



Public Health  
England

Protecting and improving the nation's health

# **National HIV Self-Sampling Service Two year service report**

**November 2015 to October 2017**

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Published March 2018

PHE publications

gateway number: 2017888

PHE supports the UN

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## Executive summary

In November 2015, based on the success of 2 national pilots, Public Health England (PHE) and local authorities co-commissioned and launched a nation-wide HIV self-sampling service for most at-risk populations for HIV acquisition: [www.freetesting.hiv](http://www.freetesting.hiv).

In February 2016, the service was devolved to participating local authorities who have since taken responsibility for commissioning the service for their areas. National commissioning of the service by PHE occurs during pre-approved periods of time during national HIV prevention campaigns including National HIV Testing Week. The National HIV Self-Sampling Steering group co-chaired by PHE and a Local Authority representative has responsibility for service governance and quality management.

### Report objectives

Share data and learning from the National HIV Self-Sampling Service with national, regional and local stakeholders.

Enhance understanding of who is accessing the service and whether it is reaching most at-risk groups (including Men who have Sex with Men (MSM) and black African communities) and first-time testers.

### Methods

Disaggregated anonymised data from service users ordering and returning kits from 11 November 2015 to 31 October 2017 were analysed. Data analysis included: ethnicity, gender, sexual orientation, self-reported risk factors, local authority residency, and HIV testing information for all kits tested.

### Key findings

Between November 2015 and October 2017, 81,761 kits were ordered of which 45,350 (55.5%) were returned.

Of those returned, 1.04% (467) of specimens were reactive which translates to a cost per reactive of £933.

The service has been successful at engaging first time testers. A total of 13,356 kits were tested and 134 reactives were identified from users who had never had an HIV test before.

Demand for the HIV self-sampling service is highest among MSM who made up 71% of kits tested. Of these 1.07% were reactive.

A total of 3,238 kits were tested from black African service users which represented 7.25% of all kits tested.

## Conclusions

The national self-sampling service continues to be successful at engaging most at-risk populations for HIV acquisition across the nation including those who have never tested for HIV before. The national HIV self-sampling service offers a low cost HIV testing service that can complement current service provision to key populations.

# 1. Background

The aim of the National HIV Self-Sampling service is to provide a cost efficient and clinically robust remote HIV self-sampling service for sexually active individuals aged 16 years and over. Emphasis is placed on increasing HIV testing amongst most at risk groups including men who have sex with men (MSM) and black African populations as well as other individuals at increased risk of HIV).

The service, which aims to complement other local HIV testing services, is run entirely by the appointed provider (Preventx) who was selected through a competitive tendering process. The service is free at the point of use to the user and is independent from other STI remote sampling and testing services.

Local authorities across England fund use of the service by their residents, after entering into an individual contract with the service provider (Preventx Limited) based on a framework agreement that is managed by ESPO (Eastern Shires Purchasing Organisation) on behalf of PHE (see appendix 1 for further details on the process for signing up to the framework).

## 1.1 Service scope

Preventx Limited is responsible for HIV self-sampling service provision delivered through [www.freetesting.hiv](http://www.freetesting.hiv). Preventx Limited is responsible for maintaining the website, kit fulfilment and testing returned samples from their Sheffield based laboratory. Communication of reactive results has been subcontracted to Yorkshire MESMAC who are responsible for contacting the service user to facilitate their transition to an appropriate level 3 GUM/integrated sexual health service for confirmatory testing and support. For further information on service provision, see Appendix 2 for the HIV self-sampling service user pathway.

## 1.2 Service promotion

Local authorities procuring the service are responsible for local promotion. National promotion of the service is conducted during pre-approved periods of time supported by the national HIV prevention programme (<https://www.hivpreventionengland.org.uk/>) including National HIV Testing Week.

### 1.3 Cost benefits

The HIV self-sampling service complements current local HIV test provision by offering an online, low threshold alternative to those who either have never tested for HIV or wish to test more regularly. Procurement of the national HIV self-sampling service was expected to offer cost benefits to both local and national government bodies. In fact the price achieved through such a large-scale procurement exceeded expectations, offering: a low cost HIV test; increased capacity and the potential to increase earlier diagnosis.

## 2. Service overview

Between November 2015 and October 2017 there were a total of 833,030 visits to the service website and with new visitors accounting for 74% of all traffic. A total of 81,761 kits were requested of which 45,350 (55.5%) were returned and 44,791 tested (see Table 1).

**Table 1: Comparison of year 1 (November 15 - October 16), year 2 (November 16 - October 17) and total (November 15 - October 17) demand for the national HIV self-sampling service**

