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Does online STI screening compromise care? A service evaluation comparing the management of Chlamydial infection diagnosed online and in clinic

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Abstract

Patient demand on sexual health services (SHS) in the UK is so high that many services have introduced online screening to accommodate more patients. There are concerns that these services may not be accessible to all. This service evaluation was undertaken to determine whether online screening is accessible by those patients most at need by comparing the demographics and number of asymptomatic chlamydial infections detected online and in clinic. No difference was found in the age nor level of deprivation, demonstrating that online services are an accessible way to screen for STIs without overburdening established services.

INTRODUCTION

Sexual health services (SHS) in the UK are confidential and free at the point of access¹. They are essential in preventing onward transmission of sexually transmitted infections (STIs) and in maintaining good reproductive health², however the demand for SHS continues to increase putting greater demands on service capacity. Both the British Association for Sexual Health and HIV (BASHH) and the National Institute for Health and Care Excellence (NICE) guidelines recommend that patients should be able to access an appointment at SHS within 2 working days of contact^{5, 6}. Recent studies have shown that access to SHS in the UK has worsened and fall short of this recommendation with only a reported 91% of patients being offered an appointment within 2 working days.^{6, 7}

In 2015, Hampshire became one of the first counties in the UK to offer a comprehensive county-wide online sexual health screening for asymptomatic patients. This involves clinics directing individuals to ordering an online test from the SHS's website to a residential postal address in the county and sending the self-taken sample to an affiliated laboratory. Users receive results via a text or telephone call. The users are required to have internet access; the facility to confidentially receive the testing kit, and to be able to self-sample correctly and return their samples.

Those at higher risk of STIs include people below the age of 25 years, black and ethnic minority patients (BAME), sexual and gender minority groups and those living in deprived areas^{8, 9}. These groups are also more likely to face barriers to access due to stigma, discrimination and low awareness of STIs and SHS¹⁰. Additionally, they are less likely to be health literate and proactive in the self-care^{11, 12}. Although

self-taken samples are as effective as clinician taken samples¹³, previous studies have shown that younger people and BAME individuals are less likely to return their self-taken STI samples¹⁴. Additionally, some younger people remain concerned about the ability to receive online kits and digital communication from SHS, confidentially.^{15, 16} Due to these requirements, it has been suggested that on-line testing may not be accessible to these higher risk groups. However, countered against this there are also specific barriers related to clinic attendance such as embarrassment, fear of discrimination, intimate examinations by clinicians or the inability to physically access SHS at a given time and location so it might be that online testing offers a more convenient way to be screened for these individuals.^{17,18}

Studies outside the UK have demonstrated the benefits of widened access to services through online screening, particularly in MSMs and in rural communities. Online STI screening has become increasingly available in regions of the UK¹⁹⁻²¹, although limited data is available on what impact this has had on access to services²². There has been a substantial acceleration of remote STI screening due to COVID-19 with BASHH recommending the provision of online SHS to reduce face-to-face clinic visits²³. This retrospective service evaluation aimed to identify the differences in demographic characteristics in patients diagnosed with Chlamydia infection via online testing in comparison to those diagnosed in clinics. The objective of the analysis was to determine whether online screening is accessible and utilised by those patients most at need of SHS.

METHODS

This service evaluation compared the number of asymptomatic chlamydial infections within two significant periods: Time 1 - before the introduction of online self-sampling STI screening (September 2014 – March 2015) and Time 2 – after the introduction of self-sampling services (September 2017 – March 2018). The period for Time 2 was chosen to allow for the system to be up and running in order to allow for a valid comparison so that data would not be affected by problems associated with initial logistical difficulties. Chlamydial infection was a marker due to it being the most common bacterial STI, and particularly predominant in younger people⁸ in line with the National Chlamydia Screening Programme. The comparison between online and in-clinic SHS was based on online STI self-sampling offered to the residents of Hampshire, UK through Solent NHS Trust 'www.letstalkaboutit.nhs.uk' portal since March 2015.

