

Audit of outcomes in HIV

BHIVA Audit and Standards Sub-Committee

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Aims

To assess outcomes for patients with established HIV:

- In care
- In and out of care.

Audit of outcomes not care quality

- Patient factors such as poor adherence explicitly not taken into account.

Aims

To test feasibility of assessing outcomes at individual sites.

Rationale: from 2013, HIV/STI audit to be procured nationally with requirements of:

- Systematic annual re-audit of key outcomes
- Publication of site-level findings.

Methods

Case-note review in October-December 2011 of patients previously seen for HIV care during 2009.

100 patients per site to provide statistically meaningful site-level data.

Denominators based on patients:

- Still in care at same clinic
- As above, plus not in care but not known to have died, transferred or left UK.

Patient characteristics

	N = 12975	%
Sex		
Male	7794	60.1
Female	4917	37.9
Ethnicity		
White	6729	51.9
Black-African	5075	39.1
Age		
16-39	4979	38.6
40+	7931	61.4
Route of HIV acquisition		
Heterosexual	7404	57.1
MSM	4533	34.9
IDU	305	2.4

NB: numbers and totals do not add because of missing data and values not shown.

Case mix variation

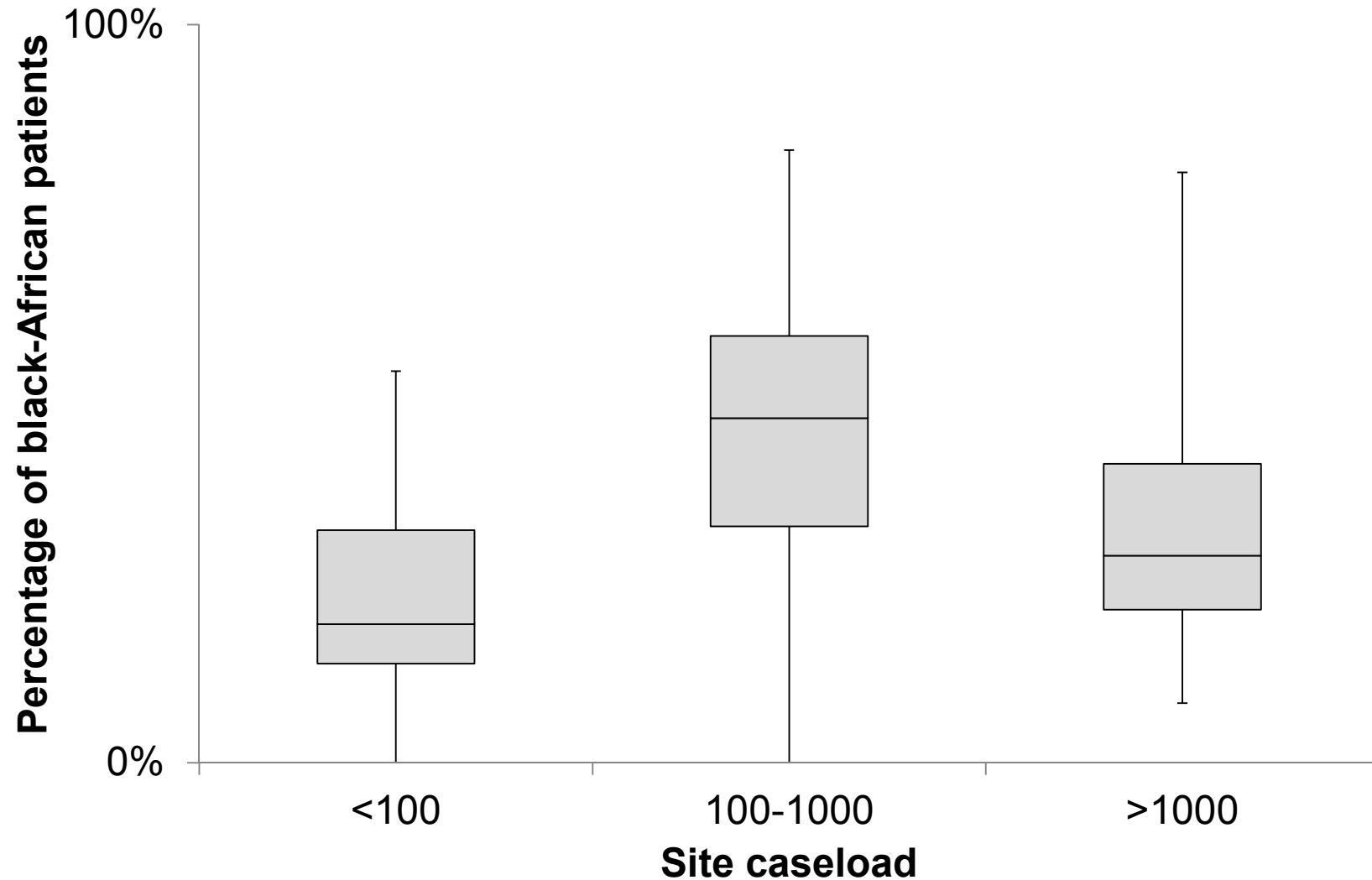
Sites with HIV caseload >1000 :

