

# Predictors for delayed baseline assessment of newly-diagnosed HIV-positive adults in the UK: variation across HIV diagnosis settings



Zheng Yin, Alison Brown, Meaghan Kall & Valerie Delpech  
Health Protection Agency, London, United Kingdom

## Background

- BHIVA guidelines recommend baseline tests (CD4 counts) are undertaken within two weeks of diagnosis to ensure optimal care after HIV diagnosis.<sup>1</sup>

## Methods

- Adults (≥15 years) newly diagnosed with HIV in 2010 in the UK reported to the national HIV database were linked to the CD4 laboratory data and the survey of HIV positive people receiving HIV care (SOPHID).
- Predictors for delayed baseline assessment (>1 month after diagnosis) including age, sex, ethnicity, exposure category, and facility of diagnosis (antenatal clinics, general practitioner (GP), STI clinics, other medical settings, community, prison, and blood transfusion services) were examined in a multivariate analysis.

## Objectives

- Assess compliance to current BHIVA guidelines
- Examine predictors for delayed baseline assessment

## Results

### 1. Baseline assessment among HIV positive adults in the UK

In 2010, 6,597 adults were newly-diagnosed with HIV in the UK, of whom 2.9% (192) died in that year (as reported to June 2011). Of those survivors, 88% (5,662/6,405) had a CD4 cell count reported in 2010 (chart 1). Among those with a death report, 61% (117/192) had a CD4 in 2010.

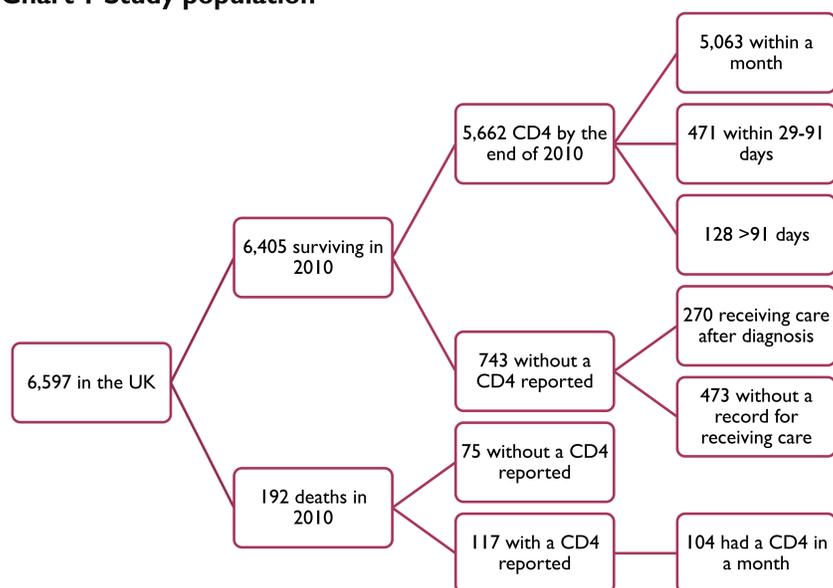
#### Highest estimates

Of those survivors with a CD4 reported by the end of 2010, 78% (4,387/5,662) had a CD4 test within two weeks, 89% (5,063) within a month, 98% (5,534) within three months. Variation across ethnic groups was low (figure 1). Those proportions remain the same if adults with a death reported were included,

#### Lowest estimates

If adults without a CD4 reported were considered as not entering into HIV care, of all adults diagnosed in 2010 (including deaths), 68% (4491/6,597), had a CD4 within two weeks, 78% (5,171) within a month, 87% (5,649) within 3 months.

### Chart 1 Study population



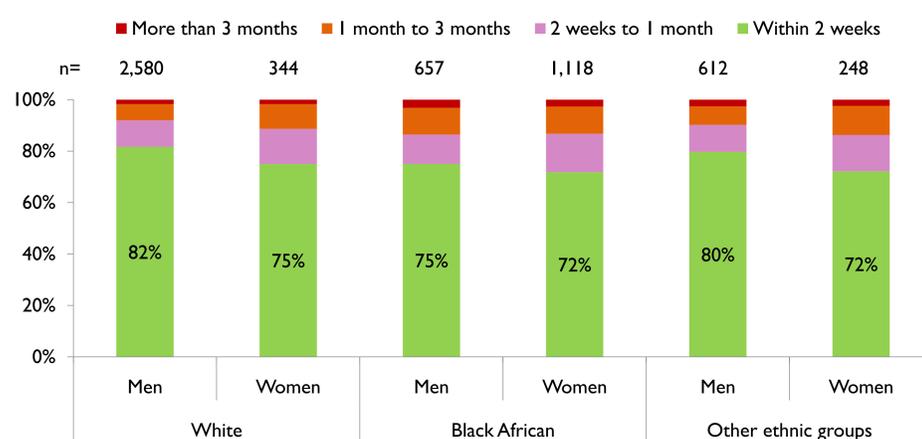
#### Adults diagnosed in December

Without using 2011 data (due to the availability) may lead to an underestimate of the proportion of adults with a CD4 in 1 month if they were diagnosed in December. Of those 6,597 adults, 7.3% (481) were diagnosed in Dec. Of those surviving with a CD4 reported, 92% (309/481) had a CD4 test within a month.