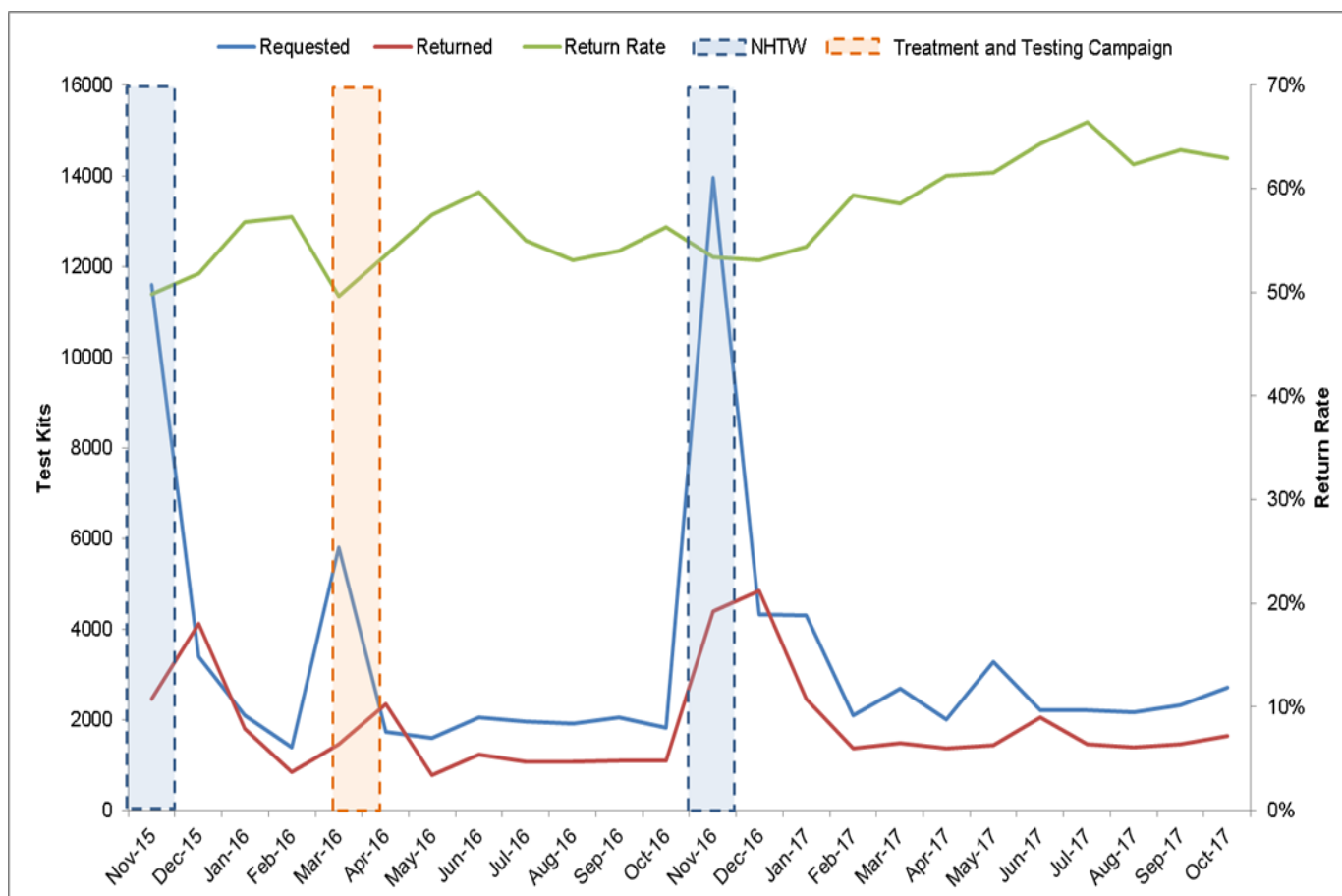
Service Users			
	Y1 (November 15 - October 16)	Y2 (November 16 - October 17)	Total (November 15 - October 17)
Visitor sessions	255,797	577,233	833,030
New visitors	187,852 (73.4%)	428,802 (74.4%)	616,654 (74.0%)
Service lookups	129,262	145,046	274,308
Kits requested	37,449	44,312	81,761
Kits returned	19,726	25,624	45,350
Kits tested	19,421	25,371	44,791
Return rate	52.7%	57.8%	55.5%
Reactive results (rate)	206 (1.06%)	261 (1.03%)	467 (1.04%)
High reactive (rate)	137 (0.71%)	143 (0.56%)	280 (0.62%)
Low reactive (rate)	69 (0.35%)	118 (0.47%)	187 (0.42%)

Term	Definition
Visitor sessions	Visitors to the service website
Service lookups	Visitors entering age and postcode to check eligibility
Kits requested	Number of kits orders during the time period
Kits returned	Total number of kits returned to laboratory. This number has been adjusted to match the time period when they were requested
Kits tested	All kits returned during the time period.
Return rate	Rate calculated based on kits returned and kits requested.
Reactive results	When the service testing algorithm indicates the presence of HIV antibodies or antigens, the specimens are identified as reactive results and categorised as either high or low. This is not equivalent to an HIV diagnosis. All reactive are referred to clinical services for confirmation
Reactive rate	Indicates rate of all reactive results over kits tested
High reactive	Specimens with a Cut Off Index (COI) of 50 and above
Low reactive	Specimens with a COI between 1 and 50



Demand for the HIV self-sampling service peaked during the National HIV Testing Week (NHTW) and Treatment and Testing campaigns (see Figure 1). During November 2015, the month of NHTW, 11,596 testing kits were requested, in November 2016 13,944 kits were requested. The rate of returned kits has increased over time from 51.8% in November 2015 to 63.0% in October 2017 (see Figure 1).

**Figure 1: National HIV self-sampling service demand: numbers of kits tested and returned for November 2015-October 2017**



## 2.1 Reactive results

The HIV self-sampling service used a fourth generation assay between 2015 and October 2017 after which a fifth generation assay was implemented. Specimens identified as reactive are categorised as either high or low but this is not equivalent to an HIV diagnosis. All individuals with a reactive result are referred to clinical services for confirmation; see Appendix 2 for details of the referral pathway.

The laboratory test algorithm includes repeat testing of reactive specimens using the same testing platform performed by the contracted laboratory (Preventx). Reactive specimens are re-tested using an alternative platform by an external laboratory as part of the internal quality assurance process.

## 2.2 Low vs high reactive results

To better understand how many positive diagnoses are being made through the service, reactive results are divided into 2 categories based on their cut off index (COI):

- low reactivities are specimens with a COI between 1 and 50
- high reactivities are specimens with a COI of 50 and above

The internal quality assurance process of reactive results demonstrated that the majority of high reactivities were likely to have an HIV infection confirmed by the alternative testing platform. Specimens with a low reactive result were less likely to have an HIV infection confirmed by the alternative platform. Nonetheless all reactive results are immediately referred to appropriate services for further testing and clinical confirmation.

Results are delivered by telephone through a dual-script approach, 1 for low reactivities and 1 for high reactivities. This approach helps manage users' expectations while providing further information on the clinical pathway and offering other needed support.

The HIV self-sampling service has an overall combined reactivity rate of 1.04%, with a total of 467 reactive results. Of these 280 were categorised as highly reactive and 187 as low reactive, rates of 0.62% and 0.42% respectively. Whilst the number of high reactivities has remained stable over time the proportion of low reactivities has increased (see Table 2). Whilst the reasons and impact of this remain unclear the steering group is monitoring this closely.

**Table 2: National HIV self-sampling service reactive results and rates. November 2015-October 2017**

	Number of reactive results	Reactive rate
<b>Reactive results</b>	467	1.04%
High reactive	280	0.62%
Low reactive	187	0.42%

## 2.3 Laboratory results

Equivocal samples are those that are initially identified as reactive results but could not be repeated or when repeated, gave a negative result. There were a total of 132 equivocal results, 46 in year 1 and 86 in year 2. These results are not included in the subsequent tables and analysis. Service users with equivocal results are referred for follow-up in the usual way (see Appendix 2).

Haemolysed samples are those where the membrane of the red blood cells have broken down, causing the release of haemoglobin and other internal components into the surrounding fluid. Haemolysis is a common occurrence seen in serum samples and can compromise the laboratory's test parameters. Some known causes are: delays in postal services, not allowing alcohol from the swab to fully dry before sample collection and extreme weather. During quarter 1 of year 1 the proportion of haemolysed samples was 8.5% (n=557). Following improvements in the service to mitigate the causes of haemolysis the proportion of haemolysed samples decreased to 4.0% (n=167) in quarter 4 of year 2.

Insufficient samples are those that are received with too little blood to conduct the required testing. In quarter 1 of year 1 the proportion of insufficient samples was 1.8% (n=117). This reduced to 1.5% (n=63) in quarter 4 of year 2. In cases where the specimen received is not eligible for testing due to lack of volume or haemolysis a repeat specimen is requested.