The Sexual Health Electronic Patient Records (EPR) of service users from Solent NHS Trust were used for data collection. Differences in patient demographics (i.e. age, gender, sexual orientation, ethnicity and postcodes) as a measure of deprivation using the UK Index of Multiple Deprivation (UKIMD) and case management between in-clinic and online service users were investigated.

These variables were dichotomised to perform Chi-Square test on all variables.

A further in-depth analysis of the case management of a randomised selection of 100 patients in two comparison groups in Time 2; clinic diagnosed patients and online diagnosed patients, was completed. The records were individually analysed with their case management in detail in order to establish time between testing and treatment and the number of episodes of treatment. Where data was not recorded or incorrectly coded, individual data were excluded and subsequently substituted for the

next randomised case. The University of Southampton Ethics and Research Committee approved this service evaluation (ERGO Number: 45657)

RESULTS

Before the introduction of online self-sampling services, in the six months of analysis, 26,104 STI screens were performed of which 2847 (10.9%) patients were diagnosed with chlamydial infection. Of these, the majority were <25 years old, of white ethnicity, identified as heterosexual and female. After the introduction of online self-sampling services, 23,712 STI screens were completed in clinic in the six month period of which 2066 (8.9%) were diagnosed with chlamydial infection and 775(4.8%) individuals of the 15,917 who completed online tests were diagnosed with chlamydial infection. Drawing a comparison between Time 1 and 2 , proportionally fewer extra-genital chlamydial infections were detected in Time 1 (4%) than in Time 2 (6.5% in clinic and 7.1% online). Similar trends in patient characteristics were observed in in-clinic and online STI screening as expected, the majority of patients diagnosed since online testing introduction remained as <25 years old, of white ethnicity, heterosexual and female.

The analysis demonstrated no difference in the number of individuals living in an area of deprivation nor of gender between those diagnosed with before and after online testing was introduced within the two time periods. However, there was a significantly greater number of patients who were non-heterosexual (i.e. self-identifying as gay, bisexual or men who have sex with men) and of BAME ethnicity. The patients diagnosed with chlamydial infection online were significantly more likely to be female, non-heterosexual and of white ethnic identity compared with those

individuals who were diagnosed in clinic. There was no significant difference in the age or level of deprivation between those diagnosed in clinic service compared to those diagnosed via the online service. Additionally, patients diagnosed in clinic were significantly more likely to wait more than a week for treatment than those diagnosed through online services (76% vs.53%) respectively, OR 9.94) and were more likely to need retreatment (22% vs.3%, respectively, OR 2.71).

DISCUSSION

This service evaluation compared the characteristics of individuals diagnosed with chlamydial infection before and after online STI screening was introduced and secondly the characteristics of those having online testing versus those who opted for in-person testing. This study found that females and non-heterosexuals were more likely to be diagnosed by online screening and that individuals who were tested online received treatment faster and were less likely to require re-treatment. There was no difference in the age or level of deprivation between those diagnosed in clinic service compared to those diagnosed via the online service. The concerns that online testing is not accessible to younger people or those from deprived areas, are not supported by this study.

It is of notable significance that this study found that those diagnosed with chlamydial infection online received treatment sooner and were less likely to require retreatment than those diagnosed in clinic. The reason for this is unknown, it could be that the patients diagnosed online were more motivated to attend quickly and comply with treatment.

This study also found that females and non-heterosexuals were more likely to be diagnosed online than in clinic. This indicated that in these groups, online tests may be perceived as a more acceptable and accessible method of testing for STIs than in clinic. Overall, 13% of people in the UK are from BAME backgrounds, although in Hampshire where the study was conducted, this figure is only 8%²⁴. The proportion of chlamydial infection diagnosed individuals of BAME ethnicity increased over the 2 years from 9% to 13%, however they were less likely to be diagnosed via the online service. Previous research showing lower return rates of online testing kits among BAME patients could be a contributing factor¹⁴.

The limitations of this study are firstly that there may be a proportion of undiagnosed chlamydial infection in patients who did not return their sample kits, additionally there is missing data for those patients who elected to have treatment from elsewhere.

