LETTERS TO THE EDITOR

Methicillin resistant *Staphylococcus aureus* (MRSA) balanoposthitis in an insulin dependent diabetic male

EDITOR,—Balanoposthitis is a common condition affecting 11% of the male attendees at GUM clinics.[1] It is an inflammation of the glans penis and the prepuce, and its causes include bacterial and yeast infections, parasitic infestations, trauma, and irritants.[2] However, to our knowledge, no case has been reported to be caused by MRSA.

A 49 year old insulin dependent diabetic man who was an inpatient for repair of an upper jaw fracture developed a penile itch with swollen foreskin, which was difficult to retract, together with longitudinal fissures on the prepuce and subpreputial discharge. In his recent past he had had two incidents of unprotected sexual intercourse with two known females. He was clinically diagnosed as having candida balanitis and was commenced on clotrimazole cream, which did not produce a clinical response over the course of a week. The swabs taken before the commencement of clotrimazole cream failed to grow candida; however, MRSA resistant to erythromycin, penicillin, and flucloxacillin but sensitive to mupirocin was isolated.

Screening tests for chlamydia, gonorrhoea, and trichomonas were negative.

A 10 day course of mupirocin 2% ointment completely resolved his symptoms.

Subpreputial swab after treatment was negative.

MRSA has been a well recognised cause of hospital acquired infections worldwide since it was first detected in Europe in the 1960s.[3] The organism can survive for long periods in both the hospital and the home environment and can colonise the skin, nose, or throat of patients and healthcare staff.[4] Several reports have suggested that diabetic patients are more susceptible to *Staphylococcus aureus* bacteraemia[5] MRSA has been isolated from different sites in diabetic patients but not the genitalia.[6] MRSA rarely invades intact skin; however, it can give rise to severe infections—for example, wound infection, bacteraemia, endocarditis, and osteomyelitis.[7]

This case illustrates the fact that MRSA is an organism to consider in patients who develop balanoposthitis while in hospital or shortly after discharge especially those whose immune system is incompetent.

There may be implications of spread of MRSA in the community for sexual contacts of patients carrying MRSA in the genital area.

Contributors: Both authors managed the patient and wrote the manuscript.

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Chlamydia trachomatis reinfection rate: a forgotten aspect of female genital chlamydia management

EDITOR,—Hillis *et al*[1] reported that repeated episodes of infection of female genital tract with *Chlamydia trachomatis* increase the risk of hospital admission for pelvic inflammatory disease and ectopic pregnancy. The first diagnosed attack of genital infection with chlamydia presents the clinician with a unique opportunity to implement measures to minimise the risk of reinfection—that is, health promotion and contact tracing.

During April–June 1998 we reviewed the case notes of female patients who were diagnosed with genital chlamydia at Leicester Royal Infirmary and Derbyshire Royal Infirmary GUM clinics in the year 1996 for evidence of repeat episode of genital chlamydia. We also noted the following data: age at presentation with the first episode of infection, time for presentation with reinfection, test of cure if performed, co-infection with gonorrhoea, review by health adviser, contact(s) traced and treated in the first 3 months after diagnosis. For the purpose of the study we defined reinfection as a patient testing positive for genital chlamydia 30 days or more after the completion of treatment. We also looked at the genital chlamydia treatment protocols in both clinics.

A total of 540 female patients were diagnosed with chlamydia (311 at Leicester and 229 at Derby). The patients' mean age at first episode was 22.6 years for Leicester and 23.4 years for Derby. The health advisers had made contact with 94.5% (294) in Leicester and 97.8% (224) in Derby; 85.2% (265) of the patients diagnosed at Leicester returned at 30 days or more and were retested for chlamydia compared with 87.3% (200) at Derby; 9% (24) episodes of repeat infection were identified in Leicester group compared to 17% (34) episodes in the Derby cohort. The mean period for presentation with reinfection was 9.4 months (range 3–25) at Leicester and 9.8 months (range 2–24) at Derby. At Leicester the contacts of 66.5% (207) patients were traced and treated compared to 64.6% (148) at Derby. A test of cure was performed on 282 patient in Leicester (where it was routine practice); 2.5% (seven) were found to be positive for chlamydial infection, while the test of cure was performed on 22 patients in Derby (where it was performed selectively) revealed no positive cases.

Of the reinfected patients 58.3% (14) at Leicester were reinfected because of failure to trace and treat their partner(s) compared to 35.3% (12) at the Derby clinic.

Both clinics manage genital chlamydia with what was considered standard treatment and perform contact tracing wherever possible. Two reinfected patients from each clinic were also co-infected with gonorrhoea.

Other risk factors for reinfection—for example, ethnic origin, number of sexual partners,[2] were not analysed as these data was not discernible from the notes.

