

ORIGINAL ARTICLE

How is the high vaginal swab used to investigate vaginal discharge in primary care and how do GPs' expectations of the test match the tests performed by their microbiology services?

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Objectives: To describe the management of vaginal discharge in general practice, with particular regard to the use of the high vaginal swab (HVS), and to compare GPs' expectations of this test with the processing and reporting undertaken by different laboratories.

Methods: A postal questionnaire survey of 2146 GPs in the North Thames area and postal questionnaire study of the 22 laboratories serving the same GPs were carried out. GPs were asked how they would manage a young woman with vaginal discharge and what information they would like on an HVS report. Laboratories were asked how they would process and report on the HVS sample from the same patient.

Results: Response rate was 26%. 72% of GPs would take an HVS and 62% would refer on to a genitourinary medicine (GUM) clinic. 45% would offer empirical therapy and 47% of these would treat for candida initially. 75% of GPs routinely request "M,C&S" on HVS samples but 55% only want to be informed about specific pathogens. Routine processing of HVS samples varies widely between laboratories and 86% only report specific pathogens. 78% of GPs would like to be offered a suggested diagnosis on HVS reports, and 74% would like a suggested treatment. 43% of laboratories ever provide a diagnosis, and 14% provide a suggested treatment.

Conclusions: GPs frequently manage vaginal discharge and most of them utilise the HVS. GPs' expectations of the test are not well matched to laboratory processing or reporting of the samples.

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The National Strategy for Sexual Health and HIV, launched in England in 2002, advocates a much greater role for general practitioners (GPs) in the management of sexually transmitted infections (STIs) in the community.¹ Unlike clinicians in specialist settings, GPs may not have ready access to a wide range of diagnostic tests including immediate microscopy. This may lead to differences in how conditions are investigated in general practice and specialist clinics.

Vaginal discharge is a common presentation in general practice, potentially indicating the presence of STIs. What little is known about GPs' investigation and management of vaginal discharge^{2,3} suggests that GPs commonly rely on the high vaginal swab (HVS)—an investigation rarely used by specialists.^{4,5} Despite this there is little information on what GPs expect from HVS, or whether they are satisfied with the reports they receive. Processing HVS samples accounts for a considerable proportion of the workload of most microbiology laboratories. Although Public Health Laboratory Service (PHLS) laboratories have a standard operating procedure (SOP)⁶ for HVS samples there are no universally accepted guidelines on how to process HVS samples, and this appears to be reflected by variability in processing and reporting between laboratories.⁴ In addition, it is not clear whether GPs are receiving the information they want from HVS reports.

In this study we describe the management of vaginal discharge in general practice and compare GPs' expectations of the HVS with the processing and reporting undertaken by laboratories.

METHODS

This study involved two postal questionnaire surveys: (i) a four page questionnaire to GPs in the North Thames area of

the United Kingdom (a demographically mixed urban and suburban area close to and including central London). The questionnaire requested tick box and free text responses to demographic questions and investigation and management questions stemming from the case of a 20 year old woman on the combined oral contraceptive pill (COCP) who complained of vaginal discharge with a new sexual partner. (ii) A three page questionnaire to lead consultant microbiologists at the hospitals identified by the GPs as those to which they send their samples. This questionnaire requested tick box and free text responses, and focused on those tests which the laboratories would undertake on an HVS sample from the same patient both routinely and given clinical information. A questionnaire was sent to the first two out of every three GPs in an alphabetised list of those currently registered in 13 health authorities of north London. GP responses were anonymised. A single mailing was used for GP questionnaires. GPs were asked to pass the questionnaire to the practice nurse if he/she saw most of the women presenting with vaginal discharge. Microbiologists were sent a second questionnaire if no response was received to the first, and in some cases contacted by telephone.

The GP questionnaire was revised in line with comments from a pilot study of 10 GPs outside the geographical area of study.

Ethical approval was obtained from the Northern and Yorkshire Multicentre Research ethics committee.