These may be the most hard to reach group and therefore this study does not determine if access to these patients has been affected by the introduction of online testing. Secondly, within Hampshire there are a large number of transient university student population who are not from deprived backgrounds but are temporarily residing in deprived city areas which may skew the analysis of deprivation^{25, 26}.

Thirdly, Hampshire has a lower proportion of minority individuals; both in sexual orientation and ethnicity than the rest of the UK, so the findings may not be transferrable to other areas or countries. Additionally, this study is limited by a small sample size regarding case management, even though a significant difference was detected.

This study demonstrates that online services are an effective and accessible alternative to screen patients for STIs without overburdening established services even in some high-risk populations such as younger individuals.²⁷ However, we

suggest that qualitative research is undertaken in specific demographic groups to identify any specific barriers to using online screening.

Word count

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Exploring the acceptability of online sexually transmissible infection testing for rural young people in Victoria Jane E Tomnay 1, Lisa Bourke, Christopher K Fairley

Table 1. Demographics of patients diagnosed with chlamydial infection, comparing before and after online testing was introduced

Variable	Before online testing		After online testing		
	Clinic Total n (%)	OR (95% CI) for comparison between before and after online testing	Clinic Total n (%)	Online Total n (%)	OR (95% CI) for comparison between in-clinic and online testing
Overall total	2847		2066	775	
Age	2847		2066	775	
<25 years	1949 (68%)	<i>ref</i>	1334 (65%)	520 (67%)	<i>ref</i>
25+	898 (32%)	<i>1.19 (1.05-1.34)*</i>	732 (35%)	255 (33%)	<i>0.89 (0.75-1.06)</i>
Ethnicity	2308		1767	399	
BAME	209 (9%)	<i>ref</i>	227 (13%)	33 (8%)	<i>ref</i>
White	2099 (91%)	<i>0.67 (0.55-0.82)*</i>	1540 (87%)	366 (92%)	<i>1.63 (1.11-2.39)*</i>
Sexual orientation	1456		926	241	
Non-heterosexual	120 (8%)	<i>ref</i>	51 (6%)	28 (12%)	<i>ref</i>
Heterosexual	1336 (92%)	<i>1.54 (1.09-2.16)*</i>	875 (94%)	213 (88%)	<i>0.44 (0.27-.72)*</i>
Gender	2846		1898	647	
Female	1561 (55%)	<i>ref</i>	1007 (53%)	437(68%)	<i>ref</i>
Male	1285 (45%)	<i>1.07 (0.95-1.20)</i>	891 (47%)	210 (32%)	<i>0.54 (0.45-0.65)*</i>
Living in an area of deprivation	2847		2066	775	
±		<i>1.02 (0.91-1.14)</i>	±		<i>1.02 (0.99-1.05)</i>
Site of Infection	2847		2066	775	
Genital	2724 (96%)	<i>ref</i>	1925 (93%)	720 (93%)	<i>ref</i>
Extra-genital	123 (4%)	<i>1.62 (1.27- 2.08) *</i>	141 (7%)	55 (7%)	<i>1.07 (0.38- 3.00)</i>

*significant at p<0.05, BAME – Black and Asian minority ethnic, OR – Odds ratio; CI – Confidence Interval, ref – reference category

The first OR (95% CI) column represents the comparison between clinic diagnoses when comparing before and after online testing introduction.

The second OR (95% CI) column represents the comparison between clinic and online diagnoses since online testing introduction.

Table 2. Case management of patients diagnosed with chlamydial infection after online testing was introduced (September 2017-March 2018), comparing clinic and online.

	Clinic Total n (%)	Online Total n (%)	<i>Odds Ratio (95% Confidence Interval)</i>
Duration between test & treatment	99	99	
Within 1 week	53 (53%)	75 (76%)	<i>2.71 (1.48-4.97)*</i>
>1 week	46 (46%)	24 (24%)	<i>ref</i>
Number of treatments required	98	106	
1	76 (78%)	103 (97%)	<i>9.94 (2.87-34.42)*</i>
>1	22 (22%)	3 (3%)	<i>ref</i>

*significant at p<0.05; ref – reference category