This retrospective study highlights the fact that a substantial number of patients get reinfected with chlamydia despite health education and counselling by health advisers. Though the figures (66.5% and 64.6%) for partner notification and treatment were close to that proposed by the Central Audit Group (70%)[3] the proportion of those reinfected is still too high. Does the message that repeat episodes of genital chlamydia are more damaging get through to our patients or do we need a new health education strategy?

Currently, as the success of management of genital chlamydia is evaluated by the level of contact tracing, the number of patients referred to health advisers, and number of contacts per index patient seen and treated,[4–6] we believe it is time to evaluate outcome measures in terms of reinfection rates. Large prospective studies need to be done to elucidate this aspect of chlamydial infection management.

Contributions: PS had the original idea; EH collected and analysed the data EH and JD wrote the manuscript.

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The Society of Apothecaries Diploma examination in Genitourinary Medicine: death of the viva voce?

EDITOR,—The London Apothecaries Diploma in Genitourinary Medicine is likely to become even more important in the near future as all specialist registrars and probably

many non-consultant grades will be expected to pass it as part of higher training in the specialty in the United Kingdom. It would be interesting to have some figures on the number of candidates anticipated in the near future and how this will affect the examination mechanism.

The Apothecaries Diploma Board rejected viva voce examinations some time ago as being prone to bias. This is consistent with much current research on examination techniques.[1] Oral examinations are regarded as being inherently biased and of poor inter-examiner reliability. How much, however, is this also a candidate number related phenomenon? With courses for small numbers, such as the Diploma in Venereology and Genito-urinary Medicine of Liverpool University, we find the viva a key mechanism to discriminate between candidates precisely because the examiner can adjust the level of difficulty of questions to the ability of each candidate. The viva is a good instrument to measure clinical thinking, ability to take a sexual history, and counselling. Role play need not be uniquely the province of actors. The viva is particularly useful for borderline candidates—for example, those who are disadvantaged in essays which are notoriously dependent on proficiency in English (not to mention handwriting!). In order to reduce interexaminer variation inherent in the viva, all candidates for the Liverpool Diploma are viva'd independently by both sets of (two) examiners. Clearly, this would be extremely cumbersome and time consuming for the current and anticipated numbers taking the Apothecaries Diploma.

The venerable Apothecaries' Hall is apparently "unsuitable" for projecting slides a convenient way of basing a clinical skills/data interpretation type examination for a large number of candidates—for example, MRCP Part 2 and many other postgraduate medical examinations. Will the examiners of the Apothecaries Diploma have to begin to think of more appropriate premises for their examination?

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Detection of chlamydia on meatal swabs

EDITOR,—The advent of ligase chain reaction (LCR) and other DNA technologies and their greater sensitivity[1] has allowed the possibility of taking samples other than from the urethra in men, including urine samples.[2–5]

Although urine samples have the advantage of being collected non-invasively, the sensitivity of LCR tests on such samples is less than for urethral samples.[2] This may be due to the presence of inhibitors in urine.[6] The reduced sensitivity on urine samples may be unacceptable, particularly if testing populations with a high prevalence of chlamydia infection. Furthermore processing of urine samples is more laborious.

It is currently recommended that specimens for the detection of genital *Chlamydia trachomatis* infection by LCR are taken 2–4 cm from the urethral orifice and the swab rotated for 3.5 seconds.[7] Many men are unable to tolerate this. It is often painful and may discourage patients from seeking medical attention.

A pilot study was conducted to compare the sensitivity of LCR testing for genital chlamydial infection in men, taken from the meatus itself against the standard technique.

All male patients attending the GUM clinic over a 3 month period were included in the study if they had symptoms or signs compatible with chlamydia, or if a contact of a known case of chlamydia. A swab was taken from the urethra in the standard fashion. A second swab was taken from the meatus. After the sixth week of the study the order of the first and second swabs was changed, in order to evaluate any bias related to the order of the swabs. Specimens were processed using Abbott Laboratories LCx Chlamydia and handled according to the manufacturer's guidelines.

Twenty five patients were asked to evaluate the swabs and to state which swab caused least discomfort or if there was no difference between them. A total of 208 men were recruited to the study. The overall prevalence of genital chlamydia infection in our population was 25% (52/208). A confirmed diagnosis was made if both of the samples performed from the same man were positive for chlamydia, or if one sample was positive together with an equivocal result. There were no false positive tests using these criteria giving all methods a specificity of 100%.

There was no significant difference in detection rates between the subgroups where the order of swabs was changed.

There was no significant difference in the sensitivity of samples taken from the meatus (100%) or from deep within the urethra (96.2%). Of the 25 men questioned two (8%) felt that the meatal swab caused more discomfort; 19 (76%) had a strong preference for the meatal technique. Only four men (16%) stated the swabs were similar in terms of discomfort.