- Older patients
- Earlier dates of ART initiation.

Small (≤ 100) and large (>1000) sites:

- More white, male, MSM than medium sites
- Fewer black-African, female, heterosexual.

Random and systematic case-mix variation



Inclusion in outcomes assessment: current care status

Data submitted for 12975 patients seen for care in 2009

11292 (87.0%) "in & out of care"

10565 (81.4%) care at same clinic

Of which 9207 (87.1%) were on ART

10308 (79.4%) care at same clinic *and*
seen during 2011

Exclude from analysis:
1250 (9.6%) transferred care to
different UK clinic

267 (2.1%) left UK

166 (1.3%) died

Exclude from "in care" analysis:
575 (4.4%) stopped attending, but
not known to have transferred, left
the UK or died

65 (0.5%) not known

87 (0.7%) not answered

Main outcome measures

Planned poor outcome definition

Criteria for poor outcome	Exceptions
On ART, VL >100	Recent (re)start Probable blip, provided VL <200, or VL <1000 and measured within last 60 days Considered not of clinical concern, provided VL <200
On ART, VL not measured within 230 days preceding audit	
Not on ART, CD4 <350	
Previously but not currently on ART	Stopped after MTCT prevention
Not seen in clinic during 2011	Seen in 2010 and considered stable and not needing to be seen frequently

Poor outcome rates: corrected data

	Poor outcome rate	Poor outcomes	Total
Patients in and out of care	12.1%	1364	11,292
Patients in care	7.1%	751	10,565
Patients in care and seen during 2011	6.4%	659	10,308

