/Sample collection*,† → POCT (90 minutes) → Microscopy → Health promotion → Results management (POCT) → Off-site sample processing (1-2 weeks) → Results management (HIV, syphilis) → Contact positives	£100.39	52.2	£74.98	27.3
POC2	Sample collection*,‡ → POCT (90 minutes) → Consultation/Results (POCT) → Exam / Sample collection† → Microscopy → Off-site sample processing (1-2 weeks) → Results management (HIV, syphilis)→ Contact positives	£84.46	36.2	£70.72	21.1
B) Treatment Pathways					
Chlamydia	Results → Treatment → Partner notification → Supported partner notification	£34.89	23.5	£24.99	13.5
Gonorrhoea 1st visit	Exam / Sample collection* (for NG culture) → Treatment → Health promotion / Partner notification → Off-site sample processing → Supported partner notification	£72.07	51.0	£61.88	38.0
Gonorrhoea 2nd visit TOC Current	Sample collection* (for NG culture and NAAT) → Off-site sample processing (1-2 weeks) → Results management	£39.98	20	£32.89	10
Gonorrhoea 2nd visit TOC POC	Sample collection* (for NG culture and POCT) → POCT (90 min) → Off-site sample processing (for NG culture, 2-4 days) → Results management	£45.87	20	£38.77	10

Table 1. Comparison of current and proposed POC clinical pathways for chlamydia and gonorrhoea testing and treatment. The clinical pathway steps for chlamydia and gonorrhoea **(A)** testing and **(B)** treatment are shown along with cost per patient and minutes of health care professionals' time for each pathway when delivered as either a primary or an additional pathway. The first step, patient registration, is common to all pathways and is not shown. Alternative POC pathways proposed by different clinics are reported as POC1 and POC2. The cost of POC pathways may vary by -£5/+£7 based on volume of tests performed. NG, *Neisseria gonorrhoea*. TOC, test of cure performed four weeks after initial treatment for gonorrhoea. *Urine/vulvo-vaginal swab collected for chlamydia and gonorrhoea testing. †Blood sample collected for HIV and syphilis testing. ‡Patients would drop off sample and book an appointment later in the day for their consultation and results.

The lengthiest and most costly pathway for chlamydia/gonorrhoea testing is the sexual health screen for symptomatic patients. A proposed POC pathway could reduce this cost from £99 to £92 per patient (averaging POC1 and POC2), and reduce health care professional time from 47 to 44 minutes per patient as a primary pathway. There was a difference in the two proposed POC pathways for symptomatic patients; namely, POC1 includes a slightly longer consultation for patients (15 minutes versus 10 minutes) and an additional step for health promotion with a Health Adviser for 6 minutes. A portion of the cost savings arises from eliminating the need for gonorrhoea culture in symptomatic patients, except for those testing positive by POCT. Reductions in cost and time with POC testing are also expected for stand-alone chlamydia/gonorrhoea testing and for asymptomatic sexual health screen pathways, when delivered as primary pathways.

In some clinics, asymptomatic patients may be offered a rapid sexual health screen, which utilises laboratory-based chlamydia/gonorrhoea testing but reduces costs and clinician time by combining certain steps. The rapid sexual health screen is the most cost- and time-efficient sexual health screen pathway (Table C in the Supplementary material online: File 1) but may not be appropriate for all patients. In addition, stand-alone chlamydia/gonorrhoea self-service testing is offered in some clinics, but only to asymptomatic patients; however, incorporating a POCT into this pathway would increase costs compared to standard care (Table C in the Supplementary material online: File 1).

~~Figure~~ Table 1B outlines the clinical steps and costs of treating patients for chlamydia or gonorrhoea. Pathway steps specific to treatment include: gonorrhoea culture for confirmation and antimicrobial sensitivity testing, treatment with antibiotics, counselling and, if requested, support/assistance with partner notification. A benefit of POC testing is that patients can initiate treatment during the same visit at which they receive positive diagnosis, eliminating the need for a follow-up treatment visit, resulting in lower overall cost. For example, under current practice, it would cost £114.66 to screen and treat a chlamydia positive patient having an asymptomatic screen (primary screen, £79.77; primary treatment at second attendance, £34.89). This could be reduced to £100.49 with a POCT, as the patient would be treated as part of the same attendance (primary screen, £75.50 [average of POC1 and POC2]; additional treatment, £24.99).

Furthermore, under current practice, some symptomatic patients and partners of positive patients are treated empirically at their testing visit before laboratory-confirmed results are available. Symptomatic patients treated presumptively for chlamydia or gonorrhoea infection incur costs of £124.37 and £201.24 per patient,

respectively (primary symptomatic sexual health screen, £99.38; plus additional chlamydia treatment, £24.99; or gonorrhoea treatment including a four-week follow up test of cure, £101.86). If a POCT were used on these symptomatic patients, the cost of the testing and treatment pathways (averaging POC1 and POC2) would be less than standard care (chlamydia, £117.42; gonorrhoea, £200.18), and the number of patients treated inappropriately would be reduced. This could enable more appropriate treatment if a non-specific genital tract infection is suspected, or potentially no treatment at all which would reduce costs by £24.99 for chlamydia and £101.86 for gonorrhoea.

DISCUSSION

Our results indicate that the total cost of most chlamydia/gonorrhoea testing pathways in GUM clinics would be similar or reduced by using POC testing in place of off-site laboratory-based testing, and staff time would be reduced. In addition to these benefits, POC technologies have the potential to significantly improve sexual health care, enabling for the first time, accurate chlamydia and gonorrhoea specific diagnoses to be made and appropriately treated in a single visit. This may reduce the number of onward transmissions, inappropriate treatments in patients who are chlamydia or gonorrhoea negative but treated presumptively, and prevent pelvic inflammatory disease in women.[6] Interestingly, many of the proposed POC pathways could inform redesign of standard pathways without swapping to a POCT. This highlighted that many clinics could improve efficiency in service delivery even before implementing a POCT.

By reducing loss to follow-up, chlamydia/gonorrhoea POC testing could be particularly useful with groups who are less likely to return for treatment,[2,5,7] including high-risk groups, such as men who have sex with men, and commercial sex workers. Patients who do not return, or are lost to follow-up, may comprise up to 10% of all chlamydia diagnoses,[5] although this may be less in GUM clinics. Chlamydia/gonorrhoea POC pathways could also be implemented in non-GUM settings, such as termination of pregnancy or contraception clinics. Women infected with chlamydia or gonorrhoea are at increased risk of developing pelvic inflammatory disease following insertion of an intra-uterine device or termination of pregnancy,[12,13] and would benefit from a rapid diagnosis.[6] With POCTs, novel ways of testing are imaginable, e.g. POCTs could be used in outreach, with the platform situated in a mobile sexual health testing unit that travels to particular groups such as commercial sex workers.

However, as with any new technology, potential benefits must be weighed with concerns, such as how to best manage the 90 minute delay before results are available, although this may be more of an issue for clinicians

than patients.[8,9] Due to variation in the way that GUM services are configured and delivered across England, the best way to implement a POC pathway may depend on the specific clinic, based on factors including size of the clinic, location (e.g. rural vs. urban), patient mix, staff mix, etc. For example~~, in urban clinics~~, patients could attend in the morning to register, provide a self-collected sample, and book a slot for later in the day to see a clinician for a consultation, blood tests, results and treatment if needed. This system of having patients drop off a sample at the beginning of the day and book in to be seen later may be attractive to patients in an urban setting, where they could either go back to work/school before their appointment, or spend time in the city centre. Clinics that currently offer a slot system such as this would easily transition to this type of system using a point of care test, and patients' treatment could be started on the same day of testing. This system may not work in practice, however, as patients might give a sample but would not return later.

In many rural areas it is not feasible to make two visits on the same day to the clinic since patients may have a long journey to the GUM clinic. As many clinics experience long waits to be examined and tested, it is possible that patients would be willing to wait in clinic until the results are back, so as to be treated at the same visit. Alternatively, patients could register, have a brief consultation with a clinician, have blood samples taken, and lastly provide a self-collected urine or vaginal swab sample before leaving the clinic. The clinic would later notify patients of their results with positive patients returning later in the day or the next day. While it would not offer an instantaneous result, there could still be significant benefits to patients if they were treated the next day rather than waiting 1-2 weeks as under standard care. Additional benefits and concerns of POC pathways are presented in Table D in the Supplementary material online: File 1.

We anticipate that POC testing may also reduce costs associated with testing and treating partners of chlamydia/gonorrhoea positive patients and improve antimicrobial stewardship, an international priority.[14,15] Standard practice is to offer chlamydia and gonorrhoea treatment presumptively to partners of positive patients (epidemiological treatment) when they attend for screening.[16,17] As the routine NAAT result is not available at the time of testing it cannot be used to inform the decision of whether treatment is actually indicated and contacts will be treated unnecessarily. Currently the results of testing, at the time of epidemiological treatment of partners, are used for surveillance purposes and if positive, additional partner notification when indicated. If 87.9% and 85.7% of partners of chlamydia and gonorrhoea-positive patients are tested for chlamydia/ gonorrhoea at the same time they receive treatment [1] and 36.8% and 33.2% of the partners are positive, respectively, we estimate that using a POC NAAT on partners before treatment would save £19 and £62 for

partners of chlamydia and gonorrhoea-positive individuals, compared to standard care. For gonorrhoea, we estimate there would be a cost savings if the positivity is less than 93% in partners and 50% undergo chlamydia/gonorrhoea testing, as the gonorrhoea management pathway is expensive compared to testing. Hence, efficiency savings may be gained if the prevalence in partners is low, but it would be more costly to use a POC NAAT on partners first before treatment if a high proportion of partners are positive. However, both scenarios would reduce overtreatment and therefore improve antimicrobial stewardship in genitourinary medicine.[14,15,18] Caution may be warranted however, to ensure that potential positive partners are not missed if they fall outside of the window period for detecting infection.

The main limitation of the study, is that pathways are based on expert clinical opinion, rather than prospectively collected data. This is because at the time the workshops were conducted, point of care testing for chlamydia and gonorrhoea had not yet been implemented in England. Therefore, it was not possible to validate if the pathways generated in the workshops were indicative of what happens in actual practice. Our study proposes several novel chlamydia/gonorrhoea testing pathways using POC technologies which may reduce costs and health care professionals' time in GUM clinics. Although our study is based on use of the only currently commercially available chlamydia/gonorrhoea POCT, the Cepheid Xpert CT/NG system, we anticipate that results would be applicable to other tests with similar performance characteristics. If other tests become available, their pathway costs could be estimated and compared using the same model. However, these pathways may not be relevant for POCTs that have lower performance such as some of the previous generation tests. This is a modelling study based on theoretical pathways and we did not aim to test that the pathways would work in practice or validate the steps. Once these tests are in clinics, rigorous evaluation is required in order to ensure that they are delivering the promised benefits at no additional overall cost.

~~**FIGURE 1 TITLE**~~

~~**Comparison of current and proposed POC clinical pathways for chlamydia and gonorrhoea testing and treatment.**~~

~~**FIGURE 1 LEGEND**~~

~~The clinical pathway steps for chlamydia and gonorrhoea (A) testing and (B) treatment are shown along with cost per patient and minutes of health care professionals' time for each pathway when delivered as either a primary or an additional pathway. The first step, patient registration, is common to all pathways and is not shown. Alternative POC pathways proposed by different clinics are reported as POC1 and POC2. The cost of POC pathways may vary by £5/+£7 based on volume of tests performed. NG, *Neisseria gonorrhoeae*~~*gonorrhoea*~~. TOC, test of cure performed four weeks after initial treatment for gonorrhoea. *Urine/vulvo-vaginal swab collected for chlamydia and gonorrhoea testing. †Blood sample collected for HIV and syphilis testing. ‡Patients would drop off sample and book an appointment later in the day for their consultation and results.~~

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CONTRIBUTOR STATEMENT

PH and EA conceived the study idea, EA conducted the workshops, supervised the project, planned the pathway model, analysed and interpreted the model results and drafted the manuscript. PH provided clinical input on the pathways, interpreted model results, and helped draft the manuscript. KS built the pathway model in Excel. AE helped draft the manuscript and provided study support. PH and JM provided expert opinion on the parameter choices and guidance on the structure of the model. SG provided expert knowledge regarding the use of point of care tests from a microbiological context. RM helped draft the manuscript. VP provided expert advice about the sexual health pathways and commissioning/funding. EA, PH, JM and SG contributed to the study design. All authors critically reviewed the paper for content and approved the final submitted version.

COMPETING INTERESTS

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Authors are independent for the purposes of publication and Cepheid did not have any role in the writing of this paper or veto over any results published. Cepheid provided funding to Aquarius Population Health to conduct the study and estimates of the cost of their proprietary Point of Care Test. Other similar tests are, or are soon to be commercially available. The results presented could be applicable to any other point of care test with similar performance, cost and usability. We do not make any recommendation as to which test, if any, a clinic should use.

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ONLINE SUPPLEMENTARY MATERIALS: FILE 1

Clinical care pathways using chlamydia and gonorrhoea tests are evolving: point of care nucleic acid amplification tests may reduce genitourinary medicine service delivery costs

Supplementary Methods

A) Clinical pathways and steps

Each of the pathways comprises a number of steps; each step has a number of elements which have costs associated with them or are used to scale the costs (e.g. the proportion of patients who go through that step). These elements are:

Step components:

- Proportion of patients who go through the step (activity)
- Length of time (minutes) to complete the step
- Grade of staff/staff blend
- Non-staff resources required: consumables, drugs and pathology
- Proportion of the time, if the step is delivered in conjunction with another pathway

For most steps in the pathway a blend of staff is likely to be involved, for example, any grade of nurse. These were explicitly modelled and such combinations were taken from the Integrated London Sexual Health Tariff [1,2].

If two pathways are delivered at the same time, one would be considered as the primary pathway and the other as an additional pathway, in terms of costing. Efficiencies with staff time are generated when more than one pathway is delivered during a consultation, but the full amount of non-staff inputs are still needed as these are specific to the pathway being delivered. For example, the initial registration or health promotion steps would not occur twice, but any non-staff consumables would be required at 100%.

B) GUM Clinic Workshops

We chose a variety of clinics for the workshops to obtain as wide a range of opinions as possible given a small sample size. These included a traditional GUM clinic, a fully integrated sexual health clinic with STI and contraception offered, and one with a large proportion of individuals from high-risk groups. A lead clinician at each clinic was asked to invite his or her coworkers, and to encourage a wide range of participation. These workshops were organized during allocated staff training sessions so as not to interfere with normal working hours. Staff were all made aware of the purpose of the workshop, that detailed notes would be taken on what was said during the workshops, and that the information would be used to build consensus pathways and cost them out. All staff were made aware that the goal was to present our findings as a peer reviewed publication; consent

was implicitly given by attendance. Workshops were attended by a range of clinical and administrative staff including, at a minimum, one consultant, one nurse (Band 7/8), one health advisor, and one administrator. Each workshop lasted between 60-90 minutes.

C) Building chlamydia and gonorrhoea clinical pathways

The pathways were created using an iterative methodology. First, the research team reviewed the current pathways from the published Integrated London Sexual Health Tariff [1] and proposed new patient pathways using a chlamydia/gonorrhoea POCT to prompt discussions at the first workshop. During each workshop we asked open-ended questions about the clinic's current care pathways and possible modifications if a chlamydia/gonorrhoea POC NAAT were available. Questions considered patient flow, time from test to treatment, and the total number of clinical steps or time which would be reduced by using POC NAAT. We also captured the benefits and limitations of using and implementing a chlamydia/gonorrhoea POC NAAT in clinical practice. Subsequent workshops built on the pathways generated at previous workshops, refining them or creating new ones if their care delivery varied significantly. Costs were not considered during the workshops. We returned all of the pathways to the study team and workshop participants at the end of the study, asking for any final comments and to obtain consensus around the pathway detail.