A meatal swab for the detection of chlamydia is more acceptable to patients and has a similar sensitivity to the traditional technique of urethral sampling

Urine samples, although non-invasive, are less likely to yield a positive diagnosis compared to urethral/meatal swabs and require extra processing by laboratories.

In a high prevalence setting (such as a sexual health clinic), the meatal technique provides a specific, highly sensitive, and well tolerated sampling method for the detection of chlamydia infection in men.

Further studies to confirm our findings in symptomatic, and asymptomatic, chlamydia infection are needed before introducing this technique as routine clinical practice.

Contributors: HL, principal investigator and author; SMM, investigator and edited final draft; JLD, data collection and obtained clinical specimens; MSS, investigator and processed specimens.

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HIV positive and negative homosexual men have adopted different strategies for reducing the risk of HIV transmission

EDITOR,—To reduce the risk of HIV transmission, some homosexual men have adopted a strategy whereby they only have unprotected anal intercourse (UAI) with a person of the same HIV status (known as "concordant UAI").[1] In London, homosexual men *in a relationship* are more likely to know the HIV status of their UAI partner than men not in a relationship[2] and so establish concordance. However, this was not examined for HIV positive and negative men separately. A survey conducted in January-February 2000 among homosexual/bisexual men attending one of six gyms in central London, as part of an ongoing behavioural surveillance programme,[2 3] has allowed risk reduction strategies to be considered by HIV status. A total of 792 homosexual men (median age 35 years) completed a confidential questionnaire (estimated response rate 50–60%[2 3]); 126 (16.0%) were HIV positive, 477 (60.2%) HIV negative, while 169 (21.3%) had never had an HIV test (data missing for 20 men). Just over half the men (55.2%) said they were currently in a relationship with another man; this did not differ significantly by HIV status (p=0.1).

Our analysis focused on how sexual risk behaviour varied both by HIV as well as by relationship status. For HIV negative and positive men, UAI was classified as either concordant (UAI with a partner of the same HIV status) or non-concordant (UAI with a partner of unknown or discordant HIV status). Men reporting more than one UAI partner were classified as concordant only if all UAI partners were of the same HIV status as themselves. Men also indicated whether they had had UAI with a main partner only, casual partner(s), or both. One third of all men (32.9%, 259) reported UAI in the previous 3 months; HIV positive men 42.1% (53/126), HIV negative 34.7% (165/475, data missing for two men) (p=0.1). Overall, concordant UAI was reported by 18.7% (89) of HIV negative and 21.4% (27) of HIV positive men (p=0.4). For HIV negative men, concordant UAI was predominantly reported by those in a relationship and rarely by men who were not (28.6% *v* 5.0%, p<0.001) (table 1). Concordant UAI was usually with a main partner alone. By way of comparison, HIV positive men were just as likely to report

Table 1 Unprotected anal intercourse (UAI) in the previous 3 months

	HIV negative men (n=477*)						HIV positive men (n=126)					
	Main only		Casual†		Total		Main only		Casual†		Total	
Type of partner for UAI	%	No	%	No	%	No	%	No	%	No	%	No
Men in a relationship reporting			n=276						n=63			
Concordant UAI	27.1	(75)	1.5	(4)	28.6	(79)	11.1	(7)	11.1	(7)	22.2	(14)
Non-concordant UAI‡	8.0	(22)	6.5	(18)	14.5	(40)	3.2	(2)	19.0	(12)	22.2	(14)
Total	35.1	(97)	8.0	(22)	43.1	(119)	14.3	(9)	30.1	(19)	44.4	(28)
Men not in a relationship reporting			n=199						n=63			
Concordant UAI	2.5	(5)	2.5	(5)	5.0	(10)	1.6	(1)	19.0	(12)	20.6	(13)
Non-concordant UAI‡	1.5	(3)	16.1	(32)	17.6	(35)	0.0	(0)	19.0	(12)	19.0	(12)
Total	4.0	(8)	18.6	(37)	22.6	(45)	1.6	(1)	38.1	(24)	39.7	(24)

*Data on UAI or relationship status missing for two HIV negative men.
†Men reporting casual partners only or main and casual partners. Most men reported casual partners only.
‡Men reporting UAI with a partner of unknown or discordant HIV status. Non-concordant UAI was predominantly with a partner of unknown HIV status.

concordant UAI whether they were in a relationship or not (22.2% *v* 20.6%, p=0.9), often with a *casual* rather than main partner. The observation that HIV negative men were more likely to report concordant UAI in the context of a relationship while HIV positive men were just as likely to report concordant UAI whether they were in a relationship or not was confirmed in a multivariate model. With HIV status and relationship as independent variables and concordant UAI as the dependent variable, the interaction between HIV status and relationship was highly significant (p=0.001).