#### Adults with missing CD4 cell counts

Adults with missing CD4 reported may be due to underreporting, which may also lead to an underestimate. Of 818 adults without a CD4 reported, 67% (548) were not receiving care after diagnosis. Those adults likely did not have their baseline assessment.

Figure 1 Proportion of HIV positive adults with a CD4 cell count reported in 2010 following their HIV diagnosis



### 3. Predictors for delayed baseline assessment

In a multivariate analysis, predictors for delayed baseline assessment included: persons who inject drugs (PWID) (adjusted odd ratio (aOR) =2.71, 95%CI [1.48, 4.96]), adults diagnosed outside London (aOR=1.45, [1.14, 1.84]) and those diagnosed at a GP (aOR=2.75 [1.97, 3.84]) or other medical settings (aOR=1.80, [1.34, 2.40]) (table 1). Compared to white, adults of black African ethnicity were more likely to be diagnosed outside STI clinics (75% vs. 58%, p<0.001).

Table 1: Description of study population and multivariate analysis results

	Description	No. of adults	% with no a CD4 within a month	Univariate analysis		Multivariate analysis†
				OR [95%CI]	aOR [95%CI]	
<b>Sex</b>						
Men§		3920	9.5	1	1	
Women		1742	13	1.44 [1.21, 1.72]	1.04 [0.77, 1.4]	0.806
<b>Age at HIV diagnosis</b>						
15 - 19§		134	11	1		
20 - 34		2378	10	0.92 [0.53, 1.59]	NA	
35 - 49		2436	10	0.93 [0.53, 1.61]	NA	
50+		714	12	1.10 [0.62, 1.97]	NA	
<b>Ethnicity</b>						
White§		2867	8.6	1	1	
Black African		1740	13.5	1.66 [1.37, 2.00]	1.30 [0.94, 1.78]	0.108
Other groups		848	11	1.31 [1.02, 1.69]	1.35 [0.95, 1.91]	0.090
<b>Route of transmission</b>						
Sex between men§		2497	8.0	1	1	
Heterosexual contacts		2658	13	1.69 [1.41, 2.03]	1.25 [0.89, 1.75]	0.200
Injecting drug use		118	14	1.81 [1.05, 3.13]	2.71 [1.48, 4.96]	0.001*
Others		63	11	1.92 [0.94, 3.96]	1.58 [0.57, 4.38]	0.381
<b>Region</b>						
London§		2514	8.7	1	1	
Outsides London		3148	12	1.46 [1.22, 1.73]	1.45 [1.14, 1.84]	0.002*
<b>Facility of diagnosis</b>						
STI clinics§		2637	8.0	1	1	
Antenatal clinics		264	13	1.75 [1.19, 2.56]	1.45 [0.95, 2.22]	0.086
GP		272	21	3.10 [2.25, 4.28]	2.75 [1.97, 3.84]	<0.001*
Other medical settings		538	15	2.03 [1.54, 2.67]	1.80 [1.34, 2.40]	<0.001*
Non-medical settings		61	13	1.73 [0.81, 3.68]	1.49 [0.68, 3.24]	0.317

§ Reference groups

† Only significant predictors in univariate analysis were included in multivariate analysis.

\* Significant predictors in logistic regression models. (p<0.025, two-sided test).

## Conclusion

- The large majority of HIV positive adults had their baseline assessment within a month. The highest and lowest estimates are 89% and 78%, respectively.
- The proportion of adults with a timely baseline assessment was favourable compared to other developed countries.<sup>2-4</sup>
- There is still scope to improve the timeliness of baseline assessment, however, especially for adults diagnosed outside STI clinics.
- Clinical audits and a review of local referral pathways should be conducted to ensure prompt assessment and integration into HIV care after diagnosis.

## Acknowledgement

- Members of the HIV and GUM Audit and Outcomes Sub-group of the London HIV Consortium.
- Health professionals who kindly take time to report to, and support, the surveillance of HIV infection by the HPA.
- Support from HPA colleagues: Sarika Desai, Cuong Chau, Graeme Rooney and Alan Hunter.

## Reference

- BHIVA Routine investigation and monitoring of adult HIV-1-infected individuals (2011). Available at [http://www.bhiva.org/documents/Guidelines/Monitoring/hiv\\_971\\_EV.pdf](http://www.bhiva.org/documents/Guidelines/Monitoring/hiv_971_EV.pdf)
- Torian VL, et al. Risk factors for delayed initiation of medical care after diagnosis of human immunodeficiency virus. Arch Intern Med 2008; 168:1181-1187.
- Althoff KN, et al. Late presentation for human immunodeficiency virus care in the United States and Canada. Clinical infectious diseases 2010; 50(11):1512-1520
- Marks G, et al. Entry and retention in medical care among HIV-diagnosed persons: a meta-analysis. AIDS 2010; 24(17):2665-2678.