C) Cost model

The total pathway cost = (Cost Step 1) + (Cost Step 2) + … + (Cost Step N).

$$Cost\ Step\ N_{Primary} = A \times \left(M \times ((C_{s1} \times Q_{s1}) + (C_{s2} \times Q_{s2}) + \cdots + (C_{sN} \times Q_{sN})) + \sum C_{Cons} \times Q + \sum (\right.$$

If the proportion additional is 0, then Cost Step $N_{Additional} = 0$, else

$$Cost\ Step\ N_{Additional} = A \times \left(Add \times M \times ((C_{s1} \times Q_{s1}) + (C_{s2} \times Q_{s2}) + \cdots + (C_{sN} \times Q_{sN})) + \sum C_{Cons} \times Q \right.$$

Where A is the activity, M is the number of minutes, C is the cost, Q is the quantity/proportion, s_1, s_2 … s_N are the different staff grades/blends, Cons is consumables, Path is pathology and Add is the proportion additional.

We made some general assumptions about the pathways when information was not available from the focus groups. This was done to ensure some consistency in the pathways. There were:

- Patient registration step – 5 minutes, 100% admin clerical, 0% as an additional pathway. The cost of patient registration is included in the total pathway cost, but is not shown in Figure 1 for simplicity.
- Both standard care and POCT testing pathways require sample collection instructions, gloves, urine pot and vulvo-vaginal swab.
- For asymptomatic patients, 70% would be a urine sample and 30% would be a vulvo-vaginal swab. This is based on 100% of men providing urine, and 60% of women providing a urine sample.
- The health promotion step always includes the consumables: KY lubricant (x2), STI literature (x3), male condoms (x10). Where no health promotion step is included, we added the same consumables to the consultation.
- For standard care pathways, the results management step is done by a 5/6 Nurse (6 minutes), 95% SMS text message, 2% letter notification, 3% telephone notification.
- For POCT pathways, the results management step is done by a 5/6 Nurse (6 minutes), with all patients receiving results by SMS text message, and of those 2% and 3% also receive results by letter or telephone notification, respectively.
- For standard care and POCT pathways, the step for contacting those with a positive or equivocal test results requires 90% SMS text message, 5% letter notification, 5% telephone notification.
- Microscopy is done for all symptomatic patients and is 10 minutes of a 5/6 Nurse, using blotting paper, gloves, gram stain, immersion oil, loops and a slide.
- Blood tests all include bandages/plaster, blood tube, cotton wool, gloves, needle, sterets/antiseptic wipe, syringe, transport tube and vacutainer.
- The proportion additional time was taken from pathways in the Integrated London Sexual Health Tariff [1] as this was not specifically discussed in the focus groups.

Table A: Cost inputs used in the model; taken from the Integrated Sexual Health Tariff [1,2]

Type	Item	Cost	Unit
Staff	Blend Doctor - N7/8	1.45	Minute
Staff	Blend Nurse 7/8	1.10	Minute
Staff	Blend all com SRH N2 - Dr	1.06	Minute
Staff	Blend Health Adviser	1.03	Minute
Staff	Blend Nurse 5/6/7/8	0.89	Minute
Staff	Blend Nurse 5/6	0.75	Minute
Staff	Admin/clerical	0.53	Minute
Pathology	Cepheid PoC CT/GC Test	18.00	Sample
Pathology	Chlamydia & Gonorrhoea NAAT	12.51	Sample
Pathology	GC Culture/typing - lab processing	7.55	Sample
Pathology	GC NAAT	12.00	Sample
Pathology	Gonorrhoea Culture	4.54	Sample
Pathology	HIV Serology	52.80	Sample
Pathology	HIV Serum test (4th Generation)	12.78	Sample
Pathology	Syphilis Immunoassy - Total antibody (IgG & IgM)	16.50	Sample
Consumables	Bandages/ plasters	0.07	Item
Consumables	Blood tube	0.12	Item
Consumables	Blotting paper	0.05	Item
Consumables	Chlamydia - Local Leaflet	0.06	Item
Consumables	Chlamydia - National Leaflet	0.06	Item
Consumables	Cotton Wool	0.01	Item
Consumables	Cover Slip	0.65	Item
Consumables	CT/GC Swab (cervical/endocervical)	1.56	Item
Consumables	Culture plate	1.04	Item
Consumables	Culture swab- GC	1.04	Item
Consumables	Dark ground microscopy kit	0.21	Use
Consumables	Gloves	0.05	Pair
Consumables	Gonorrhoea Leaflet	0.06	Item
Consumables	Gram Stain	0.20	Procedure
Consumables	Immersion oil	0.02	Sample
Consumables	Kit assembly costs - Chlamydia	3.22	Item
Consumables	KY Lubricant	0.30	Application
Consumables	Lab Request form with bag	0.10	Item
Consumables	Laboratory/pathology request form	0.26	Item
Consumables	Letter notification	0.58	Item
Consumables	Literature (STI)	0.06	Item
Consumables	Loops	0.60	Item
Consumables	Male Condom	0.06	Item
Consumables	Microscope slide (qty 1)	0.07	Item
Consumables	Needle	0.03	Item

Type	Item	Cost	Unit
Consumables	Paper	0.02	Item
Consumables	pH paper	0.10	Item
Consumables	Phone call	0.07	Minute
Consumables	PN slip	0.05	Item
Consumables	Saline	0.20	Item
Consumables	Sample Collection Instructions	0.05	Item
Consumables	Slide	0.05	Item
Consumables	SMS Text message	0.10	Item
Consumables	Speculum	0.82	Item
Consumables	Stains for microscopy	0.65	Item
Consumables	Sterets/antiseptic wipe	0.02	Item
Consumables	Swab	0.02	Item
Consumables	Syringe 10ml Luer Slip Syringe	0.11	Item
Consumables	Transport tube	0.26	Item
Consumables	Urine Pot, sterile collection	0.23	Item
Consumables	Urine Specimen Container (PCR Tube and Pipette)	1.04	Item
Consumables	Vacutainer	0.02	Item
Consumables	Vulvo-vaginal swab	0.16	Sample
Drugs	Azithromycin (1000 mg)	4.50	Treatment Course
Drugs	Ceftriaxone (500 mg)	5.09	Treatment Course

Table B: Descriptions of clinical steps involved in chlamydia / gonorrhoea testing and treatment pathways.

Step name	Activity
Consultation	Meet with clinician, discuss reason for attendance and any other issues, e.g. risk behaviour.
Contact positives	For patients with a positive or equivocal test result, extra time is allocated to ensure that they receive their result and attend for treatment, e.g. extra phone calls and follow-up.
Exam	Clinical examination including physical genital exam, with swabs or samples taken as appropriate.
Health Promotion	Discussion around safer sex and reducing risk behaviours.
Microscopy	Samples (genital swabs) prepared and read in the clinic laboratory.
Off-site sample processing	External step – sample is sent off-site for laboratory processing.
Partner notification	Discussion around importance of having partners notified and treated, and whether patients need assistance in reaching partners.
Patient registration	The patient registers, either face to face with a receptionist/administrator, or using an electronic kiosk or computer, and asked about reason for attendance, symptoms, risk factors, etc. A pro forma is often used. This step includes time to retrieve patient notes.
POCT	Chlamydia/gonorrhoea point of care test: staff process urine sample or swab, prepare cartridge for POC NAAT machine, and retrieve and review results.
Prepare test kits	Make the test kits for the self-service machines in clinics.
Receive samples	Process and prepare self-collected samples to be sent for off-site sample processing or processed in POC test.
Results	Consultation with patients about their positive results (negative result generally does not require a consultation).
Results management	Managing the results when they come in from the laboratory (e.g. inputting on IT system) or the POCT if patients have already left the clinic, notifying patients of their results by text message (~95%), letter or by telephone call, and requesting that positive patients return for treatment
Sample collection	Urine or vaginal swab samples taken for chlamydia and gonorrhoea NAAT testing, and/or blood samples obtained for HIV and syphilis testing, and/or swabs taken for gonorrhoea culture. Staff process samples and prepare for testing (either sent to an off-site laboratory or POCT in the clinic).
Supported partner notification	Clinic staff will notify partners for patients requesting assistance.
Treatment	Drugs given in clinic, along with advice on safer sex.

Table C: Additional chlamydia and gonorrhoea testing and treatment pathways.

Pathway	Clinical steps	As Primary Pathway		As Additional Pathway	
		Cost per patient	Time (min)	Cost per patient	Time (min)
A) Rapid sexual health screening for asymptomatic patients.					
Asymptomatic Rapid SHS (current)	Consultation / Sample collection*,† → Off-site sample processing (1-2 weeks) → Results management → Contact positives	£62.16	21.2	£54.17	11.1
B) Current and proposed self-service pathways for asymptomatic patients.					
Asymptomatic Self-service (current)	Prepare kits → Receive sample → Off-site sample processing (1-2 weeks) → Results management → Contact positives	£24.37	14.9	£23.70	14.2
Asymptomatic Self-service POC (proposed)	Prepare kits → Receive sample → POCT (90 min) → Results management → Contact positives	£32.60	14.9	£31.94	14.2
C) Gonorrhoea follow up visit for second line treatment after failure of initial treatment.					
2nd Gonorrhoea treatment (current)	Exam → Treatment → Health promotion / Partner notification	£41.07	35.0	£33.97	25.0

Table C: Additional chlamydia and gonorrhoea testing and treatment pathways. Pathway steps, cost per patient, and health care professionals' time is shown. The first step, patient registration, is common to all pathways and is not shown. Detailed descriptions of all clinical steps are provided in Table B. **(A) Rapid sexual health screening for asymptomatic patients.** After registration, patients have a combined short consultation and blood test for syphilis and HIV, provide a self-collected sample for chlamydia and gonorrhoea (urine for men and self-taken vaginal swab for women), and then leave the clinic. In some cases, a rapid HIV test would be given instead of the standard HIV laboratory test if deemed appropriate and available, such as in high-risk groups like men who have sex with men or those with multiple partners. *Urine/vulvo-vaginal swab collected for chlamydia and gonorrhoea testing. †Blood sample collected for HIV and syphilis testing. **(B) Current and proposed self-service pathways for asymptomatic patients.** In self-service testing, patients register at a machine, and if no symptoms are reported, they are offered a chlamydia/gonorrhoea test and/or pregnancy test. Patients then drop off a self-provided sample in the clinic and leave, with no direct clinical contact. Results management follows, in which most patients would receive a text message (SMS) of their results, with extra time allowed to ensure positives are contacted and attend for treatment. **(C) Gonorrhoea follow up visit for second line treatment after failure of initial treatment.** In the case of primary treatment failure, a follow-up visit is necessary for second-line gonorrhoea treatment with cefixime and azithromycin.

Table D: Potential benefits and limitations of a POC NAAT for chlamydia and gonorrhoea in a GUM clinic.

Benefits	Concerns/considerations
Same day diagnosis and treatment for positive patients, improving treatment rates and preventing onward transmission, reducing the risk of complications	Staff time would be diverted from patient contact to running the test
Quicker results for patients, alleviating anxiety	Staff would need to be trained in running the test and reporting results
One clinic visit for positive patients rather than two visits (one for the test and one for treatment)	Changes in how services are managed and workflow
Reducing overtreatment from presumptive treatment, to minimise development of antimicrobial resistance	Some patients may get results in two hours, others may have to wait longer if capacity has not been planned properly, although capacity is very flexible and can be changed easily
Potential to reduce the number of clinic visits, which means more time available to other patients	Implications of reducing the number of samples sent to laboratories, e.g. clinics may have contracts in place, and loss of business to central laboratories
Greater confidence for clinicians in providing quick and appropriate treatment	Clinics may need to assume responsibility for quality assurance of testing and reporting
Attracting new clients who would not normally come in for a test	Other tests may become available in the near future, yet clinics would be tied into a contract if they are early adopters
Reduces the number of people lost to follow up i.e. test positive but do not return for treatment	Could result in loss of income to clinic in standard first / follow up tariff payment system
Fast track testing service for partners reducing the need for presumptive treatment	Patients may need to wait in the clinic for their results for 2 hours
Efficiencies realised in clinic enable capacity to be released and utilised elsewhere	

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PATHWAY

Pathway Name: Current chlamydia and gonorrhoea only testing

Build Detail

	Step Number	1	2	3	4	5	6	7
	Step Name	Register Meet + Greet	Consultation	Tests + Supporting Admin	Health Promotion	Pathology	Results Management	Contact Pos. + Equiv.
	Activity	100%	100%	100%	100%	100%	100%	5%
	Primary Pathway Minutes	5	9	6	6	0	6	15
	Additional Pathway Proportional	0%	33%	100%	0%	100%	100%	100%
Time (minutes)		*Primary Pathway*	*Additional Pathway*					
Total		**32.8**	**15.7**					
Doctor/7/8								
Blend Nurse 7/8								
Blend all com SRH N2 - Dr		**21.0**	**9.0**	**100%**	**100%**	**100%**		
Blend HA								
Blend Nurse 5/6/7/8		**0.8**	**0.8**					**100%**
Blend Nurse 5/6		**6.0**	**6.0**				**100%**	
Admin/clerical		**5.0**		**100%**				

Non-Staff Inputs Key code: *Consumables*, *Drugs*, *Equipment*, *Other*, *Pathology*, *Custom*

Gloves	KY Lubricant (2)	Clamydia & Gonorrhoea NAAT	Letter notification (2%)	Letter notification (5%)
Lab Request form with bag - Chlamydia	Literature (STI) (3)		Phone call (3%)	Phone call (5%)
Sample Collection Instructions	Male Condom (10)		SMS Text message (95%)	SMS Text message (90%)
Transport tube				
Urine Pot, sterile collection (0.7)				
Urine Specimen Container (PCR Tube and Pipette) (0.7)				
Vulvo-vaginal swab (0.3)				

Current chlamydia and gonorrhoea only testing

PDF Options

Staff	Total Primary Cost (£)	Total Additional Cost (£)
Doctor/7/8		
Blend Nurse 7/8		
Blend all com SRH N2 - Dr	22.16	9.46
Blend HA		
Blend Nurse 5/6/7/8	0.67	0.67
Blend Nurse 5/6	4.50	4.50
Admin/clerical	2.64	0.00
Total	**29.96**	**14.63**

Non-Staff	Total Primary Cost (£)	Total Additional Cost (£)
Consumables	2.87	1.51
Drugs		
Equipment		
Other		
Pathology	12.51	12.51
Custom		
Total	**15.38**	**14.02**