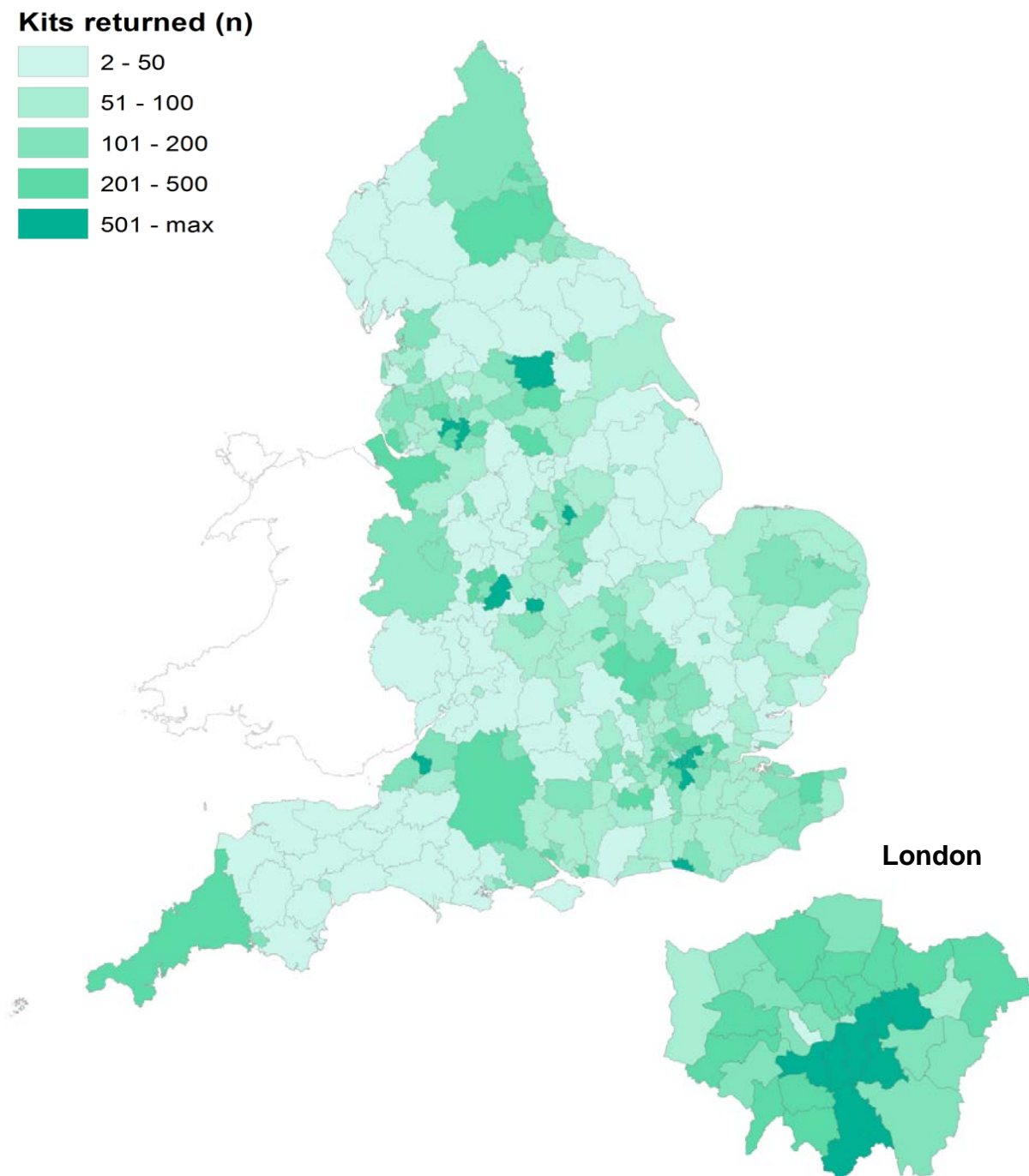
**Table 3: National HIV self-sampling service laboratory records for specimens received between November 2015-October 2017.**

	Samples	Proportion of total kits returned
Equivocal	132	0.29%
Haemolysed	2,290	5.04%
Insufficient	932	2.05%

## 2.4 Geography

The service is available to residents of all Local Authorities (LAs) during periods of national campaigns and to residents of LAs that commission the service outside of these time periods. A total of 87 Local Authorities have ever been signed up to the service with a minimum of 2 kits returned per LA increasing to 2,034 for the LA with the highest number of kits returned (see Figure 2).

**Figure 2: Number of kits returned by local authority. November 2015-October 2017.**



Over the 2 year period a total of 59,174 kits were requested by the residents of the 87 local authorities who have ever commissioned the HIV self-sampling service (see Appendix 3 for a full list of participating LAs). The residents of the other 69 non-participating local authorities requested a total of 22,587 HIV self-sampling kits during PHE funded national campaigns (see Table 4).

**Table 4: Number of kits requested by participating and non-participating local authorities. November 2015-October 2017.**

	Number of Local Authorities	Kits requested
Participating	87	59,174
Non-participating	69	22,587
<b>Total</b>	156	81,761

Of all the kits tested during this 2 year period a quarter (n=11,251) came from London residents. After London, the regions of the North West (n=7,023), the South East (n=6,654) and the East of England (n=4,666) had the highest total number of kits tested. This is a reflection of the size of the population in each region, the size of the populations most at risk in each region and the number of LAs signed up to the service. Reactivity rates in the North East (1.27%), the West Midlands (1.27%) and the North West (1.18%) were slightly higher than the average reactivity rate of 1.05% (see Table 5).

**Table 5: Number of kits tested, proportion of total kits tested, number of reactivities and reactivity rates by PHE region. November 2015-October 2017.**

	Number of Kits tested	Proportion of total kits tested	Reactive	Reactive rate
East Midlands	3,820	8.55%	36	0.94%
East of England	4,666	10.45%	40	0.86%
London	11,251	25.19%	117	1.04%
North East	2,287	5.12%	29	1.27%
North West	7,023	15.73%	83	1.18%
South East	6,654	14.90%	75	1.13%
South West	3,022	6.77%	23	0.76%
West Midlands	3,709	8.31%	47	1.27%
Yorkshire and The Humber	2,227	4.99%	17	0.76%
<b>Total<sup>1</sup></b>	<b>44,659</b>	<b>100%</b>	<b>467</b>	<b>1.05%</b>

1. Equivocal samples (n=132) have been excluded from the total number of kits tested for November 2015-October 2017.

## 2.5 Cost per reactive

Between November 2015 and October 2017 467 specimens were reactive translating to an overall cost per reactive of £932.81 and a cost per high reactive of £1,555.79 (see Table 6).