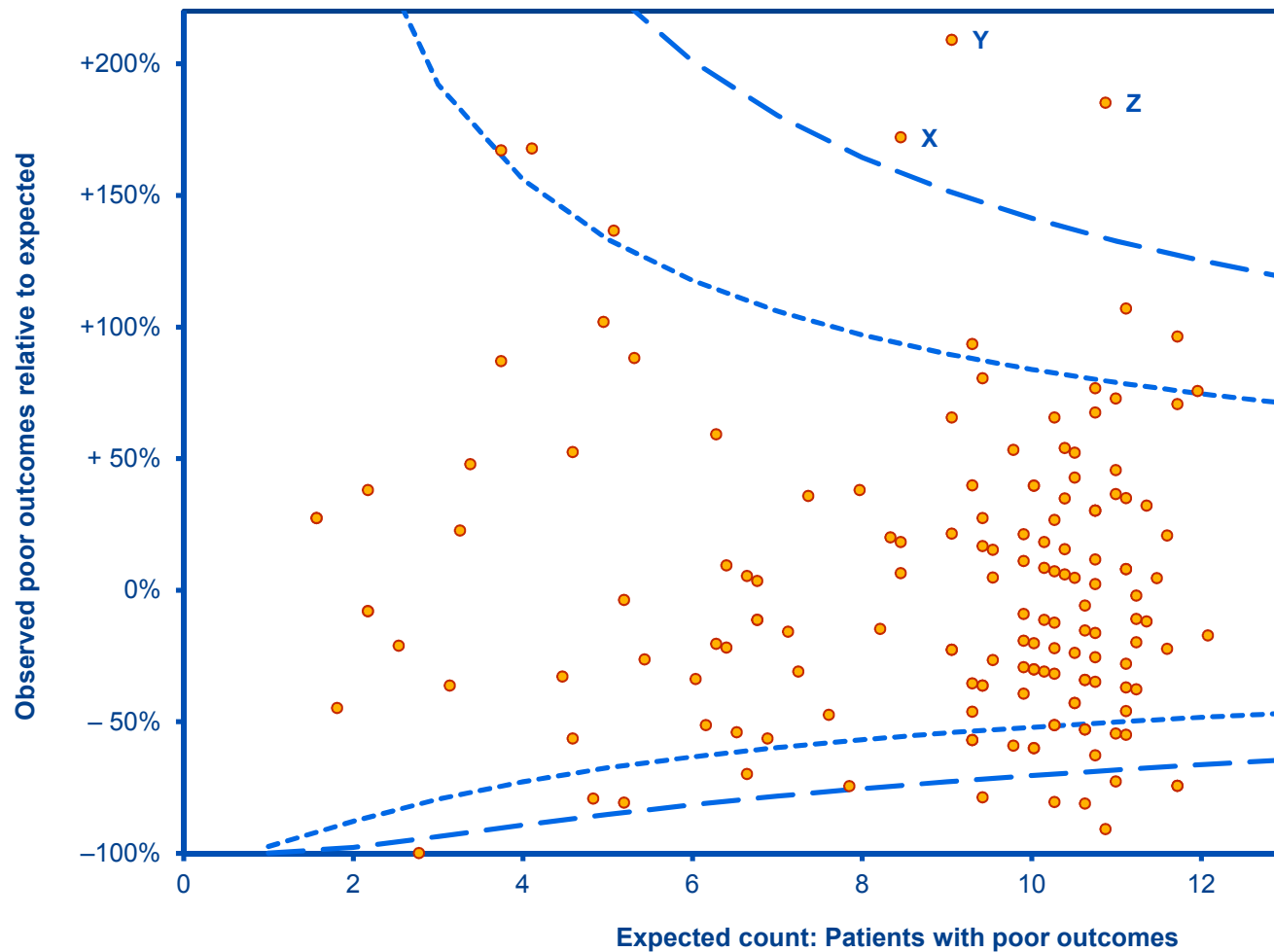
Variation in poor outcome rates by patient and site characteristics

	In and out of care	In care	In care and seen during 2011
Overall	12.1%	7.1%	6.4%
Male	10.9%	6.7%	6.0%
Female	**13.9%	*7.8%	7.0%
White	10.0%	6.9%	6.3%
Black-African	**14.7%	7.2%	6.4%
MSM	9.6%	6.3%	5.6%
Heterosexual	**12.9%	7.3%	6.6%
ART initiated 2005 or earlier	9.3%	6.6%	6.0%
ART initiated 2006 or later	9.6%	6.2%	5.7%
<100 site caseload <1000	12.3%	7.1%	6.5%
Site caseload >1000	12.6%	7.2%	5.8%
Site caseload <100	11.8%	7.9%	7.2%