Grand Total	**45.34**	**28.65**

Step Number	Step Name	Activity	Time (mins)	Type	Name	Cost (£)	Unit	Quantity	Total Primary Cost (£)	Additional	Total Additional Cost (£)
1	Register Meet + Greet	100%	5	Staff	Admin/clerical	£0.53	Minute	100%	£2.64	0%	£0.00
2	Consultation	100%	9	Staff	Blend all com SRH N2 - Dr	£1.06	Minute	100%	£9.50	33%	£3.13
3	Tests + Supporting Admin	100%	6	Staff	Blend all com SRH N2 - Dr	£1.06	Minute	100%	£6.33	100%	£6.33
3	Tests + Supporting Admin	100%		Consumables	Gloves	£0.05	Pair	1	£0.05	100%	£0.05
3	Tests + Supporting Admin	100%		Consumables	Lab Request form with bag - Chlamydia	£0.10	Item	1	£0.10	100%	£0.10
3	Tests + Supporting Admin	100%		Consumables	Sample Collection Instructions	£0.05	Item	1	£0.05	100%	£0.05
3	Tests + Supporting Admin	100%		Consumables	Transport tube	£0.26	Item	1	£0.26	100%	£0.26
3	Tests + Supporting Admin	100%		Consumables	Urine Pot, sterile collection	£0.23	Item	70%	£0.16	100%	£0.16
3	Tests + Supporting Admin	100%		Consumables	Urine Specimen Container (PCR Tube and Pipette)	£1.04	Item	70%	£0.73	100%	£0.73
3	Tests + Supporting Admin	100%		Consumables	Vulvo-vaginal swab	£0.16	Sample	30%	£0.05	100%	£0.05
4	Health Promotion	100%	6	Staff	Blend all com SRH N2 - Dr	£1.06	Minute	100%	£6.33	0%	£0.00
4	Health Promotion	100%		Consumables	KY Lubricant	£0.30	Application	2	£0.60	0%	£0.00
4	Health Promotion	100%		Consumables	Literature (STI)	£0.06	Item	3	£0.18	0%	£0.00
4	Health Promotion	100%		Consumables	Male Condom	£0.06	Item	10	£0.58	0%	£0.00
5	Pathology	100%		Pathology	Clamydia & Gonorrhoea NAAT	£12.51	Sample	1	£12.51	100%	£12.51
6	Results Management	100%	6	Staff	Blend Nurse 5/6	£0.75	Minute	100%	£4.50	100%	£4.50
6	Results Management	100%		Consumables	Letter notification	£0.58	Item	2%	£0.01	100%	£0.01
6	Results Management	100%		Consumables	Phone call	£0.07	Minute	3%	£0.00	100%	£0.00
6	Results Management	100%		Consumables	SMS Text message	£0.10	Item	95%	£0.10	100%	£0.10
7	Contact Pos. + Equiv.	5%	15	Staff	Blend Nurse 5/6/7/8	£0.89	Minute	100%	£0.67	100%	£0.67
7	Contact Pos. + Equiv.	5%		Consumables	Letter notification	£0.58	Item	5%	£0.00	100%	£0.00
7	Contact Pos. + Equiv.	5%		Consumables	Phone call	£0.07	Minute	5%	£0.00	100%	£0.00
7	Contact Pos. + Equiv.	5%		Consumables	SMS Text message	£0.10	Item	90%	£0.00	100%	£0.00

PATHWAY

Pathway Name: POC chlamydia and gonorrhoea only testing

Build Detail

		Step Number	1	2	3	4	5
		Step Name	Register Meet + Greet	Consultation	PoC Test	Results Management	Contact Pos. + Equiv.
		Activity	100%	100%	100%	100%	5%
		Primary Pathway Minutes	5	5	5	6	15
		Additional Pathway Proportional	0%	33%	100%	100%	100%
Time (minutes)	*Primary Pathway*	*Additional Pathway*					
Total	**21.8**	**13.4**					
Doctor/7/8							
Blend Nurse 7/8							
Blend all com SRH N2 - Dr	**5.0**	**1.7**		**100%**			
Blend HA							
Blend Nurse 5/6/7/8	**5.8**	**5.8**			**100%**		**100%**
Blend Nurse 5/6	**6.0**	**6.0**				**100%**	
Admin/clerical	**5.0**		**100%**				

Non-Staff Inputs Key code:					
Consumables	KY Lubricant (2)	Cepheid Sample Collection Kit	SMS Text message	Letter notification (0.05)
Drugs	Literature (STI) (3)	Gloves		Phone call (0.05)
Equipment	Male Condom (10)	Sample Collection Instructions		SMS Text message (0.9)
Other		Urine Pot, sterile collection (0.7)		
Pathology		Cepheid PoC CT/GC Test		

POC chlamydia and gonorrhoea only testing

PDF Options

Staff	Total Primary Cost (£)	Total Additional Cost (£)
Doctor/7/8		
Blend Nurse 7/8		
Blend all com SRH N2 - Dr	5.28	1.74
Blend HA		
Blend Nurse 5/6/7/8	5.13	5.13
Blend Nurse 5/6	4.50	4.50
Admin/clerical	2.64	0.00
Total	**17.54**	**11.37**

Non-Staff	Total Primary Cost (£)	Total Additional Cost (£)
Consumables	3.22	3.22
Drugs		
Equipment		
Other		
Pathology	18.00	18.00
Custom		
Total	**21.22**	**21.22**

Grand Total	**38.76**	**32.59**

Step Number	Step Name	Activity	Time (mins)	Type	Name	Cost (£)	Unit	Quantity	Total Primary Cost (£)	Additional	Total Additional Cost (£)
1	Register Meet + Greet	100%	5	Staff	Admin/clerical	£0.53	Minute	100%	£2.64	0%	£0.00
2	Consultation	100%	5	Staff	Blend all com SRH N2 - Dr	£1.06	Minute	100%	£5.28	33%	£1.74
2	Consultation	100%		Consumables	KY Lubricant	£0.30	Application	2	£0.60	33%	£0.60
2	Consultation	100%		Consumables	Literature (STI)	£0.06	Item	3	£0.18	33%	£0.18
2	Consultation	100%		Consumables	Male Condom	£0.06	Item	10	£0.58	33%	£0.58
3	PoC Test	100%	5	Staff	Blend Nurse 5/6/7/8	£0.89	Minute	100%	£4.46	100%	£4.46
3	PoC Test	100%		Consumables	Cepheid Sample Collection Kit	£1.50	Item	1	£1.50	100%	£1.50
3	PoC Test	100%		Consumables	Gloves	£0.05	Pair	1	£0.05	100%	£0.05
3	PoC Test	100%		Consumables	Sample Collection Instructions	£0.05	Item	1	£0.05	100%	£0.05
3	PoC Test	100%		Consumables	Urine Pot, sterile collection	£0.23	Item	0.7	£0.16	100%	£0.16
3	PoC Test	100%		Pathology	Cepheid PoC CT/GC Test	£18.00	Sample	1	£18.00	100%	£18.00
4	Results Management	100%	6	Staff	Blend Nurse 5/6	£0.75	Minute	100%	£4.50	100%	£4.50
4	Results Management	100%		Consumables	SMS Text message	£0.10	Item	100%	£0.10	100%	£0.10
5	Contact Pos. + Equiv.	5%	15	Staff	Blend Nurse 5/6/7/8	£0.89	Minute	100%	£0.67	100%	£0.67
5	Contact Pos. + Equiv.	5%		Consumables	Letter notification	£0.58	Item	0.05	£0.00	100%	£0.00
5	Contact Pos. + Equiv.	5%		Consumables	Phone call	£0.07	Minute	0.05	£0.00	100%	£0.00
5	Contact Pos. + Equiv.	5%		Consumables	SMS Text message	£0.10	Item	0.9	£0.00	100%	£0.00

PATHWAY

Pathway Name: Current sexual health screen for asymptomatic patients

Build Detail

		Step Number	1	2	3	4	5	6	7
		Step Name	Register Meet + Greet	Consultation	Blood Work	Health Promotion	Pathology	Results Management	Contact Pos. + Equiv.
		Activity	100%	100%	100%	100%	100%	100%	1%
		Primary Pathway Minutes	5	15	5	6		6	15
		Additional Pathway Proportional	0%	25%	50%	0%	100%	100%	50%
Time (minutes)	*Primary Pathway*	*Additional Pathway*							
Total	**37.2**	**12.3**							
Doctor/7/8									
Blend Nurse 7/8	**0.1**	**0.0**							**50%**
Blend all com SRH N2 - Dr	**26.0**	**6.3**		**100%**	**100%**	**100%**			
Blend HA	**0.1**	**0.0**							**50%**
Blend Nurse 5/6/7/8									
Blend Nurse 5/6	**6.0**	**6.0**						**100%**	
Admin/clerical	**5.0**		**100%**						

Non-Staff Inputs Key code: *Consumables*, *Drugs*, *Equipment*, *Other*, *Pathology*, *Custom*

2	3	4	5	6	7
Sample Collection Instructions	Bandages/ plasters	KY Lubricant (2)	Clamydia & Gonorrhoea NAAT	Letter notification (0.02)	Letter notification (0.05)
Urine Pot, sterile collection (0.7)	Blood tube	Literature (STI) (3)	HIV Serum test (4th Generation)	Phone call (0.03)	Phone call (0.05)
Urine Specimen Container (PCR Tube and Pipette) (0.7)	Cotton Wool	Male Condom (10)	Syphilis Immunosassy - Total antibody (IgG & IgM)	SMS Text message (0.95)	SMS Text message (0.9)
Vulvo-vaginal swab (0.3)	Gloves				
	Lab Request form with bag				
	Needle				
	Sterets/antiseptic wipe				
	Syringe 10ml Luer Slip Syringe				
	Transport tube				
	Vacutainer				

DETAIL Current sexual health screen for asymptomatic patients

PDF Options

Staff	Total Primary Cost (£)	Total Additional Cost (£)
Doctor/7/8		
Blend Nurse 7/8	0.08	0.04
Blend all com SRH N2 - Dr	27.43	6.59
Blend HA	0.08	0.04
Blend Nurse 5/6/7/8		
Blend Nurse 5/6	4.50	4.50
Admin/clerical	2.64	0.00
Total	**34.73**	**11.18**

Non-Staff	Total Primary Cost (£)	Total Additional Cost (£)
Consumables	3.25	1.89
Drugs		
Equipment		
Other		
Pathology	41.79	41.79
Custom		
Total	**45.04**	**43.68**

Grand Total	**79.77**	**54.86**

Step Number	Step Name	Activity	Time (mins)	Type	Name	Cost (£)	Unit	Quantity	Total Primary Cost (£)	Additional	Total Additional Cost (£)
1	Register Meet + Greet	100%	5	Staff	Admin/clerical	£0.53	Minute	100%	£2.64	0%	£0.00
2	Consultation	100%	15	Staff	Blend all com SRH N2 - Dr	£1.06	Minute	100%	£15.83	25%	£3.96
2	Consultation	100%		Consumables	Sample Collection Instructions	£0.05	Item	1	£0.05	25%	£0.05
2	Consultation	100%		Consumables	Urine Pot, sterile collection	£0.23	Item	0.7	£0.16	25%	£0.16
2	Consultation	100%		Consumables	Urine Specimen Container (PCR Tube and Pipette)	£1.04	Item	0.7	£0.73	25%	£0.73
2	Consultation	100%		Consumables	Vulvo-vaginal swab	£0.16	Sample	0.3	£0.05	25%	£0.05
3	Blood Work	100%	5	Staff	Blend all com SRH N2 - Dr	£1.06	Minute	100%	£5.28	50%	£2.64
3	Blood Work	100%		Consumables	Bandages/ plasters	£0.07	Item	1	£0.07	50%	£0.07
3	Blood Work	100%		Consumables	Blood tube	£0.12	Item	1	£0.12	50%	£0.12
3	Blood Work	100%		Consumables	Cotton Wool	£0.01	Item	1	£0.01	50%	£0.01
3	Blood Work	100%		Consumables	Gloves	£0.05	Pair	1	£0.05	50%	£0.05
3	Blood Work	100%		Consumables	Lab Request form with bag	£0.10	Item	1	£0.10	50%	£0.10
3	Blood Work	100%		Consumables	Needle	£0.03	Item	1	£0.03	50%	£0.03
3	Blood Work	100%		Consumables	Sterets/antiseptic wipe	£0.02	Item	1	£0.02	50%	£0.02
3	Blood Work	100%		Consumables	Syringe 10ml Luer Slip Syringe	£0.11	Item	1	£0.11	50%	£0.11
3	Blood Work	100%		Consumables	Transport tube	£0.26	Item	1	£0.26	50%	£0.26
3	Blood Work	100%		Consumables	Vacutainer	£0.02	Item	1	£0.02	50%	£0.02
4	Health Promotion	100%	6	Staff	Blend all com SRH N2 - Dr	£1.06	Minute	100%	£6.33	0%	£0.00
4	Health Promotion	100%		Consumables	KY Lubricant	£0.30	Application	2	£0.60	0%	£0.00
4	Health Promotion	100%		Consumables	Literature (STI)	£0.06	Item	3	£0.18	0%	£0.00
4	Health Promotion	100%		Consumables	Male Condom	£0.06	Item	10	£0.58	0%	£0.00
5	Pathology	100%		Pathology	Clamydia & Gonorrhoea NAAT	£12.51	Sample	1	£12.51	100%	£12.51
5	Pathology	100%		Pathology	HIV Serum test (4th Generation)	12.78	Sample	1	£12.78	100%	£12.78
5	Pathology	100%		Pathology	Syphilis Immunosassy - Total antibody (IgG & IgM)	£16.50	Sample	1	£16.50	100%	£16.50
6	Results Management	100%	6	Staff	Blend Nurse 5/6	£0.75	Minute	100%	£4.50	100%	£4.50
6	Results Management	100%		Consumables	Letter notification	£0.58	Item	0.02	£0.01	100%	£0.01
6	Results Management	100%		Consumables	Phone call	£0.07	Minute	0.03	£0.00	100%	£0.00
6	Results Management	100%		Consumables	SMS Text message	£0.10	Item	0.95	£0.10	100%	£0.10
7	Contact Pos. + Equiv.	1%	15	Staff	Blend Nurse 7/8	£1.10	Minute	50%	£0.08	50%	£0.04
7	Contact Pos. + Equiv.	1%	15	Staff	Blend HA	£1.03	Minute	50%	£0.08	50%	£0.04
7	Contact Pos. + Equiv.	1%		Consumables	Letter notification	£0.58	Item	5%	£0.00	50%	£0.00
7	Contact Pos. + Equiv.	1%		Consumables	Phone call	£0.07	Minute	5%	£0.00	50%	£0.00
7	Contact Pos. + Equiv.	1%		Consumables	SMS Text message	£0.10	Item	90%	£0.00	50%	£0.00

PATHWAY

Pathway Name: POC1 sexual health screen for asymptomatic patients

Build Detail

	Step Number	1	2	3	4	5	6	7
	Step Name	Register Meet + Greet	Blood Test + Consultation	PoC Test + Review Results	Results Management (PoC)	Pathology	Results Management (Lab)	Contact Pos. + Equiv.
	Activity	100%	100%	100%	100%	100%	100%	1%
	Primary Pathway Minutes	5	10	5	5		6	15
	Additional Pathway Proportional	0%	50%	100%	100%	100%	100%	50%
Time (minutes)		*Primary Pathway*	*Additional Pathway*					
Total		31.2	21.1					
Doctor/7/8								
Blend Nurse 7/8		0.1	0.0					50%
Blend all com SRH N2 - Dr		10.0	5.0	100%				
Blend HA		0.1	0.0					50%
Blend Nurse 5/6/7/8		5.0	5.0	100%				
Blend Nurse 5/6		11.0	11.0		100%		100%	
Admin/clerical		5.0						
		100%						

Non-Staff Inputs Key code: *Consumables*, *Drugs*, *Equipment*, *Other*, *Pathology*, *Custom*

Consumables	Equipment	Pathology	Pathology
Bandages/ plasters	Cepheid Sample Collection Kit	SMS Text message	HIV Serum test (4th Generation)
Blood tube	Sample Collection Instructions		Syphilis Immunosassy - Total antibody (IgG & IgM)
Cotton Wool	Urine Pot, sterile collection (0.7)		
Gloves	Cepheid PoC CT/GC Test		
KY Lubricant (2)			
Lab Request form with bag			
Literature (STI) (3)			
Male Condom (10)			
Needle			
Sterets/antiseptic wipe			
Syringe 10ml Luer Slip Syringe			
Transport tube			
Vacutainer			