Seroconcordance among negative men can only be established with confidence if both men test for HIV together. For this reason it is difficult for HIV negative men to establish concordance with a casual partner. On the other hand, HIV positive men can establish concordance, be it with a casual or regular partner, simply by mutual disclosure. This requires no confirmatory test. Although seroconcordant UAI among positive men carries no risk of HIV transmission to an uninfected person, it raises the possibility of reinfection and drug resistance for the men themselves.[4]

These data provide further evidence that HIV positive and negative homosexual men have both adopted HIV risk reduction strategies.[1 2] None the less, high risk sexual behaviour (that is, non-concordant UAI) was reported. Overall, non-concordant UAI was reported by 15.8% (75) of HIV negative and 20.7% (26) of HIV positive men (p=0.2). No significant differences were seen when stratified by either relationship or HIV status (table 1). In the multivariate model there was no significant association between non-concordant UAI and either HIV status (p=0.4) or being in a relationship (p=0.7).

Non-concordant UAI was usually reported with a casual partner with one notable exception. HIV negative men in a relationship were equally likely to report non-concordant UAI with a main partner alone (8.0%) as with a casual partner (6.5%) highlighting the continuing risk for HIV transmission between regular partners.[2 5] However, for most men the risk of HIV transmission occurred in the context of a casual sexual encounter. Surveys conducted in the gyms in 1998 and 1999 revealed similar patterns of sexual risk behaviour (data available from authors).

In conclusion, HIV negative and positive homosexual men have adopted different strategies for reducing the risk of HIV transmission with their sexual partners. HIV negative men predominantly reported concordant UAI with a main partner in the context of a relationship while HIV positive men were more likely to report concordant UAI with a casual partner. HIV prevention programmes need to reinforce risk reduction strategies, tailored to a person's HIV status, while simultaneously addressing high risk sexual behaviour.[6]

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A mobile phone text message and *Trichomonas vaginalis*

EDITOR,—Over the past decade vast numbers of the general population have accepted the internet, email, and mobile phones. Among new patients attending our centre 70.3% (90/118) of men and 73.7% (98//133) of women provide mobile telephone numbers for contact. However, the use of mobile phones as a mechanism for contact tracing as far as I am aware has not been reported previously.

A 26 year old Afro-Caribbean man presented to our clinic and informed us that his girlfriend had attended a GUM clinic but unfortunately he did not know why. However, he informed us that he had a text message on his mobile. He duly brought up the message, which gave the woman's clinic number and the KC60 diagnosis of C6A.

On examination there were no abnormalities seen, there were no polymorphs on microscopy, swabs for gonorrhoea, chlamydia, and trichomonas were all clear. He was treated with a 5 day course of metronidazole as per MSSVD guidelines.

If this patient had turned up without a contact slip, epidemiological treatment of trichomonas is unlikely to have been instituted and contact tracing would have been impossible. Thanks to the use of text messaging on this man's mobile phone, appropriate treatment was initiated. Certainly patients and health advisers appreciate the security offered by mobile phones (no other family members can take the calls), the instant access, and it avoids additional paper work. The use of text messaging and mobile phones for contact tracing may be considered as an adjunct to contact slips in GU clinics.

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Chaperoning male patients

EDITOR,—I was delighted to see the letter by Fisk *et al* in the journal.[1] My staff and I were becoming alarmed at the suggestion that male patients should have a chaperone when they are being examined by a male doctor. Was common sense finally leaving the specialty? There are thousands of consultations taking place throughout the country, in both primary and secondary care, where sexual issues are discussed. These often include a genital examination, and just because there is a problem found with one or two individual patients or doctors it doesn't mean the whole national service has to be turned upside down. Surely, the last thing an overworked, under pressure, genitourinary medicine service needs is to have another section of its skilled staff standing idly by in a room, while either a consultation or examination is taking place. I have never found any difficulty in taking the swabs on my own, and labelling the stuff myself, and have never felt the need for another person handing me things during a male examination. Indeed, I could easily see that interfering with the process at times, as there are some issues patients feel more comfortable discussing on a one to one basis, and they can feel embarrassed and hindered if there is a chaperone present.

An occasional complaint is a small price to pay for the 99.9% otherwise effective consultations that occur. It's lovely to see work like this published, as it becomes part of the evidence base that says we don't need this

kind of interference, and that basic common sense should prevail.

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Lichen sclerosus of the glans is significantly associated with penile carcinoma

EDITOR,—We read with interest the article by Riddel *et al* on 66 men with penile lichen sclerosus (PLS) attending a department of genitourinary medicine.[1] In this study, the authors found no cases of malignancy.