** Significant at 99%. * Significant at 95%.

Possible outlier sites

Funnel plot: corrected data, patients in and out of care



Source: BHIVA audit 2011-12

Problems with outcome definition

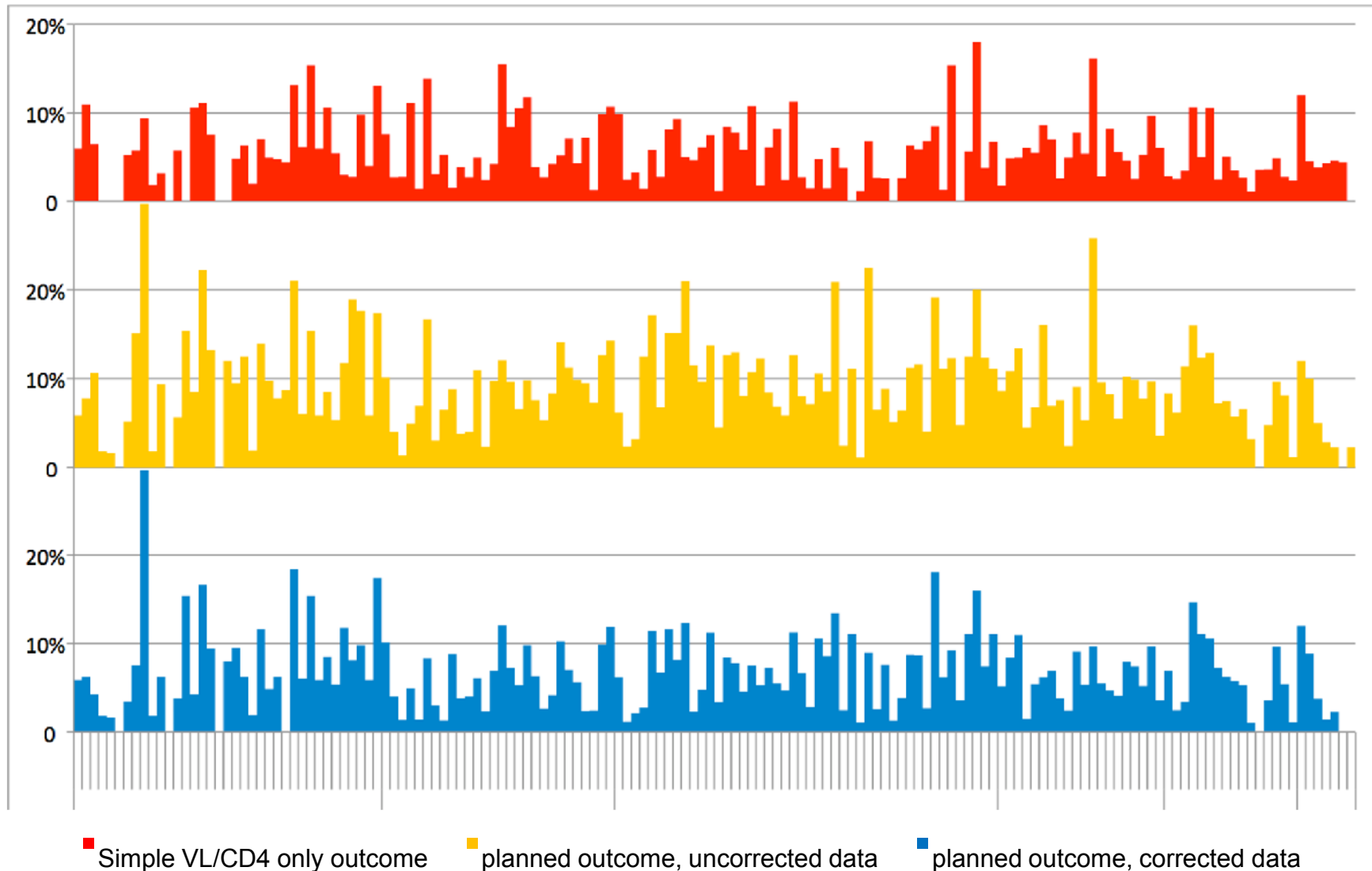
Burdensome for sites to provide sufficient data.

Data quality issues – missing data and errors, especially dates and reasons for exceptions.

Action taken in response:

- Corrected missing data by imputing. E.g. if attendance date given but VL date missing, assume the same
- Tested simpler definition of poor outcome for potential future use
 - On ART with VL >200
 - Not on ART, CD4 <350.

Comparison of outcome measures: poor outcome rates for patients seen for care during 2011 by site caseload



Secondary outcomes

London CQIN viral load outcome

London

- ≥90% adults starting ART to have <50 copies/ml within 3-15 months, excluding pregnant women and those with no available measurement (achieved 2010: 93%).

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- No direct comparison
- 9070 patients in care on ART with available result, 83.2% had undetectable VL and a further 10.4% had detectable VL <100 copies/ml.