Custom	Custom
Letter notification (0.02)	Letter notification (0.05)
Phone call (0.03)	Phone call (0.05)
SMS Text message (0.95)	SMS Text message (0.9)

POC1 sexual health screen for asymptomatic patients

PDF Options

Staff	Total Primary Cost (£)	Total Additional Cost (£)
Doctor/7/8		
Blend Nurse 7/8	0.08	0.04
Blend all com SRH N2 - Dr	10.55	5.28
Blend HA	0.08	0.04
Blend Nurse 5/6/7/8	4.46	4.46
Blend Nurse 5/6	8.25	8.25
Admin/clerical	2.64	0.00
Total	**26.06**	**18.07**

Non-Staff	Total Primary Cost (£)	Total Additional Cost (£)
Consumables	4.08	4.08
Drugs		
Equipment		
Other		
Pathology	47.28	47.28
Custom		
Total	**51.36**	**51.36**

Grand Total	**77.42**	**69.43**

Step Number	Step Name	Activity	Time (mins)	Type	Name	Cost (£)	Unit	Quantity	Total Primary Cost (£)	Additional	Total Additional Cost (£)
1	Register Meet + Greet	100%	5	Staff	Admin/clerical	£0.53	Minute	100%	£2.64	0%	£0.00
2	Blood Test + Consultation	100%	10	Staff	Blend all com SRH N2 - Dr	£1.06	Minute	100%	£10.55	50%	£5.28
2	Blood Test + Consultation	100%		Consumables	Bandages/ plasters	£0.07	Item	1	£0.07	50%	£0.07
2	Blood Test + Consultation	100%		Consumables	Blood tube	£0.12	Item	1	£0.12	50%	£0.12
2	Blood Test + Consultation	100%		Consumables	Cotton Wool	£0.01	Item	1	£0.01	50%	£0.01
2	Blood Test + Consultation	100%		Consumables	Gloves	£0.05	Pair	1	£0.05	50%	£0.05
2	Blood Test + Consultation	100%		Consumables	KY Lubricant	£0.30	Application	2	£0.60	50%	£0.60
2	Blood Test + Consultation	100%		Consumables	Lab Request form with bag	£0.10	Item	1	£0.10	50%	£0.10
2	Blood Test + Consultation	100%		Consumables	Literature (STI)	£0.06	Item	3	£0.18	50%	£0.18
2	Blood Test + Consultation	100%		Consumables	Male Condom	£0.06	Item	10	£0.58	50%	£0.58
2	Blood Test + Consultation	100%		Consumables	Needle	£0.03	Item	1	£0.03	50%	£0.03
2	Blood Test + Consultation	100%		Consumables	Sterets/antiseptic wipe	£0.02	Item	1	£0.02	50%	£0.02
2	Blood Test + Consultation	100%		Consumables	Syringe 10ml Luer Slip Syringe	£0.11	Item	1	£0.11	50%	£0.11
2	Blood Test + Consultation	100%		Consumables	Transport tube	£0.26	Item	1	£0.26	50%	£0.26
2	Blood Test + Consultation	100%		Consumables	Vacutainer	£0.02	Item	1	£0.02	50%	£0.02
3	PoC Test + Review Results	100%	5	Staff	Blend Nurse 5/6/7/8	£0.89	Minute	100%	£4.46	100%	£4.46
3	PoC Test + Review Results	100%		Consumables	Cepheid Sample Collection Kit	£1.50	Item	1	£1.50	100%	£1.50
3	PoC Test + Review Results	100%		Consumables	Sample Collection Instructions	£0.05	Item	1	£0.05	100%	£0.05
3	PoC Test + Review Results	100%		Consumables	Urine Pot, sterile collection	£0.23	Item	0.7	£0.16	100%	£0.16
3	PoC Test + Review Results	100%		Pathology	Cepheid PoC CT/GC Test	£18.00	Sample	1	£18.00	100%	£18.00
4	Results Management (PoC)	100%	5	Staff	Blend Nurse 5/6	£0.75	Minute	100%	£3.75	100%	£3.75
4	Results Management (PoC)	100%		Consumables	SMS Text message	£0.10	Item	1	£0.10	100%	£0.10
5	Pathology	100%		Pathology	HIV Serum test (4th Generation)	£12.78	Sample	1	£12.78	100%	£12.78
5	Pathology	100%		Pathology	Syphilis Immunosassy - Total antibody (IgG & IgM)	£16.50	Sample	1	£16.50	100%	£16.50
6	Results Management (Lab)	100%	6	Staff	Blend Nurse 5/6	£0.75	Minute	100%	£4.50	100%	£4.50
6	Results Management (Lab)	100%		Consumables	Letter notification	£0.58	Item	0.02	£0.01	100%	£0.01
6	Results Management (Lab)	100%		Consumables	Phone call	£0.07	Minute	0.03	£0.00	100%	£0.00
6	Results Management (Lab)	100%		Consumables	SMS Text message	£0.10	Item	0.95	£0.10	100%	£0.10
7	Contact Pos. + Equiv.	1%	15	Staff	Blend Nurse 7/8	£1.10	Minute	50%	£0.08	50%	£0.04
7	Contact Pos. + Equiv.	1%	15	Staff	Blend HA	£1.03	Minute	50%	£0.08	50%	£0.04
7	Contact Pos. + Equiv.	1%		Consumables	Letter notification	£0.58	Item	0.05	£0.00	50%	£0.00
7	Contact Pos. + Equiv.	1%		Consumables	Phone call	£0.07	Minute	0.05	£0.00	50%	£0.00
7	Contact Pos. + Equiv.	1%		Consumables	SMS Text message	£0.10	Item	0.9	£0.00	50%	£0.00

PATHWAY

Pathway Name:	POC2 sexual health screen for asymptomatic patients

Build Detail

	Step Number	1	2	3	4	5	6	7
	Step Name	Register Meet + Greet	PoC Test + Review Results	Consultation + Results	Blood Work	Pathology	Results Management	Contact Pos. + Equiv.
	Activity	100%	100%	100%	100%	100%	100%	1%
	Primary Pathway Minutes	5	5	5	5		6	15
	Additional Pathway Proportional	0%	100%	50%	50%	100%	100%	50%
Time (minutes)		*Primary Pathway*	*Additional Pathway*					
Total		26.2	16.1					
Doctor/7/8								
Blend Nurse 7/8		0.1	0.0					50%
Blend all com SRH N2 - Dr		10.0	5.0	100%	100%			
Blend HA		0.1	0.0					50%
Blend Nurse 5/6/7/8		5.0	5.0	100%				
Blend Nurse 5/6		6.0	6.0				100%	
Admin/clerical		5.0		100%				

Non-Staff Inputs Key code:						
Consumables	Cepheid Sample Collection Kit	KY Lubricant (2)	Bandages/ plasters	HIV Serum test (4th Generation)	Letter notification (0.02)	Letter notification (0.05)
Drugs	Sample Collection Instructions	Literature (STI) (3)	Blood tube	Syphilis Immunosassy - Total antibody (IgG & IgM)	Phone call (0.03)	Phone call (0.05)
Equipment	Urine Pot, sterile collection (0.7)	Male Condom (10)	Cotton Wool		SMS Text message (0.95)	SMS Text message (0.90)
Other	Cepheid PoC CT/GC Test		Gloves			
Pathology			Lab Request form with bag			
Custom			Needle			
			Sterets/antiseptic wipe			
			Syringe 10ml Luer Slip Syringe			
			Transport tube			
			Vacutainer			

POC2 sexual health screen for asymptomatic patients

PDF Options

Staff	Total Primary Cost (£)	Total Additional Cost (£)
Doctor/7/8		
Blend Nurse 7/8	0.08	0.04
Blend all com SRH N2 - Dr	10.55	5.28
Blend HA	0.08	0.04
Blend Nurse 5/6/7/8	4.46	4.46
Blend Nurse 5/6	4.50	4.50
Admin/clerical	2.64	0.00
Total	**22.31**	**14.32**

Non-Staff	Total Primary Cost (£)	Total Additional Cost (£)
Consumables	3.98	3.98
Drugs		
Equipment		
Other		
Pathology	47.28	47.28
Custom		
Total	**51.26**	**51.26**

Grand Total	**73.57**	**65.57**

Step Number	Step Name	Activity	Time (mins)	Type	Name	Cost (£)	Unit	Quantity	Total Primary Cost (£)	Additional	Total Additional Cost (£)
1	Register Meet + Greet	100%	5	Staff	Admin/clerical	£0.53	Minute	100%	£2.64	0%	£0.00
2	PoC Test + Review Results	100%	5	Staff	Blend Nurse 5/6/7/8	£0.89	Minute	100%	£4.46	100%	£4.46
2	PoC Test + Review Results	100%		Consumables	Cepheid Sample Collection Kit	£1.50	Item	1	£1.50	100%	£1.50
2	PoC Test + Review Results	100%		Consumables	Sample Collection Instructions	£0.05	Item	1	£0.05	100%	£0.05
2	PoC Test + Review Results	100%		Consumables	Urine Pot, sterile collection	£0.23	Item	0.7	£0.16	100%	£0.16
2	PoC Test + Review Results	100%		Pathology	Cepheid PoC CT/GC Test	£18.00	Sample	1	£18.00	100%	£18.00
3	Consultation + Results	100%	5	Staff	Blend all com SRH N2 - Dr	£1.06	Minute	100%	£5.28	50%	£2.64
3	Consultation + Results	100%		Consumables	KY Lubricant	£0.30	Application	2	£0.60	50%	£0.60
3	Consultation + Results	100%		Consumables	Literature (STI)	£0.06	Item	3	£0.18	50%	£0.18
3	Consultation + Results	100%		Consumables	Male Condom	£0.06	Item	10	£0.58	50%	£0.58
4	Blood Work	100%	5	Staff	Blend all com SRH N2 - Dr	£1.06	Minute	100%	£5.28	50%	£2.64
4	Blood Work	100%		Consumables	Bandages/ plasters	£0.07	Item	1	£0.07	50%	£0.07
4	Blood Work	100%		Consumables	Blood tube	£0.12	Item	1	£0.12	50%	£0.12
4	Blood Work	100%		Consumables	Cotton Wool	£0.01	Item	1	£0.01	50%	£0.01
4	Blood Work	100%		Consumables	Gloves	£0.05	Pair	1	£0.05	50%	£0.05
4	Blood Work	100%		Consumables	Lab Request form with bag	£0.10	Item	1	£0.10	50%	£0.10
4	Blood Work	100%		Consumables	Needle	£0.03	Item	1	£0.03	50%	£0.03
4	Blood Work	100%		Consumables	Sterets/antiseptic wipe	£0.02	Item	1	£0.02	50%	£0.02
4	Blood Work	100%		Consumables	Syringe 10ml Luer Slip Syringe	£0.11	Item	1	£0.11	50%	£0.11
4	Blood Work	100%		Consumables	Transport tube	£0.26	Item	1	£0.26	50%	£0.26
4	Blood Work	100%		Consumables	Vacutainer	£0.02	Item	1	£0.02	50%	£0.02
5	Pathology	100%		Pathology	HIV Serum test (4th Generation)	£12.78	Sample	1	£12.78	100%	£12.78
5	Pathology	100%		Pathology	Syphilis Immunosassy - Total antibody (IgG & IgM)	£16.50	Sample	1	£16.50	100%	£16.50
6	Results Management	100%	6	Staff	Blend Nurse 5/6	£0.75	Minute	100%	£4.50	100%	£4.50
6	Results Management	100%		Consumables	Letter notification	£0.58	Item	0.02	£0.01	100%	£0.01
6	Results Management	100%		Consumables	Phone call	£0.07	Minute	0.03	£0.00	100%	£0.00
6	Results Management	100%		Consumables	SMS Text message	£0.10	Item	0.95	£0.10	100%	£0.10
7	Contact Pos. + Equiv.	1%	15	Staff	Blend Nurse 7/8	£1.10	Minute	50%	£0.08	50%	£0.04
7	Contact Pos. + Equiv.	1%	15	Staff	Blend HA	£1.03	Minute	50%	£0.08	50%	£0.04
7	Contact Pos. + Equiv.	1%		Consumables	Letter notification	£0.58	Item	0.05	£0.00	50%	£0.00
7	Contact Pos. + Equiv.	1%		Consumables	Phone call	£0.07	Minute	0.05	£0.00	50%	£0.00
7	Contact Pos. + Equiv.	1%		Consumables	SMS Text message	£0.10	Item	0.9	£0.00	50%	£0.00

PATHWAY

Pathway Name: Current sexual health screen for symptomatic patients

Build Detail

		Step Number	1	2	3	4	5	6	7	8
		Step Name	Register Meet + Greet	Consultation	Examination & Blood Work	Microscopy	Health Promotion	Pathology	Results Management	Contact Pos. + Equiv.
		Activity	100%	100%	100%	100%	100%	100%	100%	1%
		Primary Pathway Minutes	5	15	5	10	6		6	15
		Additional Pathway Proportional	0%	25%	50%	100%	0%	100%	100%	50%
Time (minutes)	*Primary Pathway*	*Additional Pathway*								
Total	47.2	22.3								
Doctor/7/8	10.0	3.1		50%	50%					
Blend Nurse 7/8	0.1	0.0								50%
Blend all com SRH N2 - Dr	6.0						100%			
Blend HA	0.1	0.0								50%
Blend Nurse 5/6/7/8										
Blend Nurse 5/6	26.0	19.1		50%	50%	100%			100%	
Admin/clerical	5.0		100%							

Non-Staff Inputs Key code: *Consumables*, *Drugs*, *Equipment*, *Other*, *Pathology*, *Custom*

Bandages/ plasters	Blotting paper	KY Lubricant (2)	Clamydia & Gonorrhoea NAAT	Letter notification (0.02)	Letter notification (0.05)
Blood tube	Gloves	Literature (STI) (3)	GC Culture/typing - lab processing	Phone call (0.03)	Phone call (0.05)
Cotton Wool	Gram Stain	Male Condom (10)	HIV Serum test (4th Generation)	SMS Text message (0.95)	SMS Text message (0.9)
Culture plate	Immersion oil		Syphilis Immunosassy - Total antibody (IgG & IgM)		
Culture swab- GC	Loops				
Gloves (2)	Microscope slide (qty 1)				
KY Lubricant					
Lab Request form with bag					
Needle					
Sample Collection Instructions					
Speculum (0.5)					
Sterets/antiseptic wipe					
Swab					
Syringe 10ml Luer Slip Syringe					
Transport tube					
Urine Pot, sterile collection (0.5)					
Urine Specimen Container (PCR Tube and Pipette) (0.5)					
Vacutainer					
Vulvo-vaginal swab (0.5)					

DETAIL — Current sexual health screen for symptomatic patients

PDF Options

Staff	Total Primary Cost (£)	Total Additional Cost (£)
Doctor/7/8	14.54	4.54
Blend Nurse 7/8	0.08	0.04
Blend all com SRH N2 - Dr	6.33	0.00
Blend HA	0.08	0.04
Blend Nurse 5/6/7/8		
Blend Nurse 5/6	19.51	14.35
Admin/clerical	2.64	0.00
Total	**43.17**	**18.97**

