

# An evaluation of an express testing service for sexually transmissible infections in low-risk clients without complications

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**Abstract.** *Background:* One effective way of reducing the prevalence of sexually transmissible infections (STIs) in a population is ensuring easy access to clinical services and screening of populations at high risk of STIs, including HIV. We aimed to describe the features of clients using the express testing service (ETS) and the overall impact on the service. *Methods:* This retrospective cross-sectional study involved all clients attending the walk-in triage service at Melbourne Sexual Health Centre before the introduction of ETS in 2009 and after ETS (2011 and 2012). *Results:* There were 32 720 and 82 265 consultations before and after ETS respectively. The ETS saw 4387 (9%) of 55 648 consultations (excluding appointments and results), giving rise to a fall in the proportion of lower-risk clients having full consultations (from 53% to 50% of consultations;  $P < 0.001$ ). The consultations testing for HIV and chlamydia (*Chlamydia trachomatis*) were marginally higher (HIV: 48% v. 47%,  $P = 0.017$ ; chlamydia: 70% v. 68%,  $P = 0.015$ ) with ETS. Young (26 v. 27 years) females (38% v. 34%) utilised the ETS more ( $P < 0.001$ ). The time taken for consultation and the total time spent in the clinic was significantly decreased during the ETS period (from 25 min to 6 min for consultation time and from 59 min to 29 min for total clinic time;  $P < 0.001$ ). *Conclusions:* The data suggest that fast-track services such as ETS are effective in increasing access for higher-risk individuals while streamlining screening of asymptomatic low-risk clients.

**Additional keywords:** accessibility, chlamydia screening, efficiency, fast-track, health service.

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## Background

One effective way of reducing the prevalence of sexually transmissible infections (STIs) in a population is ensuring easy access to clinical services for symptomatic individuals and screening of populations at high risk of STIs, including HIV.<sup>1–3</sup> Providing access to services for symptomatic individuals reduces the duration of infectiousness and screening high-risk asymptomatic individuals also decreases the duration of infectiousness. Our clinic has experienced increase demand in recent years with rising rates of chlamydia (*Chlamydia trachomatis*), gonorrhoea (*Neisseria gonorrhoeae*), syphilis and HIV.<sup>4</sup> Several different strategies have been used to improve clinic efficiency and improve access to clinical services.<sup>3</sup> One of these was an express service for lower risk heterosexuals.

The express STI testing service (ETS) was gradually introduced in June 2010 at the Melbourne Sexual Health Centre (MSHC) and became fully operational in 2011. The objective of this new model of service delivery was to improve access to full clinical service for higher-risk clients, such as men who have sex with men (MSM) or sex-workers,<sup>4–7</sup> by diverting

those at lower risk of transmitting STIs, particularly chlamydia,<sup>8,9</sup> and HIV to an express testing service. Our aim was to describe the features of clients using the ETS and the overall impact on the service.

## Methods

MSHC is the only publicly funded clinic in the state of Victoria, Australia. The model of service delivery is based on population health rather than individual health, and triage is in accordance with the aim of reducing the rates of HIV and STIs in the population through targeting priority communities as set out by the Australian Commonwealth 'STI Strategy 2010–2013'.<sup>9</sup> Clients attending the clinic may opt to use a pseudonym. No Medicare card or identity cards are required. Services are funded by the Victorian state government and all services offered – from consultations to tests, treatment and medications – are provided at no cost to the client. There are no competing clinics in Victoria, as MSHC is the only publicly funded clinic that does not use funding from the Australian national insurance Medicare.

The clinic conducts ~35 000 consultations annually and provides free HIV and STI testing, using a walk-in triage service (WITS). Individual computerised records include basic demographic information such as age and gender, and behavioural information such as the number of male and female sexual partners, the rate of partner change, condom use and blood-borne virus risk in the last 12 months. On attendance to the service, new clients or those not seen in the previous 3 months first complete a detailed sexual history using computer assisted self-interviewing<sup>10,11</sup> and then see a triage nurse, who assesses and allocates them to either a doctor (complex symptomatic clients) or a nurse (asymptomatic clients without complications) or those attending for results only. MSHC automatically captures electronic epidemiological data from computer assisted self-interviewing, including the risk profile on all new clients, using the clinic software Clinical Practice Management System. This system also time-stamps clients as they move through the clinic.

This study was a retrospective cross-sectional study of all clients attending WITS at MSHC before the introduction of the ETS in 2009 (1 January 2009 to 31 December 2009) and comparing this to after ETS (1 January 2011 to 31 December 2012). Clients who attended for appointments or results were excluded from the study. Appointments at the clinic are made only for returning clients when a review is required for follow-up such as in complex individuals such as those with vulval or dermatological conditions. Clients attending for results are those who had already been seen, mostly through the WITS, and opted or were asked to return to the clinic for results. A subset of first-ever consultations at MSHC was compared for differences between express and standard asymptomatic heterosexual clients after the introduction of the ETS service.