**Table 6: Cost<sup>1</sup> of self-sampling service by kits reactive. November 2015-October 2017.**

Number of kits		Numbers and costs
	Kits requested	81,761
	Kits returned	45,350
Reactive results		
	Reactive results (rate)	467 (1.04)
	High reactive (rate)	280 (0.62%)
Cost per reactive result		
	All reactive results	£932.81
	High reactive	£1,555.79

1. Costs do not include the national campaign or costs associated with management and oversight of the service.

## 3. Service users

### 3.1 Overall

Upon accessing the self-sampling website, users are asked their age, gender and the gender of their sexual partners, their ethnicity and HIV testing history. Data from kits returned and tested show that the service is most frequently used by men who have sex only with men. A total of 28,208 kits (63%) were tested from men reporting only sex with men between November 2015 and October 2017 of which 1.12% were reactive.

Individuals reporting only heterosexual sex were the second largest group to use the HIV self-sampling service from whom a total of 10,490 kits were tested. Among those reporting only heterosexual sex, demand for the service was almost 50% higher among women (6,964) compared to men (3,526). Reactivity was highest among men reporting only sex with men (1.12%) and women reporting sex with men and women (1.14%) (see Table 7).

The median age of users for whom kits were tested was young at 27 but ranged from 16 to 87 years of age. Reactivity was higher in older age categories and when compared to those aged 16-25 years, users between 26 and 55 all had significantly higher rates of reactivity (see Table 7).

Almost 80% of kits were from service users who identified themselves as being of white ethnicity of whom 0.95% were reactive. Kits from users identifying as black African, other Asian and Latin American all had significantly higher reactivity rates than kits from white service users (see Table 7).

Almost 30% of kits tested were from service users that reported never having had an HIV test before of which 1.00% were reactive. A further 32% came from users that reported testing more than 12 months prior to this test and of those 1.23% were reactive.

**Table 7: All service users. Number of kits tested, proportion of total kits tested, number of reactivities and reactive rates organised by gender, sexual behaviour, age-group, ethnicity, and testing history. November 2015-October 2017.**

	Kits tested	Proportion of total kits tested	Reactive	Reactive rate	P-value <sup>2</sup>
<b>Gender and sexual behaviour<sup>1</sup></b>					
<b>Men</b>					
Men reporting sex only with men	28,208	63.16%	317	1.12%	-
Men reporting sex with men and women	3,526	7.90%	23	0.65%	0.010
Men reporting sex with women	4,975	11.14%	48	0.96%	0.322
<b>Women</b>					
Women reporting sex with men	6,964	15.59%	69	0.99%	-
Women reporting sex with men and women	792	1.77%	9	1.14%	0.697
Women reporting sex only with women (WSW)	192	0.43%	1	0.52%	0.514
<b>Age group</b>					
16-25	18,944	42.42%	156	0.82%	-
26-35	15,845	35.48%	169	1.07%	0.019
36-45	5,872	13.15%	90	1.53%	0.000
46-55	2,792	6.25%	37	1.33%	0.008
56-65	951	2.13%	11	1.16%	0.272
>65	256	0.57%	4	1.56%	0.196
<b>Ethnicity</b>					
White	35,637	79.80%	338	0.95%	-
Black African	3,238	7.25%	57	1.76%	0.000
Other Black	838	1.88%	7	0.84%	0.738
South Asian	1,075	2.41%	9	0.84%	0.710
Other Asian Background	1,217	2.73%	19	1.56%	0.032
Latin American	230	0.52%	5	2.17%	0.057
Other <sup>3</sup>	2,425	5.43%	32	1.32%	0.071
<b>Testing History</b>					
Within the last year	16,536	37.03%	147	0.89%	-
Over 1 year ago	14,436	32.32%	177	1.23%	0.004
Never tested	13,356	29.91%	134	1.00%	0.309
Unknown	332	0.74%	9	2.71%	0.001
<b>Total<sup>4</sup></b>	<b>44,660</b>		<b>467</b>	<b>1.05%</b>	

1. Trans-individuals are included in this table according to the sex of their reported partners.

2. Where the p value is reported as (-). This is the comparator group against which the other groups were tested using chi-squared tests.

3. Category 'Other' includes service users who self-describe as: other ethnic group and other mixed background.4. Total includes two specimens for which gender and sexual orientation were unknown.

4. Total includes two specimens for which gender and sexual orientation were unknown.



### 3.2 Men who have sex with Men

Despite recent declines in numbers of new HIV diagnoses among MSM they remain the group most at risk of HIV infection in the UK <sup>(1)</sup>. In this analysis men reporting sex with men only (n=28,208), both men and women (n=3,526) and trans-men reporting sex with men (n=112) are included. The median age for kits tested from MSM service users was 27 years with the youngest service user aged 16 years and the oldest 87 years (see Table 8).

Whilst the highest reactivity rate (1.84%) was observed in specimens from the >65 age group this was not significantly higher than in the youngest age group (p=0.188). However, the reactivity rate (1.36%) observed in specimens from 36-45 year olds was statistically higher than that observed in the 16-25 age group (p=0.028) (see Table 8).

Of the kits tested from MSM the majority (89%) were from service users who reported their ethnicity as white and the reactive rate in this group was 1.01%. Reactivity rates for Latin American (2.7%; p=0.022) and other Asian backgrounds (2.15%; p=0.001), were significantly higher than white MSM service users (see Table 8).

National guidelines advise that MSM should test for HIV at least once a year and up to once every three months if they are having condomless sex with new partners <sup>(2, 3)</sup>. In the National HIV Self-Sampling Service nearly 1 in 4 kits tested from MSM (n=7,469) came from individuals who reported this as their first ever HIV test and of those 1.10% were reactive. A further 10,281 (32%) had tested over a year ago and of these 1.25% were reactive (see Table 8). The proportion of MSM service users who tested for HIV within the last year increased by 44% (from 39% to 47%) between year 1 and year 2.

Reactivity is significantly higher in those who reported more than 6 condomless partners in the previous 12 months (p values=0.007, 0.029; see Table 8). The proportion of MSM service users who report more than 1 condomless partner in the last 12 months has increased from 39% (n=5,637) to 41% (n=7,106) between year 1 and year 2 (see Table 8).

Four out of every ten MSM kits (n=12,553) were from service users that reported never having sex under the influence of alcohol or recreational drugs. Half (n=15,809) came from service users who reported sometimes having “sex under the influence of alcohol or recreational drugs”. Reported levels of alcohol and drug use did not significantly affect the reactivity rate in kits tested from MSM services users (see Table 8).

