**The practice of STI treatment among chemists and druggists in Pokhara, Nepal**

Chemists and druggists working in “medical shops” play a significant part in the treatment of sexually transmitted infections (STIs) in resource poor countries. In some settings, chemists and druggists are consulted for first line treatment of STI symptoms more often than hospitals and clinics designed specifically to service such clients. Recent unpublished data from Pokhara, Nepal, suggest that in up to 80% of cases, treatment provided by chemists and druggists was inappropriate or incomplete. We report here on the quality of STI case management among a random sample of chemists and druggists from the 75 medical shops in Pokhara Municipality Area, Nepal.

Chemists and druggists working in all Pokhara medical shops, 65% of whom had received previous training in the national STD case management guidelines, based on WHO syndromic algorithms, were trained and motivated to initiate a register of all STI clients visiting medical shops for STI treatment in Pokhara, Nepal. (Correct drug and dosage, as per Nepal national STD case management guidelines.)

The practice of STI treatment among chemists and druggists in Pokhara, Nepal

The practice of STI treatment among chemists and druggists in Pokhara, Nepal

**References**

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There are no conflicts of interest.

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**Contributors**

KPB designed the study, oversaw data collection, and edited the paper; TES wrote the paper; MHK participated in study design, oversaw data collection, and conducted statistical analysis; PC acted as clinical advisor for the study.

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**Figure 1** Treatment recommended by chemists and druggists to simulated clients presenting with urethral and vaginal discharge, at 37 medical shops in Nepal. (*Correct drug and dosage, as per Nepal national STD case management guidelines.*)

**Table 1**

<table>
<thead>
<tr>
<th>Correct dosage of correct drug</th>
<th>Over dosage of correct drug</th>
<th>Partial or incomplete dosage of correct drug</th>
<th>Incorrect treatment</th>
<th>No drugs offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>24%</td>
<td>5%</td>
<td>5%</td>
<td>43%</td>
<td>22%</td>
</tr>
</tbody>
</table>
health is eager to perform surveillance for STIs, including viral hepatitis, resources for collection, storage, and testing of specimens are meagre. We evaluated the utility of a filter paper blood collection technique for determining rates of HIV, syphilis, and viral hepatitis B and C in this resource limited setting.\textsuperscript{6}\textsuperscript{,}\textsuperscript{7}

The study was approved by the institutional review boards at the University of Alabama at Birmingham and the Mongolian ministry of health. Volunteers including commercial sex workers, itinerant traders, homeless people, and attendees at the STI clinic were sampled in Ulaanbaatar, Mongolia. All subjects completed a questionnaire and provided blood via a finger stick.

Blood was collected as filter paper spots using Schleicher and Schuell (Keene, NH, USA) no 903 filter paper following the Standards protocol. Samples were dried, stored at room temperature for the duration of the 2 week visit to Mongolia, and then refrigerated upon arrival to the laboratory. For every blood spot, a \( \frac{1}{2} \) inch disc containing about 40 \( \mu l \) of serum was punched out of the filter paper. Disc samples were eluted in 400 \( \mu l \) of phosphate buffered saline for samples to be tested for syphilis testing and mentored IT in same, manuscript preparation; JWG processed laboratory specimens for rapid plasmin reagin (RPR) and FTA-ABS tests.

A total of 593 volunteers were enrolled. The prevalence of infection using the filter paper technique was 19\% for syphilis, 10.5\% for hepatitis C, and 21.6\% for chronic hepatitis B. The prevalence of hepatitis C was higher among homeless people compared to other risk groups (21.3\% vs 5.2–9.7\%) (table 1). For 128 volunteers with chronic hepatitis B, 86 of them (67.2\%) occurred in STI clinic attendees. Eleven individuals had reactive tests for syphilis. Three individuals had repetitively reactive ELISAs for HIV, however, none was confirmed by western blot. A total of 232 volunteers (39.1\%) reported use of condoms routinely. 55/593 (9.2\%) had a history of blood transfusion, and 9/593 (1.5\%) reported use of injecting drugs. Neither condom use, number of sexual partners, nor a history of blood transfusion were predictors of hepatitis B infection. No correlations were found between the prevalence of hepatitis C virus infection and the use of drugs or history of blood transfusions.