MSHC first introduced the ETS on 7 June 2010. A client was defined as heterosexual if he or she had had sex only with partners of the opposite sex in the last 12 months. MSM were defined as men who have had sex with another man within last 12 months. Clients were eligible for ETS if they were asymptomatic, heterosexual, had no delayed or abnormal menstrual cycle, were 16 years or older, not a contact of someone with an STI, were deemed to be psychologically satisfactory for ETS, and were able to read and understand the ETS information pamphlet in English. Contacts are defined as individuals who have had sex with an index case and had been contacted by the 'index' case face-to-face, by letter, by phone application or internet applications, or by Partner Notification Officers; and are self-reported at triage or may present with a letter or a text message. MSM, sex workers (clients requesting a sex-worker certificate for work in the State of Victoria)<sup>7</sup>, injecting drug users and those who had had sex in a country with a prevalence of HIV over 1% were ineligible for the ETS. If the client consented to participate in ETS, they were provided with a written pamphlet that included a description of ETS, STI information and HIV pretest information to be read in the waiting room before being seen by a clinician. ETS was offered consistently throughout the 2011 and 2012 period.

Clients were then seen by the ETS nurse. All clients are offered a first-void urine test for chlamydia and an option to have blood tests for HIV and syphilis. They are informed that these are the only three tests offered by ETS. Tests for HIV, syphilis,

gonorrhoea or trichomoniasis are not recommended for clients who fulfil the criteria for ETS even within the standard practice because these infections are rare in these epidemiological groups locally.<sup>5,8,9,12,13</sup> There is essentially no opportunity to discuss other issues. Blood for tests of HIV and syphilis are collected by the ETS nurse if requested by the client. The clients are contacted by phone only if any of their test results are found to be positive.

The data were analysed using SPSS ver. 21 (IBM, Armonk, NY, USA). A  $\chi^2$ -test was used to compare categorical variables between the periods before and after ETS, and ETS and non-ETS groups. The Mann–Whitney U-test was performed to compare continuous variables (age of clients, consultation time and length of stay in the clinic) of the study before and after ETS, and between ETS and non-ETS groups.

## Results

There were 32 720 consultations during the pre-ETS period and 82 265 consultations during the 2-year ETS period. We excluded appointments (26% of consultations in both periods) and consultations for results (23% and 16% of consultations before and after ETS respectively) from further analysis in both periods (Table 1). This left 16 672 and 47 825 consultations in 2009 and 2011–12 respectively. The ETS saw 9% of consultations and resulted in a substantial fall in the proportion of lower-risk clients having full consultations (from 53% to 50% of consultations,  $P < 0.001$ ). Over this time, the total number of clients seen in the clinic also rose. There were no differences between 2011 and 2012 in the age, sex distribution or proportion of clients by risk group ( $P > 0.10$ ),

**Table 1. Characteristics of consultations before and after the introduction of express testing services (ETS)**

The period before ETS was 2009; the ETS period covers 2011–12. MSM, men who have sex with men; IDU, injecting drug users

Characteristic	Before ETS (%)	ETS (%)
Consultation type		
Appointment	8637 (26)	21555 (26)
Results	7411 (23)	12885 (16)
Included in analysis	16672 (51)	47825 (58)
Total	32 720 (100)	82 265 (100)
Age (years)		
Median	29	29
Sex		
Male	11 067 (66)	31 485 (66)
Female	5581 (34)	16 223 (34)
Transgender	24 (0)	117 (0)
Triaged category		
Uncomplicated	8774 (53)	23 662 (50)
Complicated	7898 (47)	19 776 (41)
ETS	0	4387 (9)
<i>P</i> -value	$P < 0.001$	
Risk profile		
MSM	3514 (21)	10 031 (20)
Heterosexual clients	9078 (55)	26 491 (53)
Sex workers	3442 (25)	12 530 (25)
IDU	385 (3)	1249 (2)
<i>P</i> -value	$P < 0.001$	

although the proportion of the clients who went through the ETS system rose gradually over the period.

Table 2 shows the characteristics of clients who were potentially eligible for the ETS service before and after the introduction of ETS. The clients tested for HIV and chlamydia were marginally higher (HIV: 48% v. 47%,  $P=0.017$ ; chlamydia: 70% v. 68%,  $P=0.015$ ) in the ETS period than the period before ETS. There was no substantial difference before and after ETS in the detection of chlamydia. No clients tested positive to HIV and syphilis either before or after ETS (Table 2).

Table 2 also shows the time taken for consultation (20.4 min v. 17.0 min,  $P<0.001$  min before and after ETS respectively) and the total time a client spent in the clinic (59.7 v. 43.0,  $P<0.001$  min before and after ETS respectively) for both periods.