**Table 8: MSM<sup>1</sup>. Number of kits tested, proportion of total kits tested, number of reactivities and reactive rates organised by age group, ethnicity, testing history, condomless sex and sex under the influence of alcohol and recreational drugs. November 2015-October 2017.**

	Kits tested	Proportion of total kits tested	Reactive	Reactive rate	<i>P-value</i> <sup>2</sup>
<b>Age group</b>					
16-25	12,938	40.77%	124	0.96%	-
26-35	11,716	36.92%	125	1.07%	0.395
36-45	4,031	12.70%	55	1.36%	0.028
46-55	2,063	6.50%	23	1.11%	0.503
56-65	769	2.42%	9	1.17%	0.560
>65	217	0.68%	4	1.84%	0.188
<b>Ethnicity</b>					
White	28,266	89.07%	285	1.01%	-
Black African	212	0.67%	3	1.42%	0.555
Other Black	273	0.86%	5	1.83%	0.177
South Asian	562	1.77%	6	1.07%	0.889
Other Asian Background	883	2.78%	19	2.15%	0.001
Latin American	185	0.58%	5	2.70%	0.022
Other <sup>3</sup>	1,353	4.26%	17	1.26%	0.375
<b>Testing history</b>					
Within the last year	13,803	43.50%	124	0.90%	-
Over 1 year ago	10,281	32.40%	129	1.25%	0.007
Never tested	7,469	23.54%	82	1.10%	0.156
Unknown	181	0.57%	5	2.76%	0.009
<b>Condomless sex</b>					
No	5,432	17.12%	44	0.81%	-
Yes, with 1 partner	13,482	42.48%	126	0.93%	0.636
Yes, with 2-5 partners	11,016	34.71%	141	1.28%	0.411
Yes, with 6-12 partners	1,138	3.59%	17	1.49%	0.007
Yes, with more than 12 partners	589	1.86%	11	1.87%	0.029
Unknown	77	0.24%	1	1.30%	0.01
<b>Sex under the influence of alcohol and recreational drugs</b>					
Never	12,553	39.56%	126	1.00%	-
Sometimes	15,809	49.82%	171	1.08%	0.522
Usually	2,756	8.68%	38	1.38%	0.083
Always	477	1.50%	3	0.63%	0.417
Unknown	139	0.44%	2	1.44%	0.610
<b>Total</b>	<b>31,734</b>		<b>340</b>	<b>1.07%</b>	

1. 112 trans-men who reported sex with men are included in this table.

2. Where the p value is reported as (-). This is the comparator group against which the other groups were tested using chi-squared tests.

3. Category 'Other' includes service users who self-describe as: other ethnic group and other mixed background.

### 3.3 Black African service users

In 2016, black African men and women comprised 39% of heterosexual adults newly diagnosed with HIV <sup>(1)</sup>. Whilst this proportion has decreased in recent years they remain a population at increased risk of HIV infection and a key group towards which the HIV self-sampling service is targeted.

A total of 3,238 kits were tested from service users reporting their ethnicity as black African and of those 57 (1.76%) were reactive. The majority of kits tested from black African service users reported heterosexual sex (see Table 9).

The median age of black African service users was 29 and ranged from 16 to 74 years of age. Reactivity increased with age and the highest reactivity rate (3.38%) was in those aged 46-55 (see Table 9).

Just over a quarter (27%) of kits tested from black African service users came from first time testers and at 2.67% reactivity was significantly higher in this group compared to those who had tested within the last year ( $p=0.025$ ) (see Table 9).

The majority of kits tested from this population (85%) were from service users that reported between 1 and 5 condomless partners in the last year but there was no significant difference in reactivity according to the number of partners reported.

**Table 9: Black African service users. Number of kits tested, proportion of total kits tested, number of reactivities and reactive rates organised by gender, sexual behaviour, age-group, ethnicity, and testing history. November 2015-October 2017.**

	Kits tested	Proportion of total kits tested	Reactive	Reactive rate	<i>P-value</i> <sup>1</sup>
<b>Sexual Orientation</b>					
MSM	212	6.55%	3	1.42%	-
Heterosexual	2,908	89.81%	51	1.75%	0.715
Women reporting sex with both men and women	71	2.19%	2	2.82%	0.438
Women reported sex only with women (WSW)	47	1.45%	1	2.13%	0.720
<b>Age group</b>					
16-25	1,202	37.12%	9	0.75%	-
26-35	1,132	34.96%	19	1.68%	0.06
36-45	659	20.35%	21	3.19%	0.000
46-55	207	6.39%	7	3.38%	0.001
56-65	37	1.14%	1	2.70%	0.191
>65	1	0.03%	0	0.00%	n/a
<b>Testing History</b>					
Within the last year	1,033	31.90%	13	1.26%	-
Over 1 year ago	1,282	39.59%	21	1.64%	0.450
Never tested	862	26.62%	23	2.67%	0.025
Unknown	61	1.88%	0	0.00%	n/a
<b>Condomless sex</b>					
No	384	11.86%	7	1.82%	-
Yes, with 1 partner	1,705	52.66%	34	1.99%	0.827
Yes, with 2-5 partners	1,057	32.64%	15	1.42%	0.580
Yes, with 6-12 partners	59	1.82%	1	1.69%	0.945
Yes, with more than 12 partners	14	0.43%	0	0.00%	n/a
Unknown	19	0.59%	0	0.00%	n/a
<b>Total</b>	<b>3,238</b>		<b>57</b>	<b>1.76%</b>	

1. Where the p value is reported as (-). This is the comparator group against which the other groups were tested using chi-squared tests.

### 3.4 Women

In the following analysis women reporting sex with men only (n=6,889), both men and women (n=792), women reporting sex with only women (n=192) and trans-women (n=75) are included. A total of 79 reactive specimens (0.99%) were identified from a total of 7,948 kits tested. The median age of women was slightly younger than the overall median at 25 years and ranged from 16 to 77 years of age. The highest reactivity was among kits tested from users aged 46-55 years which at 2.24% was significantly higher than women aged 16-25 years (p=0.0000). Reactivity was also significantly higher among women aged 26-35 and 36-45 (p=0.005 and p=0.000 respectively) no reactive kits were identified from women over 55 years (see Table 10).

Although the majority of kits tested from women (57%) came from those reporting their ethnicity as white there was a much higher rate of kits from other ethnic groups compared to kits from MSM service users. Nearly 1 in 4 kits from women were from those reporting their ethnicity as black African (n=1,921). Reactivity rates were significantly higher in both black African (1.82%, p=0.000) and Other (1.49%, p=0.027) ethnicity women (see Table 10).

Over 40% of female service users reported never having tested before and a further 34% had not had a test in the previous 12 months, previous testing history did not significantly affect the rate of reactivity in kits from women (see Table 10).

Just under half the kits tested from women came from those who reported 2 or more condomless partners in the previous 12 months (46%; n=3,694). Although there were no significant differences between the reactivity rates according to the reported number of condomless partners, the rate was highest (1.24%) in female service users who reported 1 condomless partner (see Table 10).

Half of all the kits tested were from women who reported sometimes having sex under the influence of alcohol or recreational drugs. However, at 1.30%, the reactive rate was significantly higher among women who reported never having sex under the influence of alcohol or recreational drugs (p=0.024) (see Table 10).