London CQIN CD4 targets

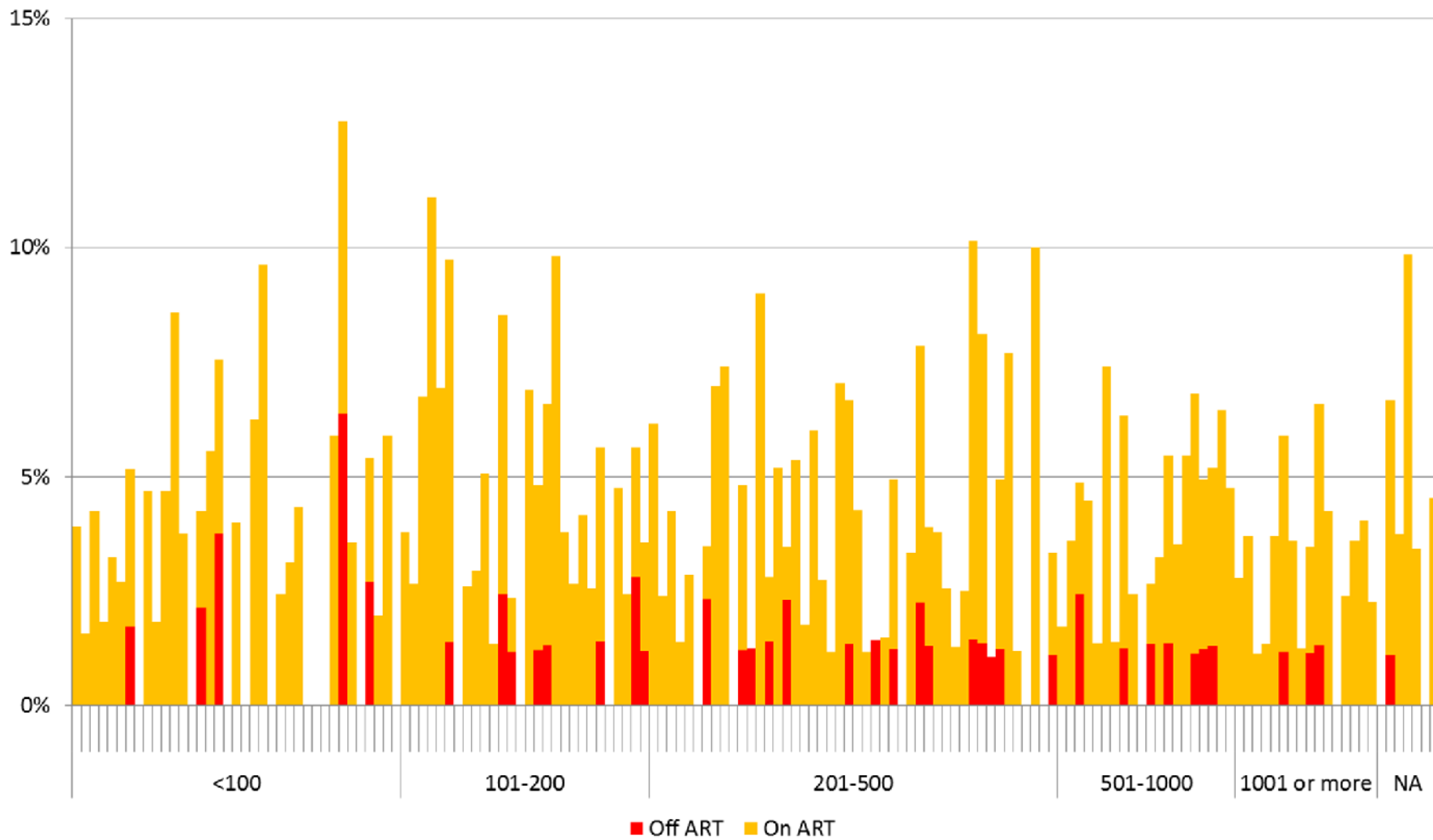
London

- ≥95% of adults in care for at least one year at the same site to have ≥ 200 cells/mm³ (achieved 2010: 96%)
- ≥90% to have ≥ 350 cells/mm³ (achieved 2010: 83%).

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- Of 10565 patients in care, 94.9% had > 200 and 80.8% > 350 cells/mm³

Percentage of patients in care & seen during 2011 with CD4 ≤ 200 cells/mm³ by site caseload and whether on ART