We have previously reported a retrospective study on the incidence of cancer on 86 cases of PLS retrieved from our histopathological files over a 10 year period (1987–97).[2] In that study, five cases showed malignant transformation—namely, squamous cell carcinoma (SCC) (three cases), in situ carcinoma (one case), and verrucous carcinoma (one case).

Since that report, we decided to interview all PLS patients in order to rule out any further malignancy that occurred over time. Of 86 patients identified, 60 were evaluated at our clinic. Among these, we found three additional patients treated with partial penectomy for invasive SCC at other institutions. Their medical records were obtained together with paraffin embedded tissue samples to perform polymerase chain reaction (PCR) for human papillomavirus (HPV) testing. Clinical and laboratory information for these cases, together with previously reported patients, are summarised in table 1.

In this current study, eight (9.3%) out of 86 patients with PLS developed an epithelial cancer. Data analysis using the *t* test confirmed in our series a statistically significant risk of malignant degeneration ($p < 0.05$).

Clinically, the most common presentation of epithelial cancer arising with PLS was that of an infiltrated or ulcerated plaque followed, in decreasing order of frequency, by a nodular lesion or verrucous papules. The glans was the most commonly affected area. The average age of onset of PLS was 45 years, and that of development of cancer was 62 years. The average lag time from onset of PLS to cancer development was 18 years (range 10–34 years). This long latency time might explain the paucity of cases, mostly anecdotal, reported in the literature in the past 22 years (approximately 20)[2–5] compared with our study, in which a long follow up disclosed 9.3% malignant degeneration in a series of 86 patients.

Also, the latency time was shorter in the HPV positive patients (average 15 years) compared with the HPV negative patients (average 23 years). The role of HPV in the pathogenesis of penile cancer is not fully understood. Some HPVs, such as type 16 and 18, are likely to play a part, but not all penile carcinomas are HPV positive, as shown in our study. Also, PLS is not commonly associated with HPV infection.[5] In our study we found five patients positive for HPV 16 infection, and this may have hastened the progression towards cancer resulting in a shorter lag time. However, routine HPV testing on larger series is necessary in order to draw any definitive conclusion.

Similarly to vulvar lichen sclerosus, which has been observed to undergo malignant degeneration in 3–6% of women,[6] a likely malignant evolution of PLS should be considered. Careful and systematic histopathological evaluation of any ulcerated or indurated plaques developing within PLS is therefore strongly recommended. The association between PLS and cancer may very well be underestimated and there is a need for further investigation that includes long term follow up and routine PCR analysis for HPV infection.

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Third trimester screening or safer sex to prevent mother to child transmission of HIV

EDITOR,—Since 1992 Department of Health guidelines have recommended that HIV screening be offered to all pregnant women in areas of high seroprevalence[1] but implementation and uptake has been poor. In 1998 an intercollegiate working party recommended that HIV testing be integrated with antenatal screening for other infections and that the test should be offered and recommended to all pregnant women in high seroprevalence areas.[2] In 1999 the Department of Health extended these recommendations to all regions aiming to reduce neonatal HIV infection by 80% by 2002.[3] We present the case of an infant with symptomatic HIV infection, whose mother's antenatal HIV test was negative and discuss the implications.

A 3 month old female, born at term by spontaneous vaginal delivery and breastfed, presented with a 1 week history of increasing respiratory difficulty. Following further deterioration, she was transferred to St Mary's Hospital and ventilated. *Pneumocystis carinii* pneumonia (PCP) was diagnosed on bronchoalveolar lavage. Anti-HIV antibodies were present in serum and HIV infection was confirmed by the detection of HIV-DNA in peripheral blood mononuclear cells (PBMC) by PCR amplification. HIV-1 infection was confirmed in both parents. Her asymptomatic mother had received antenatal care from the 12th week of gestation and was HIV seronegative at 29 weeks. To investigate a

Table 1 Clinical and histopathological features of eight cases of carcinoma on penile lichen sclerosus

Patient No	*Age of onset of PLS (years)*	*Age of onset of Ca (years)*	*Lag time (years)*	*Site*	*Clinical aspect of malignancy on PLS*	*Histopathology*	*PCR testing for HPV*
1*	41	62	21	glans	fungating keratotic nodule with a white-yellowish hue	SCC well differentiated	negative
2*	36	59	23	glans	slightly elevated verrucous papules	SCC well differentiated	HPV 16
3*	41	55	14	glans, coronary sulcus	multiple erythematous, indurated, and ulcerated plaques	SCC well differentiated	HPV 16
4*	39	49	10	glans, coronary sulcus, inner aspect of the foreskin	sharply circumscribed, erythematous, eroded, oozing, and slightly infiltrated plaque	In situ carcinoma	HPV 16
5*	29	47	18	glans	exophytic verrucous whitish nodule	VC	HPV 16
6	75	85	10	glans	sharply circumscribed, erythematous, and ulcerated plaque	SCC well differentiated	HPV 16
7	66	70	15	glans	exophytic whitish and indurated plaque	SCC undifferentiated	negative
8	33	67	34	glans, coronary sulcus	sharply circumscribed, erythematous, eroded, crusted, and indurated plaque	SCC undifferentiated	negative