We found the filter paper technique for blood collection to be a reliable and useful method for serological studies in resource poor areas where blood collection and/or specimen transport may be difficult. Specimens were easily collected, stored, and transported before testing. Rates of viral hepatitis were high but rates of syphilis and HIV unexpectedly low. Future prevalence testing using this method will be able to determine trends of these communicable diseases in Mongolia.

Acknowledgements

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Contributors

IT helped design the project, organised and participated in specimen collection, performed data entry and analysis, and drafted the manuscript; MA organised and facilitated the study in Mongolia and reviewed the manuscript; SV helped design the project, reviewed data entry and manuscript preparation; JWG processed laboratory specimens for HIV testing and mentored IT in same, reviewed manuscript; EH processed laboratory specimens for syphilis testing and mentored IT in same, reviewed manuscript; JS helped design project, was involved in data analysis, and drafted the manuscript; MA helped design project and organise and participate in the study.

Table 1

<table>
<thead>
<tr>
<th>Group</th>
<th>No</th>
<th>Hepatitis B surface antigen (%)</th>
<th>Hepatitis C antibody (%)</th>
<th>HIV-1 ELISA (%)</th>
<th>Syphilis</th>
</tr>
</thead>
<tbody>
<tr>
<td>STI</td>
<td>374</td>
<td>86 (23)</td>
<td>36 (9.6)</td>
<td>3 (0.8)</td>
<td>6 (1.6)</td>
</tr>
<tr>
<td>CSW</td>
<td>72</td>
<td>8 (11)</td>
<td>7 (9.7)</td>
<td>0 (0)</td>
<td>3 (4.2)</td>
</tr>
<tr>
<td>Traders</td>
<td>76</td>
<td>18 (23.7)</td>
<td>4 (5.2)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Homeless</td>
<td>71</td>
<td>16 (22.5)</td>
<td>15 (21.3)</td>
<td>0 (0)</td>
<td>2 (2.8)</td>
</tr>
<tr>
<td>Total</td>
<td>593</td>
<td>128 (21.6)</td>
<td>62 (10.5)</td>
<td>3 (0.5)</td>
<td>11 (1.9)</td>
</tr>
</tbody>
</table>

* Repetitively reactive to HIV-1 ELISA but negative to western blot.

Table 1 shows that 78.3\% of samples were reactive to HIV-1 ELISA but negative to western blot. The prevalence of hepatitis B, hepatitis C, HIV-1, and syphilis among risk groups (21.13\%, 5.2–9.7\%, 5.2–9.7\%, and 0.5–0.8\%) (table 1). For 128 volunteers with chronic hepatitis B, 86 of them (67.2\%) occurred in STI clinic attendees. Eleven individuals had reactive tests for syphilis. Three individuals had repetitively reactive to HIV-1 ELISA but negative to western blot.

References

Condom access does not ensure condom use: you've got to be putting me on

Approximately 15 million incident cases of sexually transmitted infections (STIs) occur in the United States each year. These figures are troubling, given the public health importance of primary prevention measures that sexually active people can use to avoid unprotected intercourse, including latex condoms. Although considerable attention has focused on making condoms widely available, surprisingly little research has examined whether condom availability is sufficient to ensure condom use. We recruited a convenience sample of 98 male students through advertisements posted at two Georgia universities to evaluate sexual risk taking behaviour. Men were required to be aged 18–29 years, full time students, and to have used condoms for ≥3 episodes of vaginal intercourse. After providing information and informed consent, eligible men participated in a standardised interview about their experiences with condoms. The study was approved by the institutional review board of Emory University.