Non-Staff	Total Primary Cost (£)	Total Additional Cost (£)
Consumables	6.86	5.51
Drugs		
Equipment		
Other		
Pathology	49.34	49.34
Custom		
Total	**56.21**	**54.85**

Grand Total	**99.38**	**73.82**

Step Number	Step Name	Activity	Time (mins)	Type	Name	Cost (£)	Unit	Quantity	Total Primary Cost (£)	Additional	Total Additional Cost (£)
1	Register Meet + Greet	100%	5	Staff	Admin/clerical	£0.53	Minute	100%	£2.64	0%	£0.00
2	Consultation	100%	15	Staff	Doctor/7/8	£1.45	Minute	50%	£10.91	25%	£2.73
2	Consultation	100%	15	Staff	Blend Nurse 5/6	£0.75	Minute	50%	£5.63	25%	£1.41
3	Examination & Blood Work	100%	5	Staff	Doctor/7/8	£1.45	Minute	50%	£3.64	50%	£1.82
3	Examination & Blood Work	100%	5	Staff	Blend Nurse 5/6	£0.75	Minute	50%	£1.88	50%	£0.94
3	Examination & Blood Work	100%		Consumables	Bandages/ plasters	£0.07	Item	1	£0.07	50%	£0.07
3	Examination & Blood Work	100%		Consumables	Blood tube	£0.12	Item	1	£0.12	50%	£0.12
3	Examination & Blood Work	100%		Consumables	Cotton Wool	£0.01	Item	1	£0.01	50%	£0.01
3	Examination & Blood Work	100%		Consumables	Culture plate	£1.04	Item	1	£1.04	50%	£1.04
3	Examination & Blood Work	100%		Consumables	Culture swab- GC	£1.04	Item	1	£1.04	50%	£1.04
3	Examination & Blood Work	100%		Consumables	Gloves	£0.05	Pair	2	£0.09	50%	£0.09
3	Examination & Blood Work	100%		Consumables	KY Lubricant	£0.30	Application	1	£0.30	50%	£0.30
3	Examination & Blood Work	100%		Consumables	Lab Request form with bag	£0.10	Item	1	£0.10	50%	£0.10
3	Examination & Blood Work	100%		Consumables	Needle	£0.03	Item	1	£0.03	50%	£0.03
3	Examination & Blood Work	100%		Consumables	Sample Collection Instructions	£0.05	Item	1	£0.05	50%	£0.05
3	Examination & Blood Work	100%		Consumables	Speculum	£0.82	Item	0.5	£0.41	50%	£0.41
3	Examination & Blood Work	100%		Consumables	Sterets/antiseptic wipe	£0.02	Item	1	£0.02	50%	£0.02
3	Examination & Blood Work	100%		Consumables	Swab	£0.02	Item	1	£0.02	50%	£0.02
3	Examination & Blood Work	100%		Consumables	Syringe 10ml Luer Slip Syringe	£0.11	Item	1	£0.11	50%	£0.11
3	Examination & Blood Work	100%		Consumables	Transport tube	£0.26	Item	1	£0.26	50%	£0.26
3	Examination & Blood Work	100%		Consumables	Urine Pot, sterile collection	£0.23	Item	0.5	£0.11	50%	£0.11
3	Examination & Blood Work	100%		Consumables	Urine Specimen Container (PCR Tube and Pipette)	£1.04	Item	0.5	£0.52	50%	£0.52
3	Examination & Blood Work	100%		Consumables	Vacutainer	£0.02	Item	1	£0.02	50%	£0.02
3	Examination & Blood Work	100%		Consumables	Vulvo-vaginal swab	£0.16	Sample	0.5	£0.08	50%	£0.08
4	Microscopy	100%	10	Staff	Blend Nurse 5/6	£0.75	Minute	100%	£7.50	100%	£7.50
4	Microscopy	100%		Consumables	Blotting paper	£0.05	Item	1	£0.05	100%	£0.05
4	Microscopy	100%		Consumables	Gloves	£0.05	Pair	1	£0.05	100%	£0.05
4	Microscopy	100%		Consumables	Gram Stain	£0.20	Procedure	1	£0.20	100%	£0.20
4	Microscopy	100%		Consumables	Immersion oil	£0.02	Sample	1	£0.02	100%	£0.02
4	Microscopy	100%		Consumables	Loops	£0.60	Item	1	£0.60	100%	£0.60
4	Microscopy	100%		Consumables	Microscope slide (qty 1)	£0.07	Item	1	£0.07	100%	£0.07
5	Health Promotion	100%	6	Staff	Blend all com SRH N2 - Dr	£1.06	Minute	100%	£6.33	0%	£0.00
5	Health Promotion	100%		Consumables	KY Lubricant	£0.30	Application	2	£0.60	0%	£0.00
5	Health Promotion	100%		Consumables	Literature (STI)	£0.06	Item	3	£0.18	0%	£0.00
5	Health Promotion	100%		Consumables	Male Condom	£0.06	Item	10	£0.58	0%	£0.00
6	Pathology	100%		Pathology	Clamydia & Gonorrhoea NAAT	£12.51	Sample	1	£12.51	100%	£12.51
6	Pathology	100%		Pathology	GC Culture/typing - lab processing	£7.55	Sample	1	£7.55	100%	£7.55
6	Pathology	100%		Pathology	HIV Serum test (4th Generation)	£12.78	Sample	1	£12.78	100%	£12.78
6	Pathology	100%		Pathology	Syphilis Immunosassy - Total antibody (IgG & IgM)	£16.50	Sample	1	£16.50	100%	£16.50
7	Results Management	100%	6	Staff	Blend Nurse 5/6	£0.75	Minute	100%	£4.50	100%	£4.50
7	Results Management	100%		Consumables	Letter notification	£0.58	Item	0.02	£0.01	100%	£0.01
7	Results Management	100%		Consumables	Phone call	£0.07	Minute	0.03	£0.00	100%	£0.00
7	Results Management	100%		Consumables	SMS Text message	£0.10	Item	0.95	£0.10	100%	£0.10
8	Contact Pos. + Equiv.	1%	15	Staff	Blend Nurse 7/8	£1.10	Minute	50%	£0.08	50%	£0.04
8	Contact Pos. + Equiv.	1%	15	Staff	Blend HA	£1.03	Minute	50%	£0.08	50%	£0.04
8	Contact Pos. + Equiv.	1%		Consumables	Letter notification	£0.58	Item	5%	£0.00	50%	£0.00
8	Contact Pos. + Equiv.	1%		Consumables	Phone call	£0.07	Minute	5%	£0.00	50%	£0.00
8	Contact Pos. + Equiv.	1%		Consumables	SMS Text message	£0.10	Item	90%	£0.00	50%	£0.00

PATHWAY

Pathway Name: POC1 sexual health screen for symptomatic patients

Build Detail

	Step Number	1	2	3	4	5	6	7	8	9
	Step Name	Register Meet + Greet	Consultation	Examination + Blood Work	PoC Test + Review Results	Microscopy	Health Promotion	Pathology	Results Management	Contact Pos. + Equiv.
	Activity	100%	100%	100%	100%	100%	100%	100%	100%	1%
	Primary Pathway Minutes	5	15	5	5	10	6		6	15
	Additional Pathway Proportional	0%	25%	50%	100%	100%	0%	100%	100%	50%
Time (minutes)	*Primary Pathway*	*Additional Pathway*								
Total	52.2	27.3								
Doctor/7/8	10.0	3.1		50%	50%					50%
Blend Nurse 7/8	0.1	0.0					100%			50%
Blend all com SRH N2 - Du										
Blend HA	6.1	0.0			100%					
Blend Nurse 5/6/7/8	5.0	5.0		50%	50%	100%			100%	
Blend Nurse 5/6	26.0	19.1	100%							
Admin/clerical	5.0									

Non-Staff Inputs Key code: *Consumables*, *Drugs*, *Equipment*, *Other*, *Pathology*, *Custom*

Step 3	Step 4	Step 5	Step 6	Step 7	Step 8	Step 9
Bandages/ plasters	Cepheid Sample Collection Kit	Blotting paper	KY Lubricant (2)	HIV Serum test (4th Generation)	Letter notification (0.02)	Letter notification (0.05)
Blood tube	Sample Collection Instructions	Gloves	Literature (STI) (3)	Syphilis Immunosassy - Total antibody (IgG & IgM)	Phone call (0.03)	Phone call (0.05)
Cotton Wool	Urine Pot, sterile collection (0.5)	Gram Stain	Male Condom (10)		SMS Text message (0.95)	SMS Text message (0.9)
Gloves	Cepheid PoC CT/GC Test	Immersion oil				
KY Lubricant		Loops				
Lab Request form with bag		Microscope slide (qty 1)				
Needle						
Speculum (0.5)						
Sterets/antiseptic wipe						
Syringe 10ml Luer Slip Syringe						
Transport tube						
Vacutainer						

POC1 sexual health screen for symptomatic patients

PDF Options

Staff	Total Primary Cost (£)	Total Additional Cost (£)
Doctor/7/8	14.54	4.54
Blend Nurse 7/8	0.08	0.04
Blend all com SRH N2 - Dr		
Blend HA	6.26	0.04
Blend Nurse 5/6/7/8	4.46	4.46
Blend Nurse 5/6	19.51	14.35
Admin/clerical	2.64	0.00
Total	**47.48**	**23.43**

Non-Staff	Total Primary Cost (£)	Total Additional Cost (£)
Consumables	5.63	4.27
Drugs		
Equipment		
Other		
Pathology	47.28	47.28
Custom		
Total	**52.91**	**51.55**

Grand Total	**100.39**	**74.98**

Step Number	Step Name	Activity		Time (mins)	Type	Name	Cost (£)	Unit	Quantity	Total Primary Cost (£)	Additional	Total Additional Cost (£)
1	Register Meet + Greet		100%	5	Staff	Admin/clerical	£0.53	Minute	100%	£2.64	0%	£0.00
2	Consultation		100%	15	Staff	Doctor/7/8	£1.45	Minute	50%	£10.91	25%	£2.73
2	Consultation		100%	15	Staff	Blend Nurse 5/6	£0.75	Minute	50%	£5.63	25%	£1.41
3	Examination + Blood Work		100%	5	Staff	Doctor/7/8	£1.45	Minute	50%	£3.64	50%	£1.82
3	Examination + Blood Work		100%	5	Staff	Blend Nurse 5/6	£0.75	Minute	50%	£1.88	50%	£0.94
3	Examination + Blood Work		100%		Consumables	Bandages/ plasters	£0.07	Item	1	£0.07	50%	£0.07
3	Examination + Blood Work		100%		Consumables	Blood tube	£0.12	Item	1	£0.12	50%	£0.12
3	Examination + Blood Work		100%		Consumables	Cotton Wool	£0.01	Item	1	£0.01	50%	£0.01
3	Examination + Blood Work		100%		Consumables	Gloves	£0.05	Pair	1	£0.05	50%	£0.05
3	Examination + Blood Work		100%		Consumables	KY Lubricant	£0.30	Application	1	£0.30	50%	£0.30
3	Examination + Blood Work		100%		Consumables	Lab Request form with bag	£0.10	Item	1	£0.10	50%	£0.10
3	Examination + Blood Work		100%		Consumables	Needle	£0.03	Item	1	£0.03	50%	£0.03
3	Examination + Blood Work		100%		Consumables	Speculum	£0.82	Item	0.5	£0.41	50%	£0.41
3	Examination + Blood Work		100%		Consumables	Sterets/antiseptic wipe	£0.02	Item	1	£0.02	50%	£0.02
3	Examination + Blood Work		100%		Consumables	Syringe 10ml Luer Slip Syringe	£0.11	Item	1	£0.11	50%	£0.11
3	Examination + Blood Work		100%		Consumables	Transport tube	£0.26	Item	1	£0.26	50%	£0.26
3	Examination + Blood Work		100%		Consumables	Vacutainer	£0.02	Item	1	£0.02	50%	£0.02
4	PoC Test + Review Results		100%	5	Staff	Blend Nurse 5/6/7/8	£0.89	Minute	100%	£4.46	100%	£4.46
4	PoC Test + Review Results		100%		Consumables	Cepheid Sample Collection Kit	£1.50	Item	1	£1.50	100%	£1.50
4	PoC Test + Review Results		100%		Consumables	Sample Collection Instructions	£0.05	Item	1	£0.05	100%	£0.05
4	PoC Test + Review Results		100%		Consumables	Urine Pot, sterile collection	£0.23	Item	0.5	£0.11	100%	£0.11
4	PoC Test + Review Results		100%		Pathology	Cepheid PoC CT/GC Test	£18.00	Sample	1	£18.00	100%	£18.00
5	Microscopy		100%	10	Staff	Blend Nurse 5/6	£0.75	Minute	100%	£7.50	100%	£7.50
5	Microscopy		100%		Consumables	Blotting paper	£0.05	Item	1	£0.05	100%	£0.05
5	Microscopy		100%		Consumables	Gloves	£0.05	Pair	1	£0.05	100%	£0.05
5	Microscopy		100%		Consumables	Gram Stain	£0.20	Procedure	1	£0.20	100%	£0.20
5	Microscopy		100%		Consumables	Immersion oil	£0.02	Sample	1	£0.02	100%	£0.02
5	Microscopy		100%		Consumables	Loops	£0.60	Item	1	£0.60	100%	£0.60
5	Microscopy		100%		Consumables	Microscope slide (qty 1)	£0.07	Item	1	£0.07	100%	£0.07
6	Health Promotion		100%	6	Staff	Blend HA	£1.03	Minute	100%	£6.18	0%	£0.00
6	Health Promotion		100%		Consumables	KY Lubricant	£0.30	Application	2	£0.60	0%	£0.00
6	Health Promotion		100%		Consumables	Literature (STI)	£0.06	Item	3	£0.18	0%	£0.00
6	Health Promotion		100%		Consumables	Male Condom	£0.06	Item	10	£0.58	0%	£0.00
7	Pathology		100%		Pathology	HIV Serum test (4th Generation)	£12.78	Sample	1	£12.78	100%	£12.78
7	Pathology		100%		Pathology	Syphilis Immunosassy - Total antibody (IgG & IgM)	£16.50	Sample	1	£16.50	100%	£16.50
8	Results Management		100%	6	Staff	Blend Nurse 5/6	£0.75	Minute	100%	£4.50	100%	£4.50
8	Results Management		100%		Consumables	Letter notification	£0.58	Item	0.02	£0.01	100%	£0.01
8	Results Management		100%		Consumables	Phone call	£0.07	Minute	0.03	£0.00	100%	£0.00
8	Results Management		100%		Consumables	SMS Text message	£0.10	Item	0.95	£0.10	100%	£0.10
9	Contact Pos. + Equiv.		1%	15	Staff	Blend Nurse 7/8	£1.10	Minute	50%	£0.08	50%	£0.04
9	Contact Pos. + Equiv.		1%	15	Staff	Blend HA	£1.03	Minute	50%	£0.08	50%	£0.04
9	Contact Pos. + Equiv.		1%		Consumables	Letter notification	£0.58	Item	5%	£0.00	50%	£0.00
9	Contact Pos. + Equiv.		1%		Consumables	Phone call	£0.07	Minute	5%	£0.00	50%	£0.00
9	Contact Pos. + Equiv.		1%		Consumables	SMS Text message	£0.10	Item	90%	£0.00	50%	£0.00