Abbreviations: COCP, combined oral contraceptive pill; GUM, genitourinary medicine; GPs, general practitioners; HVS, high vaginal swab; M,C&S, microscopy, culture, and sensitivity; PHLS, Public Health Laboratory Service; SOP, standard operating procedure; STIs, sexually transmitted infections

Table 1 Characteristics of responding GPs

GP characteristics (n = 553)	No of (%) respondents		
Male	241 (44.3)		
Female	308 (55.7)		
Missing	4 (<1)		
Working practice (n = 553)			
Working alone	77 (13.9)		
Working with other GPs	444 (80.3)		
Not specified	32 (5.8)		
Number of women seen per week with vaginal discharge	Male GPs (n = 243)	Female GPs (n = 310)	Total (n = 553)
None	3	0	3 (<1)
1–5	159	100	259 (46.8)
6–10	53	121	174 (31.5)
11–15	17	56	73 (13.2)
>15	6	25	31 (5.6)
Missing	5	8	13 (2.4)

Data were recorded and analysed in an Access database.

RESULTS

Demographics

In all 2146 GPs were identified and completed responses were received from 553 (25.8%). Characteristics of responding GPs are shown in table 1.

Seventy two per cent of GPs reported that women with vaginal discharge sometimes present directly to the practice nurse.

Completed responses were received from 14 (63.6%) of the 22 laboratories which were sent questionnaires.

Clinical management

GPs' management of a young woman with symptoms and a new sexual partner is summarised in table 2. The case presented was as follows: "Laura, 20 years old, attends your surgery complaining of 2 weeks of increased vaginal discharge. She has a new male sexual partner and is taking the combined oral contraceptive pill."

Of the 397 GPs who would take an HVS 298 (53.9%) would also routinely test for *Chlamydia trachomatis* and 71 (17.9%) would not (missing 27, 6.8%). Of those requesting *C trachomatis* routinely, 280 (94.0%) would use material from an additional endocervical swab, 18 (6.0%) would request *C trachomatis* on the HVS and one GP (0.3%) would test for *C trachomatis* on a urine sample.

Requesting, testing, and reporting of HVS samples

GPs were asked about how they request tests. When performing an HVS, 412 (75%) GPs would write "M,C&S" (microscopy, culture, and sensitivity) on the request form, with or without additional requests for culture of specific organisms. Four per cent (20) of GPs would not write "M,C&S" but would request culture for at least one of *Candida* spp, *Trichomonas*, *Gardnerella*, or anaerobes. Three per cent (14) of GPs would request culture for *Neisseria gonorrhoeae* on the HVS material.

Although there are no universal standards, as a point of reference, the PHLS SOP⁶ recommends an HVS sample from this patient be Gram stained for bacterial vaginosis (BV) and cultured for *Trichomonas* and yeasts. Eleven (79%) laboratories would perform microscopy and/or culture for candida, 13 (93%) would perform wet smear, six (43%) would culture for *Trichomonas*, and 10 (71%) would perform microscopy for clue cells. One laboratory (7%) routinely performs "full culture" on all HVS samples. Full culture varies between laboratories but usually includes aerobic and anaerobic culture. Other laboratories perform full culture on the basis

of further clinical information—for example, presence of abdominal pain or postpartum state, or initial microscopy findings, but such criteria differ between laboratories (data not shown).

Most (303, 54.8%) GPs preferred to be informed about specific pathogens only and their respective sensitivities rather than *all* micro-organisms found, and 12 (85.6%) laboratories report in this way. One hundred and thirty GPs (23.5%) wanted to be informed about all micro-organisms isolated (as reported by two (14.3%) laboratories) and 120 GPs (21.7%) expressed no preference.

Four hundred and thirty (77.8%) GPs would like the HVS report to include a suggested diagnosis (1.3% wouldn't, 116 (20.1%) missing) but only six laboratories (42.9%) ever provide this. Laboratories commented that they only provide a diagnosis on the basis of clinical information given by the GP, and several stated that they think it is inappropriate to

Table 2 Clinical management of the theoretical case

	No of (%) respondents
Tests done by GPs (n = 553)*	
HVS (for M,C&S)	397 (72)
HVS (for M,C&S) only	14 (3)
STI screen†	323 (58)
HVS+STI screen	282 (51)
Would you refer to a GU clinic? (n = 553)	
No	72 (13.0)
Missing	141 (25.5)
Yes	340 (61.5)
Tests performed by GPs referring to a GU clinic (n = 340)	
No tests	39 (11.5)
Missing	79 (23.2)
HVS only	65 (19.1)
HVS+STI screen	144 (42.4)
STI screen only	13 (3.8)
Would you offer empirical therapy? (n = 553)	
No	221 (40.0)
Unsure	45 (8.1)
Missing	39 (7.0)
Yes	248 (44.8)
Treatment prescribed by GPs offering empirical therapy (n = 248)	
Treatment for candida‡	116 (46.8)
Treatment for BV¶	26 (10.4)
Other	106 (42.8)

*Percentages do not total 100 because GPs could tick more than one response.