Table 3 shows data on the subset of consultations that were made by new clients during the ETS period. It shows that young (26 v. 27 years,  $P<0.001$ ) females (38% v. 34%,  $P<0.001$ ) have utilised the ETS service more. The time taken for consultation and the total time spent in the clinic were significantly lower (time taken for consultation: 6.1 v. 24.7 min,  $P<0.001$ ; total time spent in the clinic: 29.0 v. 59.4 min,  $P<0.001$ ) for an ETS client than for a non-ETS client during the ETS period.

## Discussion

These findings need to be considered in the context that this study was an observational before and after study that may be subject to several different biases. Our study showed that when

an ETS was implemented for low-risk heterosexuals, 9% of consultations were seen through this service. The ETS consultation consumed only one-third of the clinician time. Accordingly, three or four express clients can be seen in the time a routine consultation would take. Importantly, among clients who were potentially eligible for an ETS (i.e. lower-risk clients), no material change in HIV and chlamydia testing was seen before and after ETS. Reducing the time taken to see patients without complications has had a significant impact on the cost of seeing these clients. Currently, ~2500 clients are seen through the ETS (average consultation time 6 min), which equates to 250 h of clinician time. In contrast, if these clients were seen through the usual clinic (average consultation time: 20 min) then 833 h of clinic time would be needed. At an average cost of \$100 per hour to staff the clinic, this equates to an annual saving of about A\$60 000.

Importantly, the intention of ETS was also to reduce a 'bottle-neck' and to increase capacity, especially where high-risk clients with complications could access the service.

The number of clients presenting to our service has increased by 10% per annum since 2009. The implementation of the ETS has allowed us to streamline low-risk clients into this service and has reduced barriers for other clients.

Our findings are consistent with two previous studies that demonstrate improved sexual health services without reduced quality. In the study evaluating an ETS at Sydney Sexual Health Centre, the express clinic saw 13% of its consultations. They also observed substantial reductions in waiting time for consultations and length of stay in the clinic after ETS compared with before ETS, with no additional cost to the

**Table 2. Characteristics of clients who were potentially eligible for the express testing service (ETS) before and after the introduction of ETS, and characteristics of clients in the ETS versus standard consultations in the ETS period**

Clients that were potentially eligible included asymptomatic men and women who spoke and read English, consented to ETS, were not men who had sex with men, had no blood-borne virus risk (including injecting drug use, were not sex workers, had not had sex in a high prevalence country (prevalence >1%), had not had sexual contact with a bisexual man or a person living with HIV/AIDS, and were not a contact of a sexually transmissible infection patient. The period before ETS was 2009; the ETS period covers 2011–12

Characteristic	Before ETS ( <i>n</i> = 8774)	Before v. after ETS ETS period ( <i>n</i> = 28 049)	Significance	ETS ( <i>n</i> = 4387)	ETS period Non-ETS ( <i>n</i> = 23 662)	Significance
Median age (years)	28	29	$P<0.001$	26	30	$P<0.001$
Sex (%) <sup>A</sup>						
Male	6165 (70)	19 212 (69)	$P=0.003$	2800 (64)	16 412 (70)	
Female	2593 (30)	8757 (31)		1587 (36)	7170 (30)	$P<0.001$
HIV test being performed on current visit (%)						
Yes	4112 (47)	13 555 (48)	$P=0.017$	2461 (56)	11 094 (47)	$P<0.001$
No	4662 (53)	14 494 (52)		1926 (44)	12 568 (53)	
Testing for chlamydia (%)						
Yes	5978 (68)	19 496 (70)	$P=0.015$	4260 (97)	15 236 (64)	$P<0.001$
No	2796 (32)	8553 (30)		127 (3)	8426 (36)	
Chlamydia test results (%) <sup>B</sup>						
Positive	311 (5)	858 (4)	$P=0.01$	194 (5)	664 (4)	$P=0.582$
Negative	5667 (95)	18 638 (96)		4066 (95)	14 572 (96)	
Median consultation time (min) <sup>C</sup>	20	17	$P<0.001$	6	20	$P<0.001$
Median total time spent in clinic (min) <sup>C</sup>	60	43	$P<0.001$	29	50	$P<0.001$

<sup>A</sup>The transgender category, which had 16 visits in before ETS (2009) and 80 visits after ETS (2011 and 2012), was excluded from the analysis.

<sup>B</sup>Differences between these values and their respective total values in the head row were due to missing values for the variable concerned.

<sup>C</sup>Values for these variables  $\leq 0$  or  $\geq 100$  were excluded from the analysis.