PATHWAY

Pathway Name: POC2 sexual health screen for symptomatic patients

Build Detail

		Step Number	1	2	3	4	5	6	7	8
		Step Name	Register Meet + Greet	PoC Test + Review Results	Consultation	Examination + Blood tests	Microscopy	Pathology	Results Management	Contact Pos. + Equiv.
		Activity	100%	100%	100%	100%	50%	100%	100%	1%
		Primary Pathway Minutes	5	5	10	5	10		6	15
		Additional Pathway Proportional	0%	100%	25%	50%	100%	100%	100%	50%
Time (minutes)	*Primary Pathway*	*Additional Pathway*								
Total	36.2	21.1								
Doctor/7/8	7.5	2.5			50%	50%				
Blend Nurse 7/8	0.1	0.0								50%
Blend all com SRH N2 - Dr										
Blend HA	0.1	0.0								50%
Blend Nurse 5/6/7/8	5.0	5.0		100%						
Blend Nurse 5/6	18.5	13.5			50%	50%	100%		100%	
Admin/clerical	5.0		100%							

Non-Staff Inputs Key code: *Consumables*, *Drugs*, *Equipment*, *Other*, *Pathology*, *Custom*

2	3	4	5	6	7	8
Cepheid Sample Collection Kit	KY Lubricant (2)	Bandages/ plasters	Blotting paper	HIV Serum test (4th Generation)	Letter notification (0.02)	Letter notification (0.05)
Sample Collection Instructions	Literature (STI) (3)	Blood tube	Gloves	Syphilis Immunosassy - Total antibody (IgG & IgM)	Phone call (0.03)	Phone call (0.05)
Urine Pot, sterile collection (0.5)	Male Condom (10)	Cotton Wool	Gram Stain		SMS Text message (0.95)	SMS Text message (0.9)
Cepheid PoC CT/GC Test		Gloves	Immersion oil			
		KY Lubricant	Loops			
		Lab Request form with bag	Microscope slide (qty 1)			
		Needle				
		Speculum (0.5)				
		Sterets/antiseptic wipe				
		Syringe 10ml Luer Slip Syringe				
		Transport tube				
		Vacutainer				

POC2 sexual health screen for symptomatic patients

PDF Options

Staff	Total Primary Cost (£)	Total Additional Cost (£)
Doctor/7/8	10.91	3.64
Blend Nurse 7/8	0.08	0.04
Blend all com SRH N2 - Dr		
Blend HA	0.08	0.04
Blend Nurse 5/6/7/8	4.46	4.46
Blend Nurse 5/6	13.88	10.13
Admin/clerical	2.64	0.00
Total	**32.04**	**18.30**

Non-Staff	Total Primary Cost (£)	Total Additional Cost (£)
Consumables	5.14	5.14
Drugs		
Equipment		
Other		
Pathology	47.28	47.28
Custom		
Total	**52.42**	**52.42**

Grand Total	**84.46**	**70.72**

Step Number	Step Name	Activity	Time (mins)	Type	Name	Cost (£)	Unit	Quantity	Total Primary Cost (£)	Additional	Total Additional Cost (£)
1	Register Meet + Greet	100%	5	Staff	Admin/clerical	£0.53	Minute	100%	£2.64	0%	£0.00
2	PoC Test + Review Results	100%	5	Staff	Blend Nurse 5/6/7/8	£0.89	Minute	100%	£4.46	100%	£4.46
2	PoC Test + Review Results	100%		Consumables	Cepheid Sample Collection Kit	£1.50	Item	1	£1.50	100%	£1.50
2	PoC Test + Review Results	100%		Consumables	Sample Collection Instructions	£0.05	Item	1	£0.05	100%	£0.05
2	PoC Test + Review Results	100%		Consumables	Urine Pot, sterile collection	£0.23	Item	0.5	£0.11	100%	£0.11
2	PoC Test + Review Results	100%		Pathology	Cepheid PoC CT/GC Test	£18.00	Sample	1	£18.00	100%	£18.00
3	Consultation	100%	10	Staff	Doctor/7/8	£1.45	Minute	50%	£7.27	25%	£1.82
3	Consultation	100%	10	Staff	Blend Nurse 5/6	£0.75	Minute	50%	£3.75	25%	£0.94
3	Consultation	100%		Consumables	KY Lubricant	£0.30	Application	2	£0.60	25%	£0.60
3	Consultation	100%		Consumables	Literature (STI)	£0.06	Item	3	£0.18	25%	£0.18
3	Consultation	100%		Consumables	Male Condom	£0.06	Item	10	£0.58	25%	£0.58
4	Examination + Blood tests	100%	5	Staff	Doctor/7/8	£1.45	Minute	50%	£3.64	50%	£1.82
4	Examination + Blood tests	100%	5	Staff	Blend Nurse 5/6	£0.75	Minute	50%	£1.88	50%	£0.94
4	Examination + Blood tests	100%		Consumables	Bandages/ plasters	£0.07	Item	1	£0.07	50%	£0.07
4	Examination + Blood tests	100%		Consumables	Blood tube	£0.12	Item	1	£0.12	50%	£0.12
4	Examination + Blood tests	100%		Consumables	Cotton Wool	£0.01	Item	1	£0.01	50%	£0.01
4	Examination + Blood tests	100%		Consumables	Gloves	£0.05	Pair	1	£0.05	50%	£0.05
4	Examination + Blood tests	100%		Consumables	KY Lubricant	£0.30	Application	1	£0.30	50%	£0.30
4	Examination + Blood tests	100%		Consumables	Lab Request form with bag	£0.10	Item	1	£0.10	50%	£0.10
4	Examination + Blood tests	100%		Consumables	Needle	£0.03	Item	1	£0.03	50%	£0.03
4	Examination + Blood tests	100%		Consumables	Speculum	£0.82	Item	0.5	£0.41	50%	£0.41
4	Examination + Blood tests	100%		Consumables	Sterets/antiseptic wipe	£0.02	Item	1	£0.02	50%	£0.02
4	Examination + Blood tests	100%		Consumables	Syringe 10ml Luer Slip Syringe	£0.11	Item	1	£0.11	50%	£0.11
4	Examination + Blood tests	100%		Consumables	Transport tube	£0.26	Item	1	£0.26	50%	£0.26
4	Examination + Blood tests	100%		Consumables	Vacutainer	£0.02	Item	1	£0.02	50%	£0.02
5	Microscopy	50%	10	Staff	Blend Nurse 5/6	£0.75	Minute	100%	£3.75	100%	£3.75
5	Microscopy	50%		Consumables	Blotting paper	£0.05	Item	1	£0.03	100%	£0.03
5	Microscopy	50%		Consumables	Gloves	£0.05	Pair	1	£0.02	100%	£0.02
5	Microscopy	50%		Consumables	Gram Stain	£0.20	Procedure	1	£0.10	100%	£0.10
5	Microscopy	50%		Consumables	Immersion oil	£0.02	Sample	1	£0.01	100%	£0.01
5	Microscopy	50%		Consumables	Loops	£0.60	Item	1	£0.30	100%	£0.30
5	Microscopy	50%		Consumables	Microscope slide (qty 1)	£0.07	Item	1	£0.04	100%	£0.04
6	Pathology	100%		Pathology	HIV Serum test (4th Generation)	12.78	Sample	1	£12.78	100%	£12.78
6	Pathology	100%		Pathology	Syphilis Immunosassy - Total antibody (IgG & IgM)	£16.50	Sample	1	£16.50	100%	£16.50
7	Results Management	100%	6	Staff	Blend Nurse 5/6	£0.75	Minute	100%	£4.50	100%	£4.50
7	Results Management	100%		Consumables	Letter notification	£0.58	Item	0.02	£0.01	100%	£0.01
7	Results Management	100%		Consumables	Phone call	£0.07	Minute	0.03	£0.00	100%	£0.00
7	Results Management	100%		Consumables	SMS Text message	£0.10	Item	0.95	£0.10	100%	£0.10
8	Contact Pos. + Equiv.	1%	15	Staff	Blend Nurse 7/8	£1.10	Minute	50%	£0.08	50%	£0.04
8	Contact Pos. + Equiv.	1%	15	Staff	Blend HA	£1.03	Minute	50%	£0.08	50%	£0.04
8	Contact Pos. + Equiv.	1%		Consumables	Letter notification	£0.58	Item	0.05	£0.00	50%	£0.00
8	Contact Pos. + Equiv.	1%		Consumables	Phone call	£0.07	Minute	0.05	£0.00	50%	£0.00
8	Contact Pos. + Equiv.	1%		Consumables	SMS Text message	£0.10	Item	0.9	£0.00	50%	£0.00

PATHWAY

Pathway Name: Rapid sexual health screening for asymptomatic patients

Build Detail

	Step Number	1	2	3	4	5
	Step Name	Register Meet + Greet	Blood Test + Consultation	Pathology	Results Management	Contact Pos. + Equiv.
	Activity	100%	100%	100%	100%	1%
	Primary Pathway Minutes	5	10		6	15
	Additional Pathway Proportional	0%	50%	100%	100%	50%
Time (minutes)	*Primary Pathway*	*Additional Pathway*				
Total	21.2	11.1				
Doctor/7/8						
Blend Nurse 7/8	0.1	0.0				50%
Blend all com SRH N2 - D	10.0	5.0	100%			
Blend HA	0.1	0.0				50%
Blend Nurse 5/6/7/8						
Blend Nurse 5/6	6.0	6.0			100%	
Admin/clerical	5.0		100%			

Non-Staff Inputs Key code:

Consumables
Drugs
Equipment
Other
Pathology
Custom

Blood Test + Consultation	Pathology	Results Management	Contact Pos. + Equiv.
Bandages/ plasters	Clamydia & Gonorrhoea NAAT	Letter notification (0.02)	Letter notification (0.05)
Blood tube	HIV Serum test (4th Generation)	Phone call (0.03)	Phone Call (0.05)
Cotton Wool	Syphilis Immunosassy - Total antibody (IgG & IgM)	SMS Text message (0.95)	SMS Text message (0.9)
Gloves			
KY Lubricant (2)			
Lab Request form with bag			
Literature (STI) (3)			
Male Condom (10)			
Needle			
Sample Collection Instructions			
Sterets/antiseptic wipe			
Syringe 10ml Luer Slip Syringe			
Transport tube			
Urine Pot, sterile collection (0.7)			
Vacutainer			
Vulvo-vaginal swab (0.3)			

Rapid sexual health screening for asymptomatic patients

PDF Options

Staff	Total Primary Cost (£)	Total Additional Cost (£)
Doctor/7/8		
Blend Nurse 7/8	0.08	0.04
Blend all com SRH N2 - Dr	10.55	5.28
Blend HA	0.08	0.04
Blend Nurse 5/6/7/8		
Blend Nurse 5/6	4.50	4.50
Admin/clerical	2.64	0.00
Total	**17.85**	**9.86**

Non-Staff	Total Primary Cost (£)	Total Additional Cost (£)
Consumables	2.53	2.53
Drugs		
Equipment		
Other		
Pathology	41.79	41.79
Custom		
Total	**44.32**	**44.32**
Grand Total	**62.16**	**54.17**

Step Number	Step Name	Activity	Time (mins)	Type	Name	Cost (£)	Unit	Quantity	Total Primary Cost (£)	Additional	Total Additional Cost (£)
1	Register Meet + Greet	100%	5	Staff	Admin/clerical	£0.53	Minute	100%	£2.64	0%	£0.00
2	Blood Test + Consultation	100%	10	Staff	Blend all com SRH N2 - Dr	£1.06	Minute	100%	£10.55	50%	£5.28
2	Blood Test + Consultation	100%		Consumables	Bandages/ plasters	£0.07	Item	1	£0.07	50%	£0.07
2	Blood Test + Consultation	100%		Consumables	Blood tube	£0.12	Item	1	£0.12	50%	£0.12
2	Blood Test + Consultation	100%		Consumables	Cotton Wool	£0.01	Item	1	£0.01	50%	£0.01
2	Blood Test + Consultation	100%		Consumables	Gloves	£0.05	Pair	1	£0.05	50%	£0.05
2	Blood Test + Consultation	100%		Consumables	KY Lubricant	£0.30	Application	2	£0.60	50%	£0.60
2	Blood Test + Consultation	100%		Consumables	Lab Request form with bag	£0.10	Item	1	£0.10	50%	£0.10
2	Blood Test + Consultation	100%		Consumables	Literature (STI)	£0.06	Item	3	£0.18	50%	£0.18
2	Blood Test + Consultation	100%		Consumables	Male Condom	£0.06	Item	10	£0.58	50%	£0.58
2	Blood Test + Consultation	100%		Consumables	Needle	£0.03	Item	1	£0.03	50%	£0.03
2	Blood Test + Consultation	100%		Consumables	Sample Collection Instructions	£0.05	Item	1	£0.05	50%	£0.05
2	Blood Test + Consultation	100%		Consumables	Sterets/antiseptic wipe	£0.02	Item	1	£0.02	50%	£0.02
2	Blood Test + Consultation	100%		Consumables	Syringe 10ml Luer Slip Syringe	£0.11	Item	1	£0.11	50%	£0.11
2	Blood Test + Consultation	100%		Consumables	Transport tube	£0.26	Item	1	£0.26	50%	£0.26
2	Blood Test + Consultation	100%		Consumables	Urine Pot, sterile collection	£0.23	Item	0.7	£0.16	50%	£0.16
2	Blood Test + Consultation	100%		Consumables	Vacutainer	£0.02	Item	1	£0.02	50%	£0.02
2	Blood Test + Consultation	100%		Consumables	Vulvo-vaginal swab	£0.16	Sample	0.3	£0.05	50%	£0.05
3	Pathology	100%		Pathology	Clamydia & Gonorrhoea NAAT	£12.51	Sample	1	£12.51	100%	£12.51
3	Pathology	100%		Pathology	HIV Serum test (4th Generation)	£12.78	Sample	1	£12.78	100%	£12.78
3	Pathology	100%		Pathology	Syphilis Immunosassy - Total antibody (IgG & IgM)	£16.50	Sample	1	£16.50	100%	£16.50
4	Results Management	100%	6	Staff	Blend Nurse 5/6	£0.75	Minute	100%	£4.50	100%	£4.50
4	Results Management	100%		Consumables	Letter notification	£0.58	Item	0.02	£0.01	100%	£0.01
4	Results Management	100%		Consumables	Phone call	£0.07	Minute	0.03	£0.00	100%	£0.00
4	Results Management	100%		Consumables	SMS Text message	£0.10	Item	0.95	£0.10	100%	£0.10
5	Contact Pos. + Equiv.	1%	15	Staff	Blend Nurse 7/8	£1.10	Minute	50%	£0.08	50%	£0.04
5	Contact Pos. + Equiv.	1%	15	Staff	Blend HA	£1.03	Minute	50%	£0.08	50%	£0.04
5	Contact Pos. + Equiv.	1%		Consumables	Letter notification	£0.58	Item	0.05	£0.00	50%	£0.00
5	Contact Pos. + Equiv.	1%		Consumables	Phone Call	£0.07	Minute	0.05	£0.00	50%	£0.00
5	Contact Pos. + Equiv.	1%		Consumables	SMS Text message	£0.10	Item	0.90	£0.00	50%	£0.00