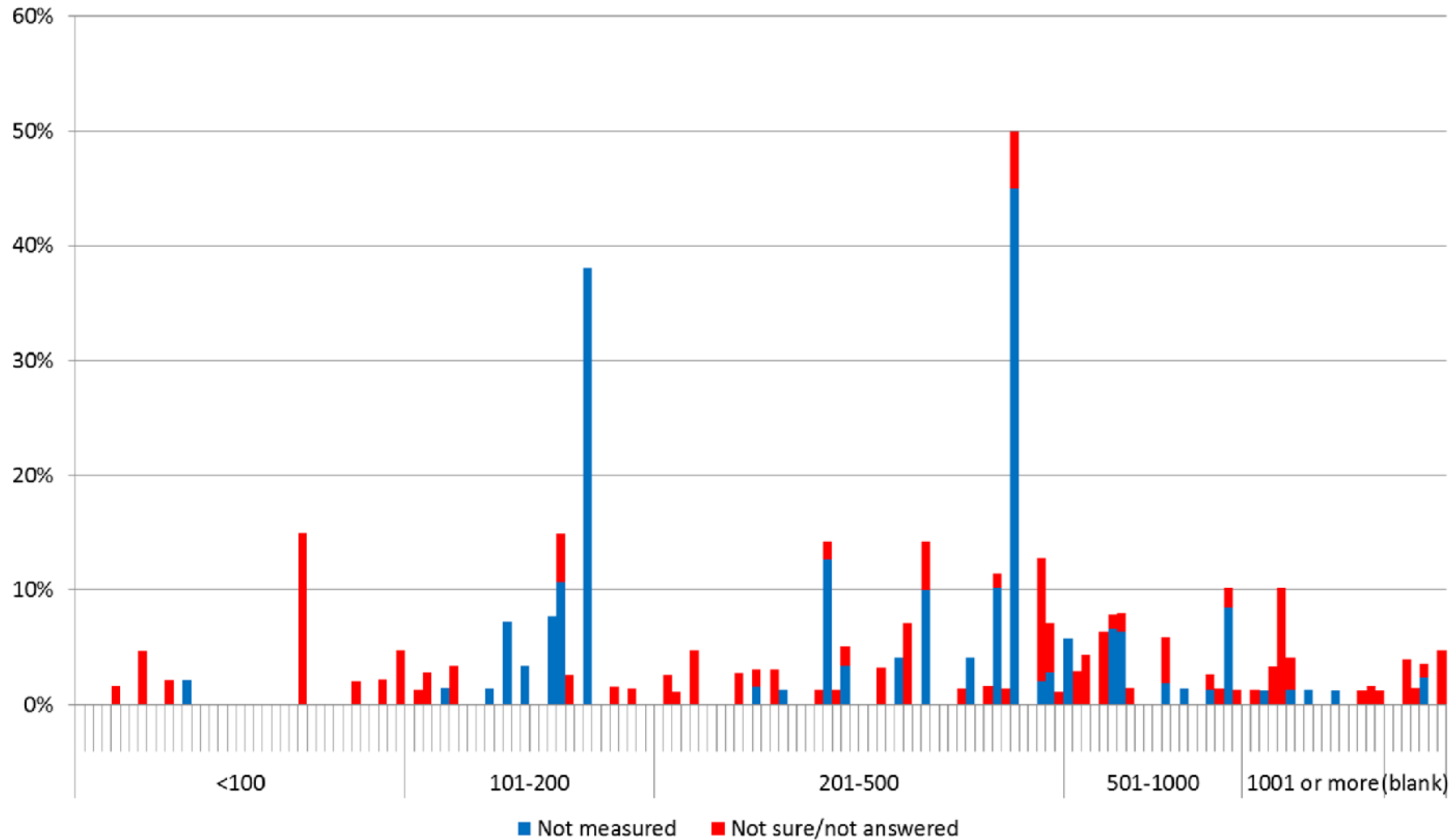


Other secondary outcomes

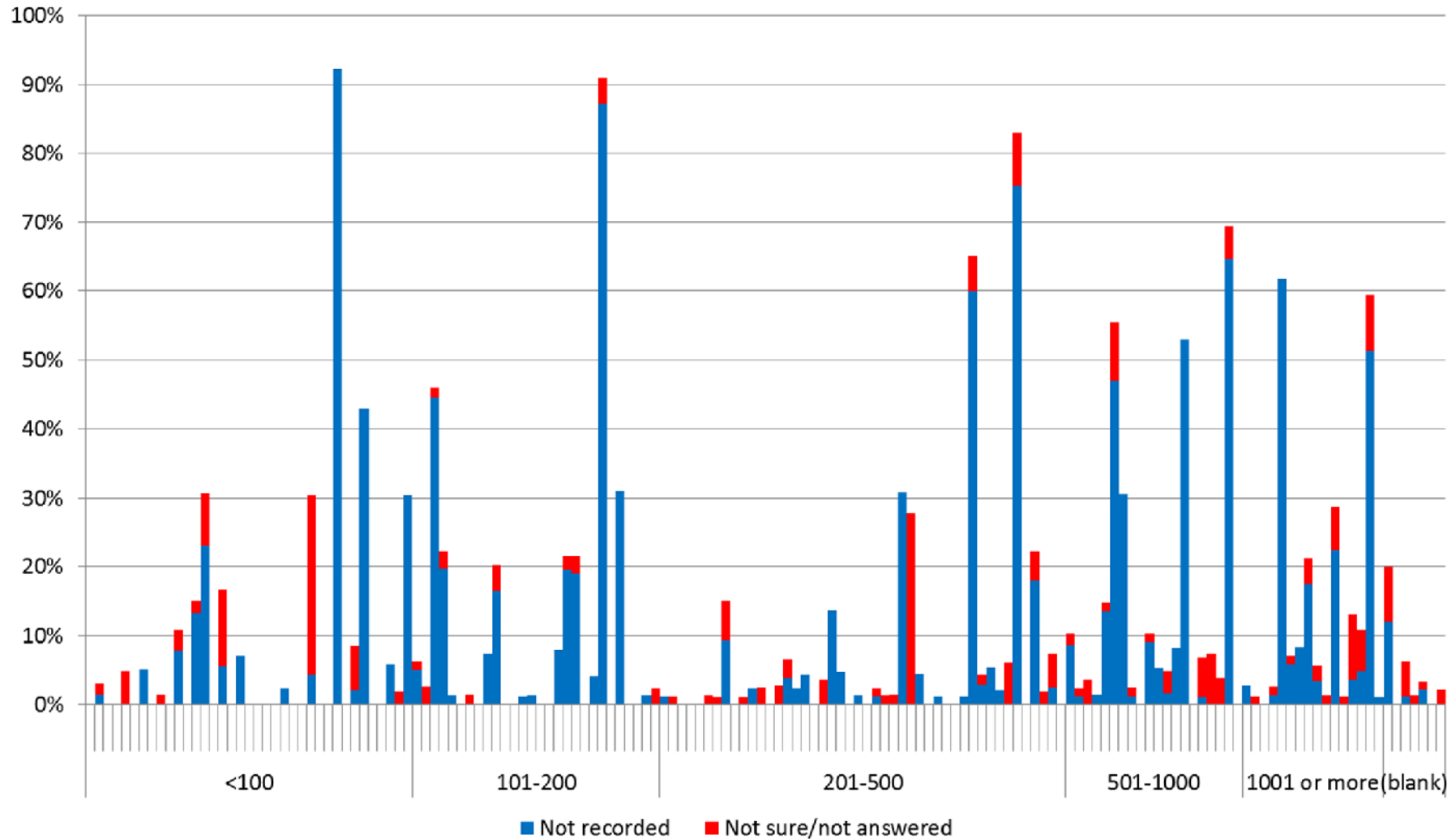
Cardiovascular risk monitoring

Assessment of adherence

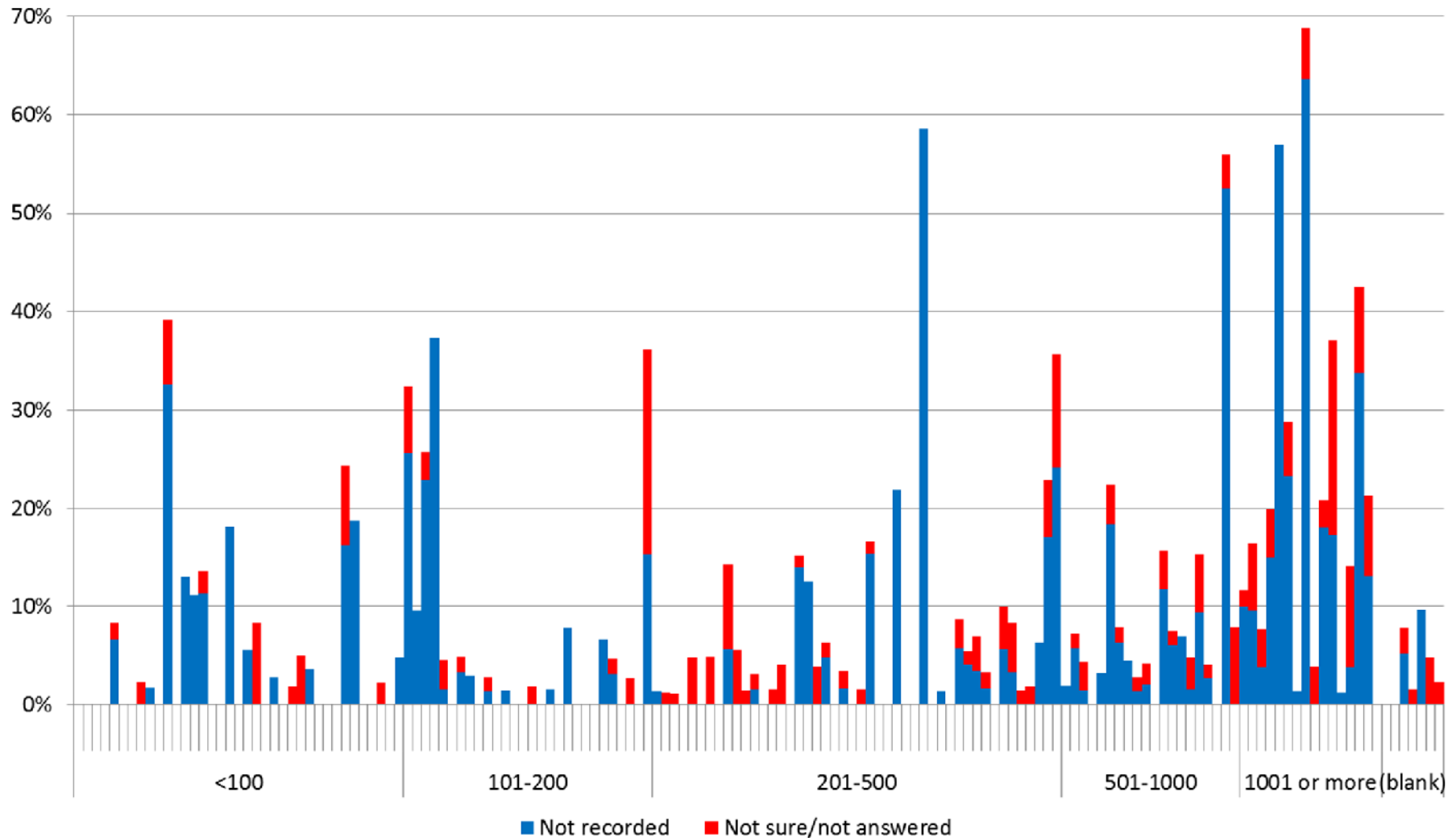
Percentage of patients on ART, in care and seen during 2011 for whom lipids not measured in the past 3 years



Percentage of patients in care and seen during 2011 for whom blood pressure not recorded in the past 15 months



Percentage of patients on ART, in care and seen during 2011 for whom information on adherence not recorded in the past 12 months



Conclusions: main outcome

Overall HIV treatment outcomes were excellent

- 87.9% of patients overall
- 93.6% of those attending for care.

Outcomes varied widely between sites.

- Poor outcomes might be attributed to patient factors
- Not a reflection of care quality.

Reassuring lack of systematic variation in outcomes for patients attending for care

- Variation among patients out of care requires further investigation
- Some possible outlier sites identified
- May partly reflect poor data quality.

Conclusions: monitoring

Recording of cardiovascular risk monitoring and adherence assessment was variable.

Conclusions: feasibility

The audit method posed problems and is not feasible for year-on-year repetition:

- Participants found it burdensome to provide data
- Errors and missing data affected site-level results significantly.

Data was imputed where feasible in this audit. In the future joint HIV/STI audit programme, sites may be judged on data quality as well as underlying outcomes.

Using a simpler outcome definition gave significantly different results.

Recommendations

Preparation for the HIV/STI *National Clinical Audit and Patient Outcomes Programme* should focus on:

- Improving outcome measures to assess quality of care with the minimum burden for participants
- Addressing data quality with automated data collection being a high priority.

Acknowledgements

All the centres who participated in this audit.