**Table 3. Characteristics of potentially eligible consultations for new clients who presented to Melbourne Sexual Health Clinic in 2011 and 2012**

Clients that were potentially eligible included asymptomatic men and women who spoke and read English, consented to ETS, were not men who have sex with men, had no blood-borne virus risk (including injecting drug use) were not sex workers, had not had sex in a high prevalence country (prevalence >1%), had not had sexual contact with a bisexual man or a person living with HIV/AIDS, and were not a contact of an STI patient. The ETS period covered 2011–12

Characteristic	ETS ( <i>n</i> = 3134)	Non-ETS ( <i>n</i> = 7873)	Significance
Median age (years)	26	27	<i>P</i> < 0.001
Sex (%) <sup>A</sup>			
Male	1945 (62)	5196 (66)	<i>P</i> < 0.001
Female	1189 (38)	2661 (34)	
HIV test being performed on current visit (%)			
Yes	1796 (57)	4593 (58)	<i>P</i> = 0.322
No	1338 (43)	3280 (42)	
Testing for chlamydia (%)			
Yes	3058 (98)	6052 (77)	<i>P</i> < 0.001
No	76 (2)	1821 (23)	
Chlamydia test results (%) <sup>B</sup>			
Positive	159 (5)	339 (6)	<i>P</i> = 0.425
Negative	2899 (95)	5713 (94)	
Median consultation time (minutes) <sup>C</sup>	6	25	
Median total time spent in clinic (minutes) <sup>C</sup>	29	59	

<sup>A</sup>The transgender category, which had 16 visits in 2011 and 2012, was excluded from the analysis.

<sup>B</sup>Differences between these values from their respective total values in the head row were due to missing values for the variable concerned.

<sup>C</sup>Values for these variables ≤ 0 or ≥ 100 were excluded from the analysis.

clinic.<sup>14</sup> The ETS at Denver Metro Health Clinic in Colorado operating on a first-come, first-served walk-in basis only saw 26% of all new consultations during the last 9 of 16 months after its implementation at the centre.<sup>12</sup>

The median length of stay for a visit in the Sydney study declined from 40 min in the routine clinic to 21 min in the express clinic. In the Denver study, it had declined to 46 min and 52 min in the ETS from 105 min and 85 min in comprehensive routine visits among female and male clients respectively.<sup>14,15</sup>

Our study showed no substantial difference in testing for or detection of chlamydia before and after ETS for low-risk clients. However, in Denver Metro Health Clinic, the detection of chlamydia was 2.4 times higher among males and 1.7 times higher among females when comparing comprehensive to express visits; the Sydney study did not examine testing or diagnosis rates of these STIs in their study.<sup>14,15</sup> The prevalence of chlamydia is ~4.6% in heterosexuals under 29 years old in Australia.<sup>16</sup> If ETS had not been introduced, some of these individuals may not have been seen, due to clinic capacity, and this would constitute a missed opportunity to screen. Some would have

been referred to return to our clinic or to their own general practitioner (GP). Access to a GP in Australia may involve a gap payment, as some GPs will charge an additional cost for a consultation.<sup>17,18</sup>

Our study had several weaknesses that need to be considered when interpreting these data. First, the study was undertaken in a single sexual health service and it is possible that the findings of this study are not reflective of overall client access to other sexual health services in other parts of the world. Second, this was an observational study and is liable to several biases associated with such studies. Third, the ETS is unable to cater for people who are unable to comprehend spoken or written English well, so a proportion of our non-English-speaking clientele would have had missed out on this service. Finally, our study could not account for other changes (e.g. public health campaigns) that might have occurred during either before or after ETS that may have influenced the pattern of clients seen or testing patterns.

Our study has several strengths. It used a comparison of all low-risk clients who attended before and after ETS to provide an overall picture of the influence of the ETS. We also used a larger sample size compared with other studies, which enabled us to examine changes more precisely and accurately.

Some readers may have concerns about the ethics of including an ETS that does not mean that all clients are provided with the same service. We acknowledge this concern, but there is also an ethical issue with being unable to provide services to all clients presenting to the service. On some days, for example, up to one-third of individuals presenting to the service are not able to be seen. Therefore, striving for improved efficiency to provide sufficient capacity to see everyone is something clinical services need to consider in their decision-making processes.

Fast-tracking in sexual health services may be generalisable to other populations but will need to take into account their local STI epidemiology and priority groups and offering a fast-track service to populations who are not at increased risk of transmitting STIs.<sup>19,20</sup> The typically young clients accessing STI screening are becoming more and knowledgeable about their sexual risks and more technologically savvy about what they may wish to be tested for, and increasingly choose a more convenient option for STI screening. Future technological changes in screening tests that are rapid and provide on-the-spot results with good positive predictive values will increasingly take over conventional testing for STIs.<sup>19,20</sup> In the meantime, fast-track services such as ETS could be used to increase clinical efficiency in sexual health services.

## Conflicts of interest

None declared.

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