*Previously reported cases.[1]
PLS = penile lichen sclerosus; Ca = carcinoma; PCR = polymerase chain reaction; HPV = human papillomavirus; SCC = squamous cell carcinoma; VC = verrucous carcinoma.

Table 1 Peripartum HIV test results

	Time (in weeks of gestation)			
	1 T = 12 weeks ("Booking blood")	*2 T = 29 weeks*	*3 T = 33 weeks ("Booking blood")*	*4 T = 13 weeks post partum (child presents)*
Hospital where blood taken	X Blood was stored and retrospectively tested	Y Index antenatal test (serum not available for repeat retrospective testing)	Y Blood was stored and retrospectively tested	St Mary's Postnatal test. Blood stored
HIV antibody screening tests	Clear negative i Detect-HIV[α] OD=−0.030, CO=0.144 ii Wellcozyme HIV Recombinant[β] OD=1.179, CO=0.696	Clear negative i Abbot Axsym HIV 1/2 gO[γ] S/CO=0.42	Weak positive i Murex HIV 1+2[δ] OD=0.938, CO=0.252 ii Wellcozyme HIV Recombinant[β] OD=0.486, CO=0.839 iii Serodia HIV-1/2[ε] HIV 1:1/256, HIV 2: <1/32	Strong positive i Abbot Axsym HIV 1/2 gO[γ] OD=14.86, CO=1.00 ii Detect-HIV[α] OD=2.050, CO=0.152 iii Wellcozyme HIV Recombinant[β] OD=0.062, CO=0.532
HIV specific antibody tests (CPHL in-house EIAs)	Clear negatives, (OD/CO) HIV IgG=0.49, IgM=0.36, IgA=0.44	—	Strong positives, (OD/CO) HIV IgG=12.34, IgM=10.94, IgA=5.28	Strong positives for IgG and IgA; weak positive IgM (OD/CO) HIV IgG=15.41, IgM=3.14, IgA=4.18. *Note decreasing values for IgM and IgA compared to previous
HIV western blot[ζ]	—	—	—	HIV1 gag p17+, p24+++, p55+; pol p31++, p51++, p66+++; env gp41−, gp120+, gp160+++ HIV2 gp36−
HIV RNA (copies/ml)	Not detected (< Limit of detection) Cobas Amplicor HIV-1 Monitor v1.5[η]	—	—	41377 Quantiplex HIV-1 RNA 3.0[θ] 82400 Cobas Amplicor HIV-1 Monitor v1.5[η]

[α]Enzyme immunoassay (EIA) for detection of antibody to HIV-1 and 2. Biochem Immunosystems Inc, Montreal, Quebec, Canada.
[β]EIA for detection of antibody to HIV-1 (Abbott Murex) Murex Biotech Ltd, Dartford, UK.
[γ]Microparticle EIA for qualitative detection of antibodies to HIV-1 and 2. Abbott Laboratories, IL, USA.
[δ]EIA for detection of antibodies to HIV-1 and 2 (Abbott Murex) Murex Biotech Ltd, Dartford, UK.
[ε]Passive particle agglutination test for detection of antibodies to HIV-1 and 2 Fujirebio Inc, Tokyo, Japan.
[ζ]Western blot for detection of antibodies to HIV antigens. Genelabs Diagnostics, Singapore.
[η]Polymerase chain reaction (PCR) for quantitative detection of HIV-1 RNA. Roche Diagnostics, Branchburg, NJ, USA.
[θ]Signal amplification nucleic acid probe assay for quantitative detection of HIV-1 RNA. Chiron Corp Emeryville, CA, USA.

possible false negative result, other sera stored at various times were retrieved and tested. The results, which show seroconversion late in pregnancy, are summarised in table 1.

The HIV antibody test is usually performed at the booking visit with other routine antenatal screens. This allows the parents time to adjust to the diagnosis before delivery, to consider family planning issues and interventions to minimise the risk of mother to child transmission. In addition, mothers with advanced immunosuppression benefit from antiretroviral therapy.

