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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1 Department of Health. *Guidelines for offering voluntary named HIV testing to women receiving antenatal care*. PL/CO (92)5, 1992.
2 Intercollegiate Working Party for Enhancing Voluntary Confidential HIV testing in Pregnancy. *Reducing mother to child transmission of HIV infection in the United Kingdom*. London: RCPH, April 1998.
3 NHS Executive. *Reducing mother to baby transmission of HIV. Health Service Circular*. London: Department of Health, 14 August 1999;(HSC 1999/183).
4 CDSC. AIDS and HIV infection in the UK: monthly report. *Commun Dis Rep CDR Wkly* 2000;**10**:37–40.
5 Bryson YJ. Perinatal HIV-1 transmission: recent advances and therapeutic interventions. *AIDS* 1996;**10**(Suppl 3):S33–42.
6 Dorfman DH, Glaser JH. Congenital syphilis presenting in infants after the newborn period. *N Engl J Med* 1990;**323**:1299–301.

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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

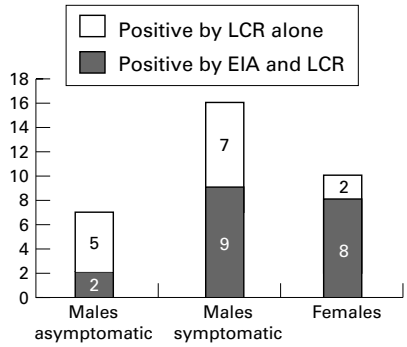

Figure 1 Chlamydia detection by diagnostic test. LCR = ligase chain reaction; EIA = enzyme immunoassay.

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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1 Black CM. Current methods of laboratory diagnosis of Chlamydia trachomatis infections. *Clin Microbiol Rev* 1997;**10**:160–84.
2 Wiesenfeld HC, Uhrin M, Dixon BW, *et al.* Diagnosis of male Chlamydia trachomatis urethritis by polymerase chain reaction. *Sex Transm Dis* 1994;**21**:268–71.
3 Thompson C, Jones R, Smith B, *et al.* Evaluation of microdot immunofluorescence antigen test for Chlamydia trachomatis. *Genitourin Med* 1994;**70**:262–4.
4 Davies PO, Ridgway GL. The role of polymerase chain reaction and ligase chain reaction for the detection of Chlamydia trachomatis. *Int J STD AIDS* 1997;**8**:731–8.

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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).