**Table 10: Women<sup>1</sup>. Number of kits tested, proportion of total kits tested, number of reactivities and reactive rates organised by age group, ethnicity, testing history, condomless sex and sex under the influence of alcohol and recreational drugs. November 2015-October 2017.**

	Kits tested	Proportion of total kits tested	Reactive	Reactive rate	P-value <sup>2</sup>
<b>Age group</b>					
16-25	4,135	52.03%	22	0.53%	-
26-35	2,303	28.98%	27	1.17%	0.005
36-45	1,002	12.61%	21	2.10%	0.000
46-55	357	4.49%	8	2.24%	0.000
56-65	62	0.78%	0	0.00%	n/a
>65	14	0.18%	0	0.00%	n/a
<b>Ethnicity</b>					
White	4,552	57.27%	31	0.68%	-
Black African	1,921	24.17%	35	1.82%	0.000
Other Black	427	5.37%	2	0.47%	0.605
South Asian	109	1.37%	0	0.00%	n/a
Other Asian Background	130	1.64%	0	0.00%	n/a
Latin American	30	0.38%	0	0.00%	n/a
Other <sup>3</sup>	673	8.47%	10	1.49%	0.027
<b>Testing History</b>					
Within the last year	1,689	21.25%	15	0.89%	-
Over 1 year ago	2,715	34.16%	32	1.18%	0.362
Never tested	3,393	42.69%	30	0.88%	0.989
Unknown	76	0.96%	1	1.32%	0.700
<b>Condomless sex</b>					
No	600	7.55%	3	0.50%	-
Yes, with 1 partner	3,560	44.79%	44	1.24%	0.115
Yes, with 2-5 partners	3,329	41.88%	29	0.87%	0.352
Yes, with 6-12 partners	297	3.74%	2	0.67%	0.743
Yes, with more than 12 partners	68	0.86%	0	0.00%	n/a
Unknown	19	0.24%	0	0.00%	n/a
<b>Sex under the influence of alcohol and recreational drugs</b>					
Never	2,848	35.83%	37	1.30%	-
Sometimes	3,977	50.04%	30	0.75%	0.024
Usually	833	10.48%	10	1.20%	0.823
Always	179	2.25%	1	0.56%	0.388
Unknown	36	0.45%	0	0.00%	n/a
<b>Total</b>	<b>7,948</b>		<b>79</b>	<b>0.99%</b>	

1. Women includes women reporting sex with both men and women (n=792), women who report sex only with women (n=192) and trans-women (n=75).

2. Where the p value is reported as (-). This is the comparator group against which the other groups were tested using chi-squared tests.

3. Category 'Other' includes service users who self-describe as: other ethnic group and other mixed background.

### 3.5 Heterosexual men

This analysis consists of men who reported heterosexual sex only including trans-men (n=8). The median age of male service users engaging in heterosexual sex was 28 years and ranged from 16 to 80 years of age. Of the 4,975 kits tested 48 (0.96%) were reactive and kits tested from men aged 36-55 had significantly higher rates of reactivity than those aged 35 and under ( $p=0.004$ ,  $p=0.023$ ) (see Table 11).

Similarly to kits tested from women, 55% of kits tested from men reporting only heterosexual sex came from those that reported their ethnicity as white and of those 0.77% (n=21) were reactive. Just over 1 in every 5 kits returned from men in this group came from those identifying as black African and at 1.72% the reactivity rate was significantly higher ( $p=0.0085$ ) (see Table 11).

Kits from men reporting only heterosexual sex had lower rates of HIV testing overall with half reporting this as their first test, of these 22 (0.89%) specimens were reactive (see Table 11).

There was no clear pattern in reactivity according to the number of condomless partners reported. Excluding the 35 men for whom the number of condomless partners is unknown the reactivity rate (1.71%) was highest in kits from men who reported no condomless partners in the previous 12 months. This was significantly higher than the rate in men reporting between 2 and 5 condomless partners ( $p=0.008$ ) (see Table 11).

Half of all kits tested from this group of men were from those who reported sometimes having sex under the influence of alcohol or recreational drugs. However, as with women, the reactivity rate (0.60%) was significantly lower than men who reported never having sex under the influence of alcohol or recreational drugs among whom 1.30% of kits were reactive ( $p=0.017$ ) (see Table 11).

**Table 11: Men reporting heterosexual sex only<sup>1</sup>. Number of kits tested, proportion of total kits tested, number of reactivities and reactive rates organised by age group, ethnicity, testing history, condomless sex, sex under the influence of alcohol and recreational drugs. November 2015-October 2017.**

	Kits tested	Proportion of total kits tested	Reactive	Reactive rate	P-value <sup>2</sup>
<b>Age group</b>					
16-25	1,835	36.88%	10	0.54%	-
26-35	1,806	36.30%	16	0.89%	0.222
36-45	829	16.66%	14	1.69%	0.004
46-55	361	7.26%	6	1.66%	0.023
56-65	119	2.39%	2	1.68%	0.124
>65	25	0.50%	0	0.00%	n/a
<b>Ethnicity</b>					
White	2,728	54.83%	21	0.77%	-
Black African	1,102	22.15%	19	1.72%	0.0085
Other Black	136	2.73%	0	0.00%	n/a
South Asian	402	8.08%	3	0.75%	0.8316
Other Asian Background	198	3.98%	0	0.00%	n/a
Latin American	15	0.30%	0	0.00%	n/a
Other <sup>3</sup>	394	7.92%	5	1.27%	0.308
<b>Testing History</b>					
Within the last year	1,029	20.68%	7	0.68%	-
Over 1 year ago	1,413	28.40%	16	1.13%	0.2534
Never tested	2,460	49.45%	22	0.89%	0.5254
Unknown	73	1.47%	3	4.11%	0.0037
<b>Condomless sex</b>					
No	642	12.90%	11	1.71%	-
Yes, with 1 partner	2,048	41.17%	21	1.03%	0.161
Yes, with 2-5 partners	2,000	40.20%	12	0.60%	0.008
Yes, with 6-12 partners	182	3.66%	0	0.00%	n/a
Yes, with more than 12 partners	68	1.37%	1	1.47%	0.883
Unknown	35	0.70%	3	8.57%	0.005
<b>Sex under the influence of alcohol and recreational drugs</b>					
Never	1,776	35.70%	23	1.30%	-
Sometimes	2,495	50.15%	15	0.60%	0.017
Usually	553	11.12%	7	1.27%	0.958
Always	92	1.85%	0	0.00%	n/a
Unknown	59	1.19%	3	5.08%	0.015
<b>Total</b>	<b>4,975</b>		<b>48</b>	<b>0.96%</b>	

1. Heterosexual sex among men includes (n=8) trans-men reporting sex with women.

2. Where the p value is reported as (-). This is the comparator group against which the other groups were tested using chi-squared tests.