The 98 respondents averaged 22 years of age (SD 3). Sixty four (65%) were white, 27 (28%) were African-American, five (5%) were Asian American, and two (2%) were of mixed race. Men reported a mean of 18 lifetime sex partners (median 10, range 1–190); most (96%) reported having vaginal intercourse during the previous year. Eighty five men (87%) used condoms because of concern about acquiring STIs; of these, most men were also concerned about pregnancy. However, 73 men (74%) reported having vaginal sex without a condom when they “felt one should have been used” to protect against pregnancy and/or infection (median lifetime number of times without condom; range 1–450). Among men acknowledging unsafe sex (52%) admitted ever having unprotected intercourse despite ready access to condoms “within the same room” (median 5 times; range 1–300). Overall, condoms, although readily accessible, were not used in more than one third (37%) of lifetime acts of intercourse where risk of pregnancy or infection was perceived (2207 of 6225 acts). Reasons for men's most recent failure to use condoms, despite accessibility, included unwillingness to interrupt foreplay (48%), fear of loss of sensation or erection (17%), and inebration (17%).

Among all 98 participants, 58 men (59%) also reported occasions in which they intended to use a condom, only to find that they did not have a condom with them. At the most recent occasion when condoms were not available, 34 men (58%) chose to have unprotected intercourse. The remaining 24 men (42%) elected to abstain from intercourse and instead participated in non-penetrative sexual activities posing less risk for STI acquisition, or waited until a condom could be obtained. Despite the small size and self selected nature of our population, these findings point to formidable barriers to condom use, even when men are aware of the risk of infection. condom availability did not ensure condom use, even when condoms were available. The lack of availability of condoms did not deter most men from having intercourse. Avoiding sexual intercourse with an infected partner is the most effective way to prevent STIs. However, for sexually active people, condoms can only reduce the risk of infection when they are both readily available and actually used.

References

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Resolution of the recent performance problem of Abbott LCx Chlamydia trachomatis assay. Issues of repeat testing for confirmation of chlamydia infection

In February 2001, Abbott Laboratories issued a device correction notice to users of their LCx Chlamydia trachomatis assay suggesting that initially reactive ligase chain reaction (LCR) tests should be repeated on the same sample to validate the test result. A recent alert (December 2001) from the Medical Devices Agency (MDA, DA2001(09)) indicates that the device correction is still in force and points out the resource implications where retesting is required. We offer some data on LCR performance characteristics during this period and beyond.

www.sextransinf.com

Conflict of interest: Neither author has a conflict of interest that might prejudice the publication of this work, and no financial debt or specific affiliations. All financial and material support for this research and work are clearly identified in the manuscript.

Contributors
Both authors have made substantial contributions to the intellectual content of the paper. DR was responsible for the conception and design of the study, locating funding for the study, acquisition of study data, data analysis and interpretation, and drafting and revision of the research letter; MS was involved with the conception and design of the analysis and interpretation and drafting and revision of the research letter.

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The Department of Health pilot study on “Opportunistic screening for genital chlamydial infection in Portsmouth and Wirral” ran for a year up to October 2000. During that study, the standard adopted for reporting chlamydial infection included a repeat LCR test on all first catch urine samples that were initially LCR positive. Samples giving discrepant LCR results were further tested by Roche Cobas (PCR) polymerase chain reaction. Chlamydia LCR urine screening, with repeat LCR/PCR testing of positives, has continued in the Wirral pilot area and is also being used in other research projects locally.

Following the original device correction, we continued to carry out a repeat LCR but additionally included a PCR test on all initially positive LCR urine samples. Analysis of our data (table 1) suggests that compared to the baseline (satisfactory) performance during the Wirral pilot there was indeed a noticeable reproducibility problem when the device correction notice was issued. Since then however, the LCR performance has improved gradually to be at least as good as in the pilot period.

The MDA alert properly deals with kit overperformance or underperformance. However, this incident also prompted us to consider the wider issues of repeat testing for chlamydia diagnosis.