Although rarely reported, an HIV seronegative mother whose partner has undiagnosed HIV infection is at continued risk of infection. This may become more common in the United Kingdom as heterosexual intercourse is now the most common risk for HIV infection in newly diagnosed patients.[4] Primary HIV infection during gestation or lactation is associated with an increased risk of mother to child transmission.[5]

Repeat antenatal screening late in pregnancy, as is recommended for syphilis in the United States,[6] would identify some primary HIV infections during gestation. However, if maternal infection is not prevented transmission during lactation would remain a risk and there would be significant logistic and cost implications. The extension of testing for HIV (and other infections) to the partners of pregnant women is appealing as both maternal and infant infections could be prevented (and the infected male may benefit from earlier diagnosis and treatment) but would require a fundamental change to antenatal care. A practical approach, which may prevent maternal and neonatal infection (but not identify the infected male) is to use the opportunity, when giving negative HIV, hepatitis B, and syphilis results to the mother, to discuss the sexual transmission of infections, to emphasise that the negative results cannot be extrapolated to the partner, and advocate safer sex which is commonly abandoned following conception.

Contributors: PG obtained samples and results, monitored virology and immunology, wrote and amended paper; RW monitored virology and immunology, amendments to paper; HL was involved in clinical management of child, amendments to paper; JP monitored PHLS Colindale tests, amendments to paper; GT was involved in clinical management of mother, helped write and amend paper.

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Economic advantages of ligase chain reaction for diagnosis of genital *Chlamydia trachomatis* infection in GUM clinic attenders

EDITOR,—Genital infection with *Chlamydia trachomatis* is highly prevalent and recognised as a major threat to public health.

There is now a wealth of evidence to demonstrate the superiority of DNA amplification techniques over antigen detection and culture.[1] Only one large study has directly compared ligase chain reaction (LCR) with enzyme immunoassay (EIA) on identical clinical material[2] and no studies have analysed the health economic impact of LCR in a genitourinary medicine (GUM) clinic population.

We studied the diagnostic effectiveness and cost of LCR compared with EIA.

All GUM attendees undergoing sexual health screening were offered the opportunity to participate. Men presenting with dysuria or urethral discharge were defined as symptomatic. Swabs were collected in a prerandomised order from the cervix in female patients and 4–5 cm proximal to the urethral meatus in male patients. Urethral specimens in male patients were evaluated for evidence of urethritis (defined by ≥4 polymorphs per high powered field).

EIA was performed using a standard immunoassay technique (Organon Chlamydia-Tek),[1] with confirmation of reactive tests by microdot DIF.[3] LCR (LCX system, Abbott Laboratories) was also performed on every specimen.[4] Specimens

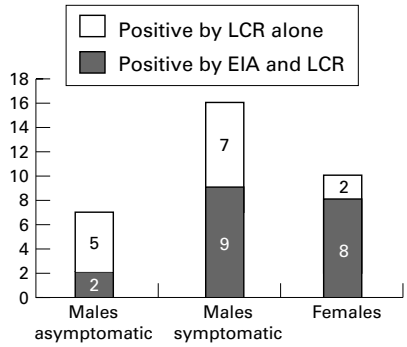

Figure 1 Chlamydia detection by diagnostic test. LCR = ligase chain reaction; EIA = enzyme immunoassay.

testing positive by LCR alone were retested by an alternative PCR assay for DNA sequences coding for the major outer membrane protein (MOMP) of *Chlamydia trachomatis*.

A total of 148 male and 153 female patients were tested; 23/148 (16%) swabs from male patients and 10/153(7%) from female patients were positive for *Chlamydia trachomatis* by LCR (see fig 1).

The sensitivity, specificity, negative and positive predictive values, and cost/test of LCR and EIA, respectively, were 100%, 100%, 100%, 100%, £5.64 and 58%, 100%, 95%, 100%, £4.05.

Of 33 cases of chlamydial infection, 15 cases (12 (52.2%) in men and two (20.0%) in women) would have remained undetected if EIA had been used alone.

Although EIA tests cost less than LCR, the inferior detection rate for EIA (17 patients need to be screened per case detected) compared with LCR (nine patients screened per case detected) was also included in analysis of the results. The cost per case of chlamydial infection detected using EIA in this population was £65, compared with £50 for LCR.

In a hypothetical cohort of 100 GUM attendees, with an 11% prevalence of chlamydial infection (as in the present study), testing with EIA would cost £405 and would detect 6.4 of the 11 cases. Testing the cohort with LCR would cost £564 and detect all 11 cases. The additional cost of LCR is thus £159. The additional benefit is 4.6 additional cases detected. The additional cost of LCR per additional case detected is £34.