3. Category 'Other' includes service users who self-describe as: other ethnic group and other mixed background.



### 3.6 Trans-gender individuals

Upon accessing the service individuals are given the option to report their gender identity as trans-male or trans-female, all those self-identifying as either trans-female or trans-male are included in this analysis. A total of 195 kits tested were from service users who identified as trans-gender and of these three kits were reactive. The smaller number of tests limits the analysis of patterns of reactivity in this population but a summary is included below and in Table 12.

Over half of trans-gender service users (57%) were trans-men who reported sex with men and at 25 years the median age of trans-gender service users was slightly younger than the overall median and ranged 16 to 55 years of age. The age group with the highest reactivity rate (5.26%) was the 36-45 year olds (see Table 12).

The majority (79%) of trans-gender service users reported their ethnicity as white and the reactive rate in this group was 0.65%. The reactive rate of kits tested from black African trans-gender service users was significantly higher at 11.11% ( $p=0.00542$ ) although there were only ten kits tested from black African, trans-gender service users (see Table 12).

Rates of HIV testing were low with 51% reporting this as their first HIV test and a further 29% reporting a test more than 12 months previously (see Table 12).

There were no significant differences between reactivity rates according to the number of condomless partners reported. Over half of all kits tested (52%), were from trans-gender service users who reported sometimes having sex under the influence of alcohol or recreational drugs. There was no significant difference between these service users and those who reported never having sex under the influence of alcohol or recreational drugs (see Table 12).

**Table 12: Trans-gender individuals. Number of kits tested, proportion of total kits tested, number of reactivities and reactive rates organised by sexual orientation, age group, ethnicity, testing history, condomless sex, sex under the influence of alcohol and recreational drugs. November 2015-October 2017.**

	Kits tested	Proportion of total kits tested	Reactive	Reactive rate	<i>P-value</i> <sup>1</sup>
<b>Sexual orientation</b>					
Men who have Sex with Men	112	57.44%	1	0.89%	-
Heterosexual	49	25.13%	2	4.08%	0.16859
Bisexual people	31	15.90%	0	0.00%	n/a
Women who only have Sex with Women (WSW)	3	1.54%	0	0.00%	n/a
<b>Age group</b>					
16-25	113	57.95%	1	0.88%	-
26-35	46	23.59%	1	2.17%	0.50842
36-45	19	9.74%	1	5.26%	0.14832
>45	17	8.72%	0	0.00%	n/a
<b>Ethnicity</b>					
White	155	79.49%	1	0.65%	-
Black African	9	4.62%	1	11.11%	0.00542
South Asian	11	5.64%	0	0.00%	n/a
Other <sup>2</sup>	20	10.26%	1	5.00%	0.09485
<b>Testing History</b>					
Within the last year	38	19.49%	2	5.26%	-
Over 1 year ago	57	29.23%	0	0.00%	n/a
Never tested	99	50.77%	1	1.01%	0.1277
Unknown	1	0.51%	0	0.00%	n/a
<b>Condomless sex</b>					
No	21	10.77%	1	4.76%	-
Yes, with 1 partner	82	42.05%	0	0.00%	n/a
Yes, with 2-5 partners	75	38.46%	2	2.67%	0.61
Yes, with 6+ partners	16	8.21%	0	0.00%	n/a
Unknown	1	0.51%	0	0.00%	n/a
<b>Sex under the influence of alcohol and recreational drugs</b>					
Never	57	29.23%	1	1.75%	-
Sometimes	102	52.31%	1	0.98%	0.6745
Usually	25	12.82%	1	4.00%	0.5439
Always	10	5.13%	0	0.00%	n/a
Unknown	1	0.51%	0	0.00%	n/a
<b>Total</b>	<b>195</b>		<b>3</b>	<b>1.54%</b>	

1. Where the p value is reported as (-). This is the comparator group against which the other groups were tested using chi-squared tests.

2. Category 'Other' includes service users who self-describe as: Latin American, other black, other Asian background, other ethnic group and other mixed background.

## 4. Discussion

A total of 44,791 tests were conducted through the National HIV Self-Sampling Service between November 2015 and October 2017. In 2016 a total of 25,371 kits were tested compared to 20,134 in community settings<sup>(4)</sup>. The service has been successful at engaging most at-risk populations for HIV acquisition, particularly MSM who make up three quarters (31,734) of those having kits tested. The overall reactivity rate is high and at 1.04% is higher than the community testing services reactivity rate of 0.6% reported in the HIV Testing in England report, 2017<sup>(4)</sup>. Reactivity rates between users of different sexual orientations are not significantly different indicating that the targeting of higher risk heterosexuals has been successful. The National HIV Self-Sampling Service also has more trans-users than reported in community settings. In 2016 the Self-Sampling service tested 75 kits from trans service users compared to 43 trans individuals testing in community settings during the same time period<sup>(4)</sup>. However challenges remain with engaging black and other minority ethnic communities. The service is targeted towards black African individuals but they make up just 24% and 0.67% of heterosexual and MSM service users respectively.

The service has also been effective at engaging individuals who have never tested for HIV before. Overall 30% of kits tested were from users who reported never having tested before and even in MSM among whom testing rates are traditionally higher; a quarter reported this as their first HIV test. The rate of reactivity in kits from first time testers was 1.00% overall and highest in black African service users at 2.67%. These findings confirm that online HIV testing services reach people at increased risk of HIV but not accessing testing in other settings.

Trends in service activity correlate strongly with the linked HIV Prevention England campaigns, particularly national HIV testing week during which demand peaks and the service is open to all residents in England. The service can and is also promoted through local and regional campaigns for example the London HIV Prevention Programme. This commissioning model has enabled LAs to provide access to an online HIV testing service to their residents whilst avoiding the cost of individual procurement processes. The National framework was also able to benefit from economy of scale and this is demonstrated with a cost per reactive lower than published elsewhere and in other settings<sup>(2, 5, 6)</sup>.

The multi-disciplinary steering group consisting of commissioners, public health and virology experts has provided a successful monitoring system that has produced a number of service improvements during the first 2 years. These have included using behavioural research to increase return rates<sup>(7)</sup>, identifying, investigating and reducing specimen haemolysis rates and reducing testing kit dispatch times. The steering group is also responsible for overseeing the future development of the service.

Self-sampling and self-testing is likely to remain a feature of the HIV testing landscape for the foreseeable future. Demand for these options has increased over time and they succeed in widening access particularly for those less likely to engage with traditional sexual health services. With appropriate targeting and linkage to local and national campaigns delivery of HIV testing through online platforms will be integral in reducing undiagnosed infection and eliminating HIV.