PATHWAY

Pathway Name: Current self-service pathways for asymptomatic patients

Build Detail

		Primary Pathway	Additional Pathway	1	2	3	4	5
	Step Number			1	2	3	4	5
	Step Name			**Prep kits for machine**	**Process Sample**	**Pathology**	**Results Management**	**Contact Pos. + Equiv.**
	Activity			100%	100%	100%	90%	10%
	Primary Pathway Minutes			3	5	0	6	15
	Additional Pathway Proportional			100%	100%	100%	100%	50%
Time (minutes)								
Total		**14.9**	**14.2**					
Doctor/7/8								
Blend Nurse 7/8								
Blend all com SRH N2 - Dr								
Blend HA								
Blend Nurse 5/6/7/8		**1.5**	**0.8**					**100%**
Blend Nurse 5/6		**5.4**	**5.4**				**100%**	
Admin/clerical		**8.0**	**8.0**	**100%**	**100%**			
Non-Staff Inputs Key code:	*Consumables*			KY Lubricant (2)		Clamydia & Gonorrhoea NAAT	Letter notification (0.05)	Letter notification (0.05)
	Drugs			Literature (STI) (3)			Phone call (0.03)	Phone call (0.05)
	Equipment			Male Condom (10)			SMS Text message (0.95)	SMS Text message (0.9)
	Other			Sample Collection Instructions				
	Pathology			Urine Pot, sterile collection (0.5)				
	Custom			Urine Specimen Container (PCR Tube and Pipette) (0.5)				
				Vulvo-vaginal swab (0.5)				

Current self-service pathways for asymptomatic patients

PDF Options

Staff	Total Primary Cost (£)	Total Additional Cost (£)
Doctor/7/8		
Blend Nurse 7/8		
Blend all com SRH N2 - Dr		
Blend HA		
Blend Nurse 5/6/7/8	1.34	0.67
Blend Nurse 5/6	4.05	4.05
Admin/clerical	4.22	4.22
Total	**9.61**	**8.94**

Non-Staff	Total Primary Cost (£)	Total Additional Cost (£)
Consumables	2.25	2.25
Drugs		
Equipment		
Other		
Pathology	12.51	12.51
Custom		
Total	**14.76**	**14.76**

Grand Total	**24.37**	**23.70**

Step Number	Step Name	Activity	Time (mins)	Type	Name	Cost (£)	Unit	Quantity	Total Primary Cost (£)	Additional	Total Additional Cost (£)
1	Prep kits for machine	100%	3	Staff	Admin/clerical	£0.53	Minute	100%	£1.58	100%	£1.58
1	Prep kits for machine	100%		Consumables	KY Lubricant	£0.30	Application	2	£0.60	100%	£0.60
1	Prep kits for machine	100%		Consumables	Literature (STI)	£0.06	Item	3	£0.18	100%	£0.18
1	Prep kits for machine	100%		Consumables	Male Condom	£0.06	Item	10	£0.58	100%	£0.58
1	Prep kits for machine	100%		Consumables	Sample Collection Instructions	£0.05	Item	1	£0.05	100%	£0.05
1	Prep kits for machine	100%		Consumables	Urine Pot, sterile collection	£0.23	Item	0.5	£0.11	100%	£0.11
1	Prep kits for machine	100%		Consumables	Urine Specimen Container (PCR Tube and Pipette)	£1.04	Item	0.5	£0.52	100%	£0.52
1	Prep kits for machine	100%		Consumables	Vulvo-vaginal swab	£0.16	Sample	0.5	£0.08	100%	£0.08
2	Process Sample	100%	5	Staff	Admin/clerical	£0.53	Minute	100%	£2.64	100%	£2.64
3	Pathology	100%		Pathology	Clamydia & Gonorrhoea NAAT	£12.51	Sample	1	£12.51	100%	£12.51
4	Results Management	90%	6	Staff	Blend Nurse 5/6	£0.75	Minute	100%	£4.05	100%	£4.05
4	Results Management	90%		Consumables	Letter notification	£0.58	Item	0.05	£0.03	100%	£0.03
4	Results Management	90%		Consumables	Phone call	£0.07	Minute	0.03	£0.00	100%	£0.00
4	Results Management	90%		Consumables	SMS Text message	£0.10	Item	0.95	£0.09	100%	£0.09
5	Contact Pos. + Equiv.	10%	15	Staff	Blend Nurse 5/6/7/8	£0.89	Minute	100%	£1.34	50%	£0.67
5	Contact Pos. + Equiv.	10%		Consumables	Letter notification	£0.58	Item	0.05	£0.00	50%	£0.00
5	Contact Pos. + Equiv.	10%		Consumables	Phone call	£0.07	Minute	0.05	£0.00	50%	£0.00
5	Contact Pos. + Equiv.	10%		Consumables	SMS Text message	£0.10	Item	0.9	£0.01	50%	£0.01

PATHWAY

Pathway Name:	**POC self-service pathways for asyptomatic patients**

Build Detail

		Step Number	1	2	3	4
		Step Name	**Prep kits for machine**	**PoC Test + Review Results**	**Results Management**	**Contact Pos. + Equiv.**
		Activity	100%	100%	90%	10%
		Primary Pathway Minutes	3	5	6	15
		Additional Pathway Proportional	100%	100%	100%	50%
Time (minutes)		*Primary Pathway*	*Additional Pathway*			
Total		**14.9**	**14.2**			
Doctor/7/8						
Blend Nurse 7/8						
Blend all com SRH N2 - Dr						
Blend HA						
Blend Nurse 5/6/7/8		**6.5**	**5.8**	**100%**		**100%**
Blend Nurse 5/6		**5.4**	**5.4**		**100%**	
Admin/clerical		**3.0**	**3.0**	**100%**		
Non-Staff Inputs Key code:	*Consumables*	Cepheid Sample Collection Kit	Cepheid PoC CT/GC Test	SMS Text message	Letter notification (0.05)
	Drugs	KY Lubricant (2)			Phone call (0.05)
	Equipment	Literature (STI) (3)			SMS Text message (0.9)
	Other	Male Condom (10)			
	Pathology	Sample Collection Instructions			
	Custom	Urine Pot, sterile collection (0.7)			

POC self-service pathways for asyptomatic patients

PDF Options

Staff	Total Primary Cost (£)	Total Additional Cost (£)
Doctor/7/8		
Blend Nurse 7/8		
Blend all com SRH N2 - Dr		
Blend HA		
Blend Nurse 5/6/7/8	5.80	5.13
Blend Nurse 5/6	4.05	4.05
Admin/clerical	1.58	1.58
Total	**11.43**	**10.76**

Non-Staff	Total Primary Cost (£)	Total Additional Cost (£)
Consumables	3.17	3.17
Drugs		
Equipment		
Other		
Pathology	18.00	18.00
Custom		
Total	**21.17**	**21.17**

Grand Total	**32.60**	**31.94**

Step Number	Step Name	Activity		Time (mins)	Type	Name	Cost (£)	Unit	Quantity	Total Primary Cost (£)	Additional	Total Additional Cost (£)
1	Prep kits for machine		100%	3	Staff	Admin/clerical	£0.53	Minute	100%	£1.58	100%	£1.58
1	Prep kits for machine		100%		Consumables	Cepheid Sample Collection Kit	£1.50	Item	1	£1.50	100%	£1.50
1	Prep kits for machine		100%		Consumables	KY Lubricant	£0.30	Application	2	£0.60	100%	£0.60
1	Prep kits for machine		100%		Consumables	Literature (STI)	£0.06	Item	3	£0.18	100%	£0.18
1	Prep kits for machine		100%		Consumables	Male Condom	£0.06	Item	10	£0.58	100%	£0.58
1	Prep kits for machine		100%		Consumables	Sample Collection Instructions	£0.05	Item	1	£0.05	100%	£0.05
1	Prep kits for machine		100%		Consumables	Urine Pot, sterile collection	£0.23	Item	0.7	£0.16	100%	£0.16
2	PoC Test + Review Results		100%	5	Staff	Blend Nurse 5/6/7/8	£0.89	Minute	100%	£4.46	100%	£4.46
2	PoC Test + Review Results		100%		Pathology	Cepheid PoC CT/GC Test	£18.00	Sample	1	£18.00	100%	£18.00
3	Results Management		90%	6	Staff	Blend Nurse 5/6	£0.75	Minute	100%	£4.05	100%	£4.05
3	Results Management		90%		Consumables	SMS Text message	£0.10	Item	1	£0.09	100%	£0.09
4	Contact Pos. + Equiv.		10%	15	Staff	Blend Nurse 5/6/7/8	£0.89	Minute	100%	£1.34	50%	£0.67
4	Contact Pos. + Equiv.		10%		Consumables	Letter notification	£0.58	Item	0.05	£0.00	50%	£0.00
4	Contact Pos. + Equiv.		10%		Consumables	Phone call	£0.07	Minute	0.05	£0.00	50%	£0.00
4	Contact Pos. + Equiv.		10%		Consumables	SMS Text message	£0.10	Item	0.9	£0.01	50%	£0.01

PATHWAY

Pathway Name: Chlamydia treatment

Build Detail

	Step Number	1	2	3	4	5
	Step Name	Register Meet + Greet	Results	Treatment	Partner Notification	Supported Partner Notification
	Activity	100%	100%	100%	100%	10%
	Primary Pathway Minutes	5	5	6	6	15
	Additional Pathway Proportional	0%	0%	100%	100%	100%
Time (minutes)	*Primary Pathway*	*Additional Pathway*				
Total	23.5	13.5				
Doctor/7/8	17.0	12.0	100%	100%	100%	
Blend Nurse 7/8						
Blend all com SRH N2 - Dr						
Blend HA	1.5	1.5				100%
Blend Nurse 5/6/7/8						
Blend Nurse 5/6						
Admin/clerical	5.0		100%			

Non-Staff Inputs Key code: *Consumables*, *Drugs*, *Equipment*, *Other*, *Pathology*

KY Lubricant (2)	PN slip (3)	Phone call (15)
Literature (STI) (3)		
Male Condom (10)		
Azithromycin (1000 mg) (95%)		
Doxycycline (100mg capsules * 14) (5%)		

Chlamydia treatment

PDF Options

Staff	Total Primary Cost (£)	Total Additional Cost (£)
Doctor/7/8	24.72	17.45
Blend Nurse 7/8		
Blend all com SRH N2 - Dr		
Blend HA	1.55	1.55
Blend Nurse 5/6/7/8		
Blend Nurse 5/6		
Admin/clerical	2.64	0.00
Total	**28.90**	**18.99**

Non-Staff	Total Primary Cost (£)	Total Additional Cost (£)
Consumables	1.62	1.62
Drugs	4.38	4.38
Equipment		
Other		
Pathology		
Custom		
Total	**6.00**	**6.00**

Grand Total	**34.89**	**24.99**

Step Number	Step Name	Activity	Time (mins)	Type	Name	Cost (£)	Unit	Quantity	Total Primary Cost (£)	Additional	Total Additional Cost (£)
1	Register Meet + Greet	100%	5	Staff	Admin/clerical	£0.53	Minute	100%	£2.64	0%	£0.00
2	Results	100%	5	Staff	Doctor/7/8	£1.45	Minute	100%	£7.27	0%	£0.00
3	Treatment	100%	6	Staff	Doctor/7/8	£1.45	Minute	100%	£8.72	100%	£8.72
3	Treatment	100%		Consumables	KY Lubricant	£0.30	Application	2	£0.60	100%	£0.60
3	Treatment	100%		Consumables	Literature (STI)	£0.06	Item	3	£0.18	100%	£0.18
3	Treatment	100%		Consumables	Male Condom	£0.06	Item	10	£0.58	100%	£0.58
3	Treatment	100%		Drugs	Azithromycin (1000 mg)	£4.50	Treatment Course	95%	£4.28	100%	£4.28
3	Treatment	100%		Drugs	Doxycycline (100mg capsules * 14)	£2.03	Treatment Course	5%	£0.10	100%	£0.10
4	Partner Notification	100%	6	Staff	Doctor/7/8	£1.45	Minute	100%	£8.72	100%	£8.72
4	Partner Notification	100%		Consumables	PN slip	£0.05	Item	3	£0.16	100%	£0.16
5	Supported Partner Notification	10%	15	Staff	Blend HA	£1.03	Minute	100%	£1.55	100%	£1.55
5	Supported Partner Notification	10%		Consumables	Phone call	£0.07	Minute	15	£0.11	100%	£0.11

PATHWAY

Pathway Name: Gonorrhoea treatment 1st visit

Build Detail

	Step Number	1	2	3	4	5	6
	Step Name	Register Meet + Greet	Examination + Tests	Treatment	Health Promotion + PN	Pathology	Supported Partner Notification
	Activity	100%	100%	100%	100%	100%	20%
	Primary Pathway Minutes	5	10	20	10		30
	Additional Pathway Proportional	0%	100%	100%	50%	100%	50%
Time (minutes)	*Primary Pathway* / *Additional Pathway*						
Total	51.0 / 38.0						
Doctor/7/8	10.0 / 10.0		100%				
Blend Nurse 7/8							
Blend all com SRH N2 - Dr							
Blend HA	6.0 / 3.0						100%
Blend Nurse 5/6/7/8	30.0 / 25.0			100%	100%		
Blend Nurse 5/6							
Admin/clerical	5.0	100%					

Non-Staff Inputs Key code:						
Consumables	Culture plate	Needle	KY Lubricant (2)	GC Culture/typing - lab processing	Phone call (30)	
Drugs	Culture swab- GC	Azithromycin (1000 mg)	Literature (STI) (3)			
Equipment	Gloves	Ceftriaxone (500 mg)	Male Condom (10)			
Other	KY Lubricant		PN slip (3)			
Pathology	Speculum (0.5)					
Custom	Swab					

Gonorrhoea treatment 1st visit

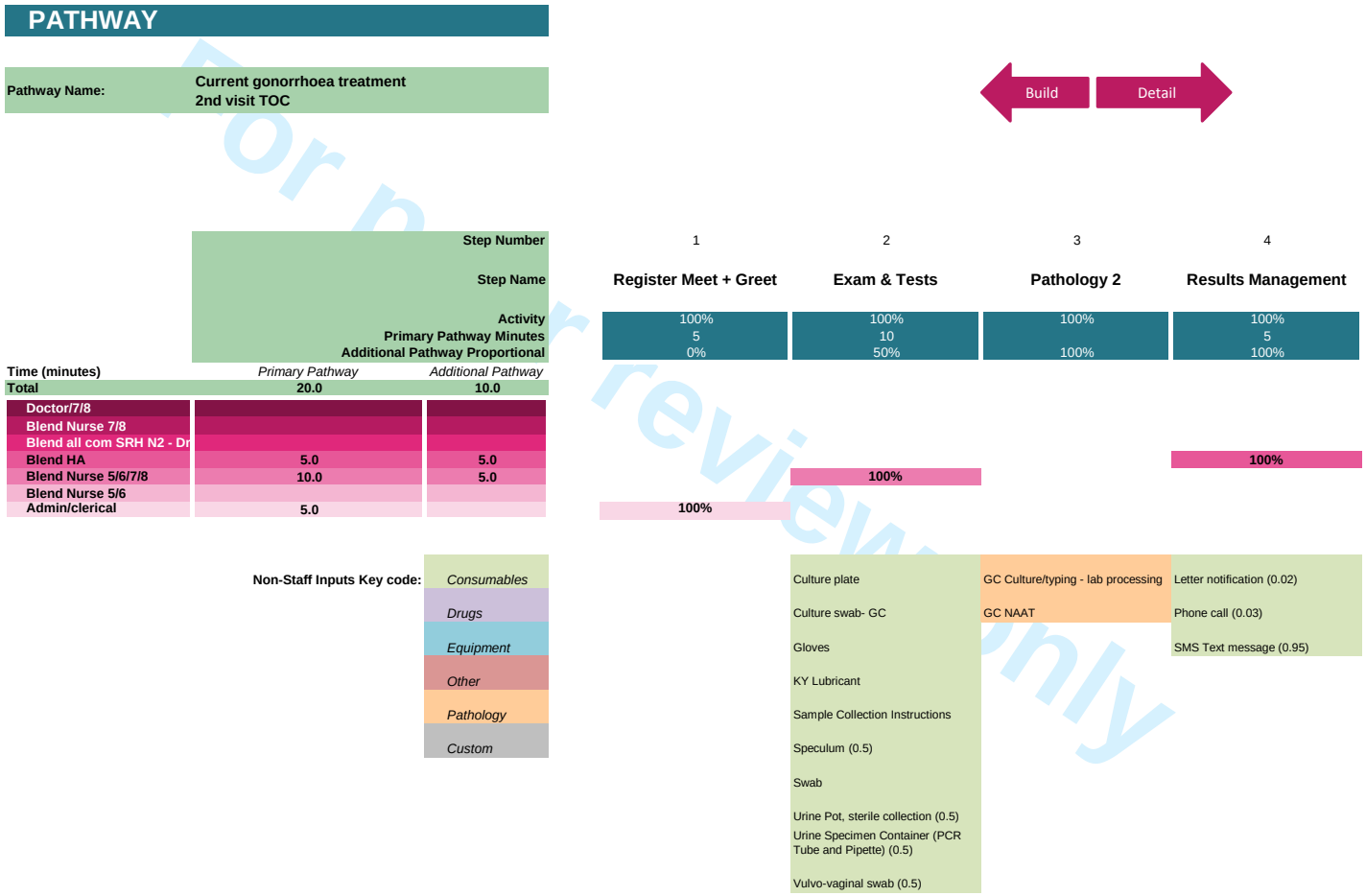
PDF Options

Staff	Total Primary Cost (£)	Total Additional Cost (£)
Doctor/7/8	14.54	14.54
Blend Nurse 7/8		
Blend all com SRH N2 - Dr		
Blend HA	6.18	3.09
Blend Nurse 5/6/7/8	26.76	22.30
Blend Nurse 5/6		
Admin/clerical	2.64	0.00
Total	**50.12**	**39.93**