The clinic in which the study was conducted sees 6000 new attendees annually. Had EIA been used alone, 276 cases of chlamydial infection would have been missed in a one year period, at an estimated cost of over £82 000. A full economic evaluation would require that these long term health and resource costs be more thoroughly quantified and compared with other uses of NHS resources

In summary, this study demonstrates that the overall sensitivity of LCR was double that of EIA, the previous standard diagnostic test used. Because of its improved sensitivity and increased case detection rate, the cost of LCR per case detected is equivalent to that of EIA in an urban UK GUM clinic population. Use of LCR as the diagnostic test of choice for both screening and clinical diagnosis in this setting thus represents a cost effective strategy.

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NOTICES

International Herpes Alliance and International Herpes Management Forum
The International Herpes Alliance has introduced a website (www.herpesalliance.org) from which can be downloaded patient information leaflets. Its sister organisation the International Herpes Management Forum (website: www.IHMF.org) has launched new guidelines on the management of herpesvirus infections in pregnancy at the 9th International Congress on Infectious Disease (ICID) in Buenos Aires.

Pan-American Health Organization, regional office of the World Health Organization
A catalogue of publications is available online (www.paho.org). The monthly journal of PAHO, the Pan American Journal of Public Health, is also available (subscriptions: pubsvc@tsp.sheridan.com).

6th European Conference on Experimental AIDS Research (ECEAR 2001), 23–26 June 2001, Heriot-Watt University, Edinburgh, UK
Further details: ECEAR 2001 Conference Secretary, Division of Retrovirology, NIBSC, Blanche Lane, South Mimms, Potters Bar, Herts, EN6 3QG, UK.

International Congress of Sexually Transmitted Infections, 24–27 June 2001, Berlin, Germany
Further details: Congress Partner GmbH, Krausenstrasse 63, D-10117, Berlin, Germany (tel: +49-30-204 500 41; fax: +49-30-204 500 42; email: berlin@cpb.de).

1st Asia Pacific Forum on Quality Improvement in Health Care
The 1st Asia Pacific Forum on Quality Improvement in Health Care will be held from 19–21 September 2001 in Sydney, Australia. Presented by the BMJ Publishing Group (London, UK) and Institute for Healthcare Improvement (Boston, USA), with the support of the Commonweatlh Department of Health and Aged Care (Australia), Safety and Quality Council (Australia), NSW Health (Australia) and Ministry of Health (New Zealand). Further details: quality@bma.org.uk; fax +44 (0) 7383 6869.

41st St Andrew's Day Festival Symposium on Therapeutics
The 41st St Andrew's Day Festival Symposium on Therapeutics will be held on 6–7 December 2001 at the Royal College of Physicians of Edinburgh. Further details: Ms Eileen Strawn, Symposium Co-ordinator (tel: 0131 225 7324; fax: 0131 220 4393; email: e.strawn@rcpe.ac.uk; website: www.rcpe.ac.uk).

10th International Congress on Behçet's Disease will be held in Berlin 27–29 June 2002
Further details: Professor Ch Zouboulis (email: zoubbere@zedat.fu-berlin.de).

5th World Congress of Perinatal Medicine, 23–27 September 2001, Palau de Congressos de Barcelona - Avda Maria Cristina s/n, Barcelona, Spain
Further details: Dr Francesc Figueras, Congress Promotion Secretary
(fax: +34.93.451.74 38;
www.perinatology2001.com).

Second International Conference on Sexual Health, to be held in Bangkok, Thailand on 23–28 February 2002. Calls for abstracts deadline 1 September 2001
Further details: European Secretariat, Dr Richard Burack (tel: +44 (0) 20 8599 8029; email: siamcare@aol.com).

International Conference on HIV/AIDS 16–19 December 2001, Mumbai, India
Further details: Dr Chander P Puri, President, Indian Society for Study of Reproduction and Fertility, Institute for Reserach in Reproduction, Jehangir Merwanji Street, Parel, Mumbai 400012, India (Tel: 4137730 (Direct), 4132111-2-6-7; fax: 091-022-4964853 *or* 091-022-4139412; e-mail: vichin@bom4.vsnl.net.in OR dirirr@vsnl.com).

10th International Symposium on Human Chlamydial Infection, 16–21 June 2002, in Antalya, Turkey
The scientific programme will encompass the breadth of chlamydial research from clinical and epidemiological studies to molecular and cell biology of all species of *Chlamydia*. Further details: Professor A Demir Serter, Department of Clinical Microbiology and Infectious Diseases, Ege University, Faculty of Medicine, 35100 Bornova, Izmir, Turkey (Fax: 90 232 343 71 30; e-mail: ISHCIX@itsa.ucsf.edu).

20th World Congress of Dermatology, Paris, 1–5 July 2002
Further details: P Fournier, Colloquium, 12 rue de la Croix St Faubin, 75011 Paris, France (rel: +33 1 44 64 15 15; fax: +33 1 44 64 15 16; email: p.fournier@colloquium.fr; website: www.derm-wcd-2002.com).