## 5. References

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## 6. Appendices

### Appendix 1: who can sign up for the service?

The framework is specifically designed for use by PHE and English local authorities. However it is available for use nationally by other public sector bodies, including, but not limited to:

- police & emergency services
- NHS & HSC bodies
- central Government departments & their agencies
- registered charities
- schools & academies

### How to sign up for the service

Step 1: Complete the Customer Access Agreement and send it to ESPO at [care@espo.org](mailto:care@espo.org). The agreement will then be countersigned and returned. This doesn't commit the authority to anything, but it provides evidence of the transaction as part of an audit trail, helping to evidence the fact that you are procuring the framework. This ensures that the authority is exempt from undertaking EU-compliant advertising and supplier vetting.

Step 2: Complete the Master Contract Schedule order form and send it to [care@espo.org](mailto:care@espo.org). Please quote ESPO Framework 3173\_15 on all correspondence

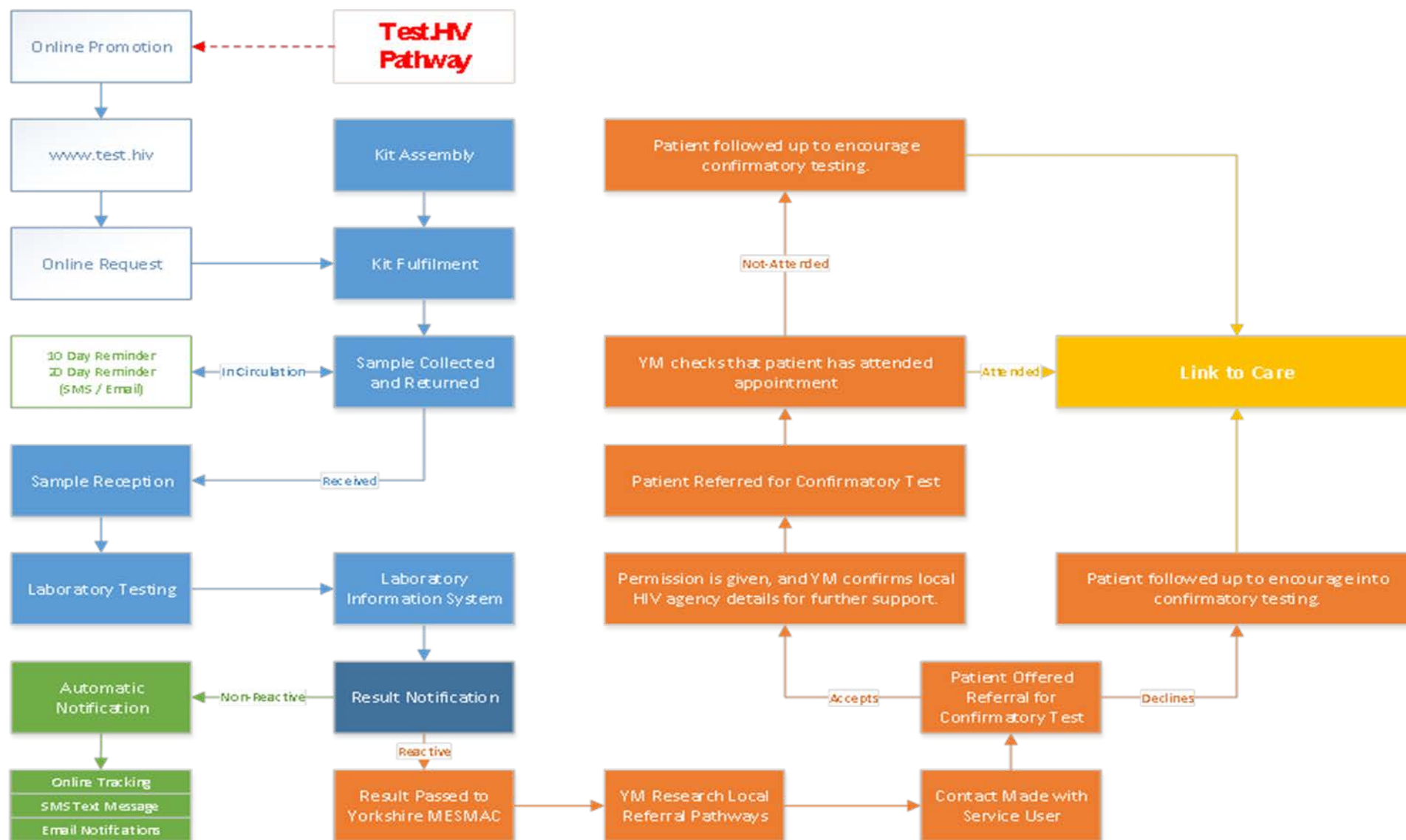
### How to renew a current contract

To renew a contract, contact ESPO directly at [care@espo.org](mailto:care@espo.org) quoting ESPO Framework 3173\_15 on all correspondence.

Further information and all forms can be accessed through [www.espo.org](http://www.espo.org) or at the following direct link: <https://www.espo.org/Frameworks/Social-care/3173-HIV-Self-Sampling-Service>.

You can also contact Louise Logan at PHE at [louise.logan@phe.gov.uk](mailto:louise.logan@phe.gov.uk) for further information on the service and how to sign up or renew a contract.

## Appendix 2: HIV self-sampling service user pathway



Appendix 3: all local authorities signed up to the HIV self-sampling service organised by PHE regions for November 2015- October 2017.

East Midlands	East of England	London	North East
Derby	Bedford	Barnet	County Durham
Derbyshire	Central Bedfordshire	Camden	Darlington
Leicester	Hertfordshire	City of London	Gateshead
Leicestershire	Luton	Croydon	Hartlepool
Northamptonshire	Norfolk	Ealing	Middlesbrough
Nottingham	Southend-on-Sea	Hackney	Newcastle upon Tyne
Nottinghamshire	Suffolk	Haringey	North Tyneside
		Harrow	Northumberland
		Havering	Redcar and Cleveland
		Hounslow	South Tyneside
		Islington	Stockton-On-Tees
		Kingston upon Thames	Sunderland
		Lambeth	
		Lewisham	
		Merton	
		Newham	
		Redbridge	
		Richmond upon Thames	
		Southwark	
		Sutton	
		Tower Hamlets	
		Waltham Forest	
		Wandsworth	

North West	South East	South West	West Midlands	York and Humber
Blackpool	Brighton and Hove	City of Bristol	Birmingham	Wakefield
Bolton	East Sussex	Cornwall	Coventry	
Bury	Hampshire	North Somerset	Dudley	
Cheshire West and Chester	Kent	South Gloucestershire	Shropshire	
Knowsley	Milton Keynes	Swindon	Telford and Wrekin	
Lancashire	Portsmouth	Wiltshire	Walsall	
Liverpool	Slough		Warwickshire	
Manchester	Southampton		Wolverhampton	
Rochdale	Surrey			
Salford	West Sussex			
Tameside				
Trafford				