Non-Staff	Total Primary Cost (£)	Total Additional Cost (£)
Consumables	4.81	4.81
Drugs	9.59	9.59
Equipment		
Other		
Pathology	7.55	7.55
Custom		
Total	**21.95**	**21.95**

Grand Total	**72.07**	**61.88**

Step Number	Step Name	Activity	Time (mins)	Type	Name	Cost (£)	Unit	Quantity	Total Primary Cost (£)	Additional	Total Additional Cost (£)
1	Register Meet + Greet	100%	5	Staff	Admin/clerical	£0.53	Minute	100%	£2.64	0%	£0.00
2	Examination + Tests	100%	10	Staff	Doctor/7/8	£1.45	Minute	100%	£14.54	100%	£14.54
2	Examination + Tests	100%		Consumables	Culture plate	£1.04	Item	1	£1.04	100%	£1.04
2	Examination + Tests	100%		Consumables	Culture swab- GC	£1.04	Item	1	£1.04	100%	£1.04
2	Examination + Tests	100%		Consumables	Gloves	£0.05	Pair	1	£0.05	100%	£0.05
2	Examination + Tests	100%		Consumables	KY Lubricant	£0.30	Application	1	£0.30	100%	£0.30
2	Examination + Tests	100%		Consumables	Speculum	£0.82	Item	0.5	£0.41	100%	£0.41
2	Examination + Tests	100%		Consumables	Swab	£0.02	Item	1	£0.02	100%	£0.02
3	Treatment	100%	20	Staff	Blend Nurse 5/6/7/8	£0.89	Minute	100%	£17.84	100%	£17.84
3	Treatment	100%		Consumables	Needle	£0.03	Item	1	£0.03	100%	£0.03
3	Treatment	100%		Drugs	Azithromycin (1000 mg)	£4.50	Treatment Course	1	£4.50	100%	£4.50
3	Treatment	100%		Drugs	Ceftriaxone (500 mg)	£5.09	Treatment Course	1	£5.09	100%	£5.09
4	Health Promotion + PN	100%	10	Staff	Blend Nurse 5/6/7/8	£0.89	Minute	100%	£8.92	50%	£4.46
4	Health Promotion + PN	100%		Consumables	KY Lubricant	£0.30	Application	2	£0.60	50%	£0.60
4	Health Promotion + PN	100%		Consumables	Literature (STI)	£0.06	Item	3	£0.18	50%	£0.18
4	Health Promotion + PN	100%		Consumables	Male Condom	£0.06	Item	10	£0.58	50%	£0.58
4	Health Promotion + PN	100%		Consumables	PN slip	£0.05	Item	3	£0.16	50%	£0.16
5	Pathology	100%		Pathology	GC Culture/typing - lab processing	£7.55	Sample	1	£7.55	100%	£7.55
6	Supported Partner Notification	20%	30	Staff	Blend HA	£1.03	Minute	100%	£6.18	50%	£3.09
6	Supported Partner Notification	20%		Consumables	Phone call	£0.07	Minute	30	£0.42	50%	£0.42



Current gonorrhoea treatment 2nd visit TOC

PDF Options

Staff	Total Primary Cost (£)	Total Additional Cost (£)
Doctor/7/8		
Blend Nurse 7/8		
Blend all com SRH N2 - Dr		
Blend HA	5.15	5.15
Blend Nurse 5/6/7/8	8.92	4.46
Blend Nurse 5/6		
Admin/clerical	2.64	0.00
Total	**16.71**	**9.61**

Non-Staff	Total Primary Cost (£)	Total Additional Cost (£)
Consumables	3.72	3.72
Drugs		
Equipment		
Other		
Pathology	19.55	19.55
Custom		
Total	**23.27**	**23.27**

Grand Total	**39.98**	**32.89**

Step Number	Step Name	Activity	Time (mins)	Type	Name	Cost (£)	Unit	Quantity	Total Primary Cost (£)	Additional	Total Additional Cost (£)
1	Register Meet + Greet	100%	5	Staff	Admin/clerical	£0.53	Minute	100%	£2.64	0%	£0.00
2	Exam & Tests	100%	10	Staff	Blend Nurse 5/6/7/8	£0.89	Minute	100%	£8.92	50%	£4.46
2	Exam & Tests	100%		Consumables	Culture plate	£1.04	Item	1	£1.04	50%	£1.04
2	Exam & Tests	100%		Consumables	Culture swab- GC	£1.04	Item	1	£1.04	50%	£1.04
2	Exam & Tests	100%		Consumables	Gloves	£0.05	Pair	1	£0.05	50%	£0.05
2	Exam & Tests	100%		Consumables	KY Lubricant	£0.30	Application	1	£0.30	50%	£0.30
2	Exam & Tests	100%		Consumables	Sample Collection Instructions	£0.05	Item	1	£0.05	50%	£0.05
2	Exam & Tests	100%		Consumables	Speculum	£0.82	Item	0.5	£0.41	50%	£0.41
2	Exam & Tests	100%		Consumables	Swab	£0.02	Item	1	£0.02	50%	£0.02
2	Exam & Tests	100%		Consumables	Urine Pot, sterile collection	£0.23	Item	0.5	£0.11	50%	£0.11
2	Exam & Tests	100%		Consumables	Urine Specimen Container (PCR Tube and Pipette)	£1.04	Item	0.5	£0.52	50%	£0.52
2	Exam & Tests	100%		Consumables	Vulvo-vaginal swab	£0.16	Sample	0.5	£0.08	50%	£0.08
3	Pathology 2	100%		Pathology	GC Culture/typing - lab processing	£7.55	Sample	1	£7.55	100%	£7.55
3	Pathology 2	100%		Pathology	GC NAAT	£12.00	Sample	1	£12.00	100%	£12.00
4	Results Management	100%	5	Staff	Blend HA	£1.03	Minute	100%	£5.15	100%	£5.15
4	Results Management	100%		Consumables	Letter notification	£0.58	Item	0.02	£0.01	100%	£0.01
4	Results Management	100%		Consumables	Phone call	£0.07	Minute	0.03	£0.00	100%	£0.00
4	Results Management	100%		Consumables	SMS Text message	£0.10	Item	0.95	£0.10	100%	£0.10

PATHWAY

Pathway Name:	POC gonorrhoea treatment 2nd visit TOC

Build → Detail

		Step Number	1	2	3	4
		Step Name	Register Meet + Greet	Exam & Tests	Pathology 2	Results Management
		Activity	100%	100%	100%	100%
		Primary Pathway Minutes	5	10	0	5
		Additional Pathway Proportional	0%	50%	100%	100%
Time (minutes)	*Primary Pathway*	*Additional Pathway*				
Total	20.0	10.0				
Doctor/7/8						
Blend Nurse 7/8						
Blend all com SRH N2 - Dr						
Blend HA	5.0	5.0				100%
Blend Nurse 5/6/7/8	10.0	5.0		100%		
Blend Nurse 5/6						
Admin/clerical	5.0		100%			

Non-Staff Inputs Key code:			
Consumables	Culture plate	Cepheid PoC CT/GC Test
Drugs	Culture swab- GC	GC Culture/typing - lab processing
Equipment	Gloves	
Other	KY Lubricant	
Pathology	Sample Collection Instructions	
Custom	Speculum (0.5)	
	Swab	
	Urine Pot, sterile collection (0.5)	
	Urine Specimen Container (PCR Tube and Pipette) (0.5)	
	Vulvo-vaginal swab (0.5)	

POC gonorrhoea treatment 2nd visit TOC

PDF Options

Staff	Total Primary Cost (£)	Total Additional Cost (£)
Doctor/7/8		
Blend Nurse 7/8		
Blend all com SRH N2 - Dr		
Blend HA	5.15	5.15
Blend Nurse 5/6/7/8	8.92	4.46
Blend Nurse 5/6		
Admin/clerical	2.64	0.00
Total	**16.71**	**9.61**

Non-Staff	Total Primary Cost (£)	Total Additional Cost (£)
Consumables	3.61	3.61
Drugs		
Equipment		
Other		
Pathology	25.55	25.55
Custom		
Total	**29.16**	**29.16**

Grand Total	**45.87**	**38.77**

Step Number	Step Name	Activity	Time (mins)	Type	Name	Cost (£)	Unit	Quantity	Total Primary Cost (£)	Additional	Total Additional Cost (£)
1	Register Meet + Greet	100%	5	Staff	Admin/clerical	£0.53	Minute	100%	£2.64	0%	£0.00
2	Exam & Tests	100%	10	Staff	Blend Nurse 5/6/7/8	£0.89	Minute	100%	£8.92	50%	£4.46
2	Exam & Tests	100%		Consumables	Culture plate	£1.04	Item	1	£1.04	50%	£1.04
2	Exam & Tests	100%		Consumables	Culture swab- GC	£1.04	Item	1	£1.04	50%	£1.04
2	Exam & Tests	100%		Consumables	Gloves	£0.05	Pair	1	£0.05	50%	£0.05
2	Exam & Tests	100%		Consumables	KY Lubricant	£0.30	Application	1	£0.30	50%	£0.30
2	Exam & Tests	100%		Consumables	Sample Collection Instructions	£0.05	Item	1	£0.05	50%	£0.05
2	Exam & Tests	100%		Consumables	Speculum	£0.82	Item	0.5	£0.41	50%	£0.41
2	Exam & Tests	100%		Consumables	Swab	£0.02	Item	1	£0.02	50%	£0.02
2	Exam & Tests	100%		Consumables	Urine Pot, sterile collection	£0.23	Item	0.5	£0.11	50%	£0.11
2	Exam & Tests	100%		Consumables	Urine Specimen Container (PCR Tube and Pipette)	£1.04	Item	0.5	£0.52	50%	£0.52
2	Exam & Tests	100%		Consumables	Vulvo-vaginal swab	£0.16	Sample	0.5	£0.08	50%	£0.08
3	Pathology 2	100%		Pathology	Cepheid PoC CT/GC Test	£18.00	Sample	1	£18.00	100%	£18.00
3	Pathology 2	100%		Pathology	GC Culture/typing - lab processing	£7.55	Sample	1	£7.55	100%	£7.55
4	Results Management	100%	5	Staff	Blend HA	£1.03	Minute	100%	£5.15	100%	£5.15

PATHWAY

Pathway Name:	Gonorrhoea follow up visit for second line treatment after failure of initial treatment

	Step Number	1	2	3	4
	Step Name	Register Meet + Greet	Examination	Treatment	Health Promotion + PN
	Activity	100%	100%	100%	100%
	Primary Pathway Minutes	5	10	10	10
	Additional Pathway Proportional	0%	100%	100%	50%
Time (minutes)	*Primary Pathway*	*Additional Pathway*			
Total	35.0	25.0			
Doctor/7/8	10.0	10.0		100%	
Blend Nurse 7/8					
Blend all com SRH N2 - Dr					
Blend HA					
Blend Nurse 5/6/7/8	20.0	15.0			100% 100%
Blend Nurse 5/6					
Admin/clerical	5.0		100%		
Non-Staff Inputs Key code:	*Consumables*		Gloves	Azithromycin (1000 mg)	KY Lubricant (2)
	Drugs		KY Lubricant	Cefixime	Literature (STI) (3)
	Equipment		Speculum (0.5)		Male Condom (10)
	Other				PN slip (3)

Gonorrhoea follow up visit for second line treatment after failure of initial treatment

PDF Options

Staff	Total Primary Cost (£)	Total Additional Cost (£)
Doctor/7/8	14.54	14.54
Blend Nurse 7/8		
Blend all com SRH N2 - Dr		
Blend HA		
Blend Nurse 5/6/7/8	17.84	13.38
Blend Nurse 5/6		
Admin/clerical	2.64	0.00
Total	**35.02**	**27.92**

Non-Staff	Total Primary Cost (£)	Total Additional Cost (£)
Consumables	2.27	2.27
Drugs	3.78	3.78
Equipment		
Other		
Pathology		
Custom		
Total	**6.05**	**6.05**

Grand Total	**41.07**	**33.97**

Step Number	Step Name	Activity	Time (mins)	Type	Name	Cost (£)	Unit	Quantity	Total Primary Cost (£)	Additional	Total Additional Cost (£)
1	Register Meet + Greet	100%	5	Staff	Admin/clerical	£0.53	Minute	100%	£2.64	0%	£0.00
2	Examination	100%	10	Staff	Doctor/7/8	£1.45	Minute	100%	£14.54	100%	£14.54
2	Examination	100%		Consumables	Gloves	£0.05	Pair	1	£0.05	100%	£0.05
2	Examination	100%		Consumables	KY Lubricant	£0.30	Application	1	£0.30	100%	£0.30
2	Examination	100%		Consumables	Speculum	£0.82	Item	0.5	£0.41	100%	£0.41
3	Treatment	100%	10	Staff	Blend Nurse 5/6/7/8	£0.89	Minute	100%	£8.92	100%	£8.92
3	Treatment	100%		Drugs	Azithromycin (1000 mg)		Treatment Course	1	£0.00	100%	£0.00
3	Treatment	100%		Drugs	Cefixime	£3.78	Treatment Course	1	£3.78	100%	£3.78
4	Health Promotion + PN	100%	10	Staff	Blend Nurse 5/6/7/8	£0.89	Minute	100%	£8.92	50%	£4.46
4	Health Promotion + PN	100%		Consumables	KY Lubricant	£0.30	Application	2	£0.60	50%	£0.60
4	Health Promotion + PN	100%		Consumables	Literature (STI)	£0.06	Item	3	£0.18	50%	£0.18
4	Health Promotion + PN	100%		Consumables	Male Condom	£0.06	Item	10	£0.58	50%	£0.58
4	Health Promotion + PN	100%		Consumables	PN slip	£0.05	Item	3	£0.16	50%	£0.16