We have recently also examined the reproducibility of our Roche Cobas chlamydia PCR results and are concerned to have found that of 282 initially PCR positive urine samples only 237 gave repeat PCR positive results.

We sense that there may be a mistaken view adopted by some clinicians that all nucleic acid amplification tests (NAAT) are infallible for sensitivity and specificity. It is important that patients should be made aware (as we did during the screening pilot) that no test is 100% accurate. Problems of reproducibility have been reported for both LCR and PCR.

We recognise the dilemma in repeat testing of samples that give positive reactions in chlamydia NAATs; on the one hand, a low organism load in the specimen makes repeat positivity a matter of statistical chance of retesting a portion with detectable numbers—so cases will be missed. On the other hand, repeat confirmation ensures a more robust diagnosis is made which is so important in the light of the major implications of a chlamydia diagnosis for those who consider themselves well but decide to take a screening test. We would welcome debate on the need for retesting or independent confirmation of a positive chlamydia NAAT and support the need for continuous monitoring of all testing to ensure their consistent optimal performance.

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Table 1 Repeat LCR testing and PCR testing of initially positive LCR urines during the Wirral Chlamydia Pilot (Sept 1999 to Oct 2000, baseline) and for 3 month periods since the issue of the device correction (February 2001)

<table>
<thead>
<tr>
<th>Initial LCR positive (Sept 99–Oct 00)</th>
<th>No of urines</th>
<th>PCR+</th>
<th>PCR+/-</th>
<th>PCR- (a)</th>
<th>PCR- (b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repeat LCR:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>883 (92%)</td>
<td>6</td>
<td>1</td>
<td>12 (1.3%)</td>
<td>Not done</td>
</tr>
<tr>
<td>(0.5–0.99)</td>
<td>12 (1.3%)</td>
<td>6</td>
<td>1</td>
<td>12 (1.3%)</td>
<td>Not done</td>
</tr>
<tr>
<td>Negative</td>
<td>65 (6.8%)</td>
<td>13</td>
<td>5</td>
<td>50</td>
<td>2</td>
</tr>
<tr>
<td>Initial LCR positive (Mar–May 01)</td>
<td>134</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeat LCR:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>74 (55%)</td>
<td>70</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>(0.5–0.99)</td>
<td>18 (14%)</td>
<td>5</td>
<td>1</td>
<td>18 (14%)</td>
<td></td>
</tr>
<tr>
<td>Negative</td>
<td>42 (31%)</td>
<td>6</td>
<td>3</td>
<td>42 (31%)</td>
<td></td>
</tr>
<tr>
<td>Initial LCR positive (Jun–Aug 01)</td>
<td>121</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeat LCR:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>95 (79%)</td>
<td>90</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>(0.5–0.99)</td>
<td>2 (17%)</td>
<td>2</td>
<td>1</td>
<td>2 (17%)</td>
<td></td>
</tr>
<tr>
<td>Negative</td>
<td>24 (19.8%)</td>
<td>5</td>
<td>19</td>
<td>24 (19.8%)</td>
<td></td>
</tr>
<tr>
<td>Initial LCR positive (Sep–Nov 01)</td>
<td>90</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeat LCR:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>87 (96.6%)</td>
<td>82</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>(0.5–0.99)</td>
<td>1 (1%)</td>
<td>1</td>
<td>1</td>
<td>1 (1%)</td>
<td></td>
</tr>
<tr>
<td>Negative</td>
<td>2 (2.2%)</td>
<td>2</td>
<td>2</td>
<td>2 (2.2%)</td>
<td></td>
</tr>
</tbody>
</table>

(a) Inhibitory, (b) insufficient.
Hepatitis, syphilis, and HIV sentinel surveillance in Mongolia 1999–2000

I Tellez, M Altankhuu, S Vermund, J W Gnann, E H Hook and J Schwebke

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