†STI screen not defined in questionnaire.

‡Options were clotrimazole pessaries and/or cream, or fluconazole orally.

¶Options were metronidazole orally, metronidazole vaginal cream, clindamycin vaginal cream.

give a clinical diagnosis on the basis of microbiological findings. Seventy four per cent (409) of GPs would like a suggested treatment to be included on the HVS report (4.3% would not, 120 (21.7%) missing) but only two laboratories (14%) provide this.

DISCUSSION

Our study confirms that vaginal discharge is a common presentation in general practice. Almost half of our sample is seeing 1–5 women per week with vaginal discharge, and one third of our sample of GPs are prepared themselves to manage a young woman at risk of STIs, without reference to specialist services. Almost three quarters of GPs surveyed would take an HVS.

Encouragingly, GPs are screening for STIs and over half would test appropriately for *C trachomatis*.

Just under half of the GPs offered empirical therapy, and most commonly treated for candidiasis first line. However, bacterial vaginosis is at least as common a cause of vaginal discharge as candidiasis.^{7–9}

GPs wanted as much information as possible from an HVS report, including direction from their laboratory with regards to diagnosis and treatment. Most laboratories do not provide this, and some expressed the opinion that this is outside their role.

We have shown that there is wide variation in the processing of HVS samples by microbiology laboratories in north London, and it is reasonable to assume that this is the case throughout the United Kingdom. In view of the workload that HVS samples represent to microbiology laboratories and the potential increase in samples received as GPs increase their involvement in sexual health¹ a national guideline on processing HVS samples is likely to be beneficial.

Despite a disappointing GP response rate, we are able to report data from over 500 GPs. Selection bias is likely given that female GPs are over-represented in our sample,¹⁰ single handed GPs are under-represented (YH Carter, personal communication), and GPs who see fewer women with vaginal discharge were less likely to respond. Almost three quarters of GPs felt that women with vaginal discharge might present directly to their practice nurses but we only had one returned questionnaire clearly completed by a practice nurse. Further work is needed to look at how practice nurses manage women presenting with vaginal discharge. As with all questionnaire surveys our study is likely to include reporting bias.

GPs in the United Kingdom are facing ever increasing clinical and administration pressures. The emphasis of the National Strategy for Sexual Health and HIV¹ in widening access to sexual health care by increased provision in primary care settings is likely to be a considerable challenge to GPs who, while welcoming increased sexual health education, would have limited time in which to access it.

The HVS remains the mainstay of GPs' management of vaginal discharge. Three quarters of GPs request non-specific processing ("M,C&S") whereas most would prefer specific and directive reports, including suggested further investigation and treatment. Almost two thirds of GPs would do an additional *C trachomatis* test but in the specialist setting all such women would be tested for *C trachomatis*. GPs would appear to be receptive to guidance on STIs (*C trachomatis*) screening included on HVS reports.

CONCLUSIONS

Although many GPs are appropriately managing young "at risk" women with vaginal discharge our study highlights the

Key messages

- The HVS is the mainstay of investigation of vaginal discharge in general practice.
- Processing of HVS samples varies widely between laboratories.
- Inclusion of more advice on patient management on laboratory reports would be welcomed by GPs and could be a cheap and effective way of improving patient care.

potential for laboratory GP liaison in terms of HVS processing and reporting, which could greatly and cheaply assist GPs' decision making when faced with a woman with vaginal discharge.

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CONTRIBUTORS

CE, HN, CI, YHC, and PG conceived and designed the study; HN, CE, LT, and PG helped with data collection and interpretation; CE, CI, and YHC supervised the study; HN wrote the draft of the manuscript; and HN, CE, CI, PG, and YHC reviewed the manuscript.

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