Dr Sonia Raffe

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Speaker Name	Statement
Dr Sonia Raffe	None
Date	April 2015

Pregnancies in women with HIV

Audit using data collected for the National Study of HIV in Pregnancy and Childhood

Method

- The National Study on HIV in Pregnancy and Childhood (NSHPC) provided BHIVA with anonymised data on pregnancies in the UK and Ireland
- Pregnancies with an estimated date of delivery (EDD) between 1 January 2013 and 30 June 2014 were included
- BHIVA audited the data against outcomes specified in its 2012 pregnancy guidelines

NSHPC confidential pregnancy notification

MREC approval ref: MREC/04/2/009 *Form date: 07/14* www.ucl.ac.uk/nshpc

CONFIDENTIAL

Woman's date of birth: ___/___/___ Hospital number (or other ref): Soundex .

Postcode (leave off last letter) ☐☐☐☐ ☐☐■ Previous livebirths ..... stillbirths ..... miscs/terms .....

Ethnic origin ☐ White ☐ Black African ☐ Black Caribbean ☐ Black Other

☐ Asian, Indian Subcontinent ☐ Other Asian / Chinese ☐ Mixed or other, specify .....

Country of birth .. If not UK/Ireland, date arrived ____/____/___

PROBABLE SOURCE OF MATERNAL INFECTION

Maternal infection probably acquired: ☐ In UK/Ireland ☐ Abroad, specify ..... ☐ NK where

Likely exposure: ☐ Heterosexual - specify partner's likely risk factor, if known .....

☐ Vertical transmission, place and age at diagnosis .....

☐ Injecting drug use ☐ Other, specify .....

TIMING OF DIAGNOSIS

Date of first positive test: ____/____/____ If type 2 only, please tick here ☐

Diagnosed **when**: ☐ During this pregnancy ☐ Before this pregnancy

Diagnosed **where**: ☐ Antenatal ☐ GUM clinic ☐ Other .....

Any evidence of **seroconversion** in this pregnancy? ☐ No ☐ Yes, specify details overleaf ☐ Not known

PREGNANCY

Antenatal booking date: ____/____/____ EDD ____/____/____ *and/or* LMP____/____/___

☐ Continuing to term - if continuing, planned mode of delivery: ☐ Vaginal ☐ CS ☐ Not yet decided

☐ Miscarriage ☐ Termination } Date of misc/TOP: ____/____/____ at ..... weeks gestation

Any congenital abnormality? ☐ No ☐ Yes, please specify.....

DRUG TREATMENT *DURING THIS PREGNANCY*

Was this woman on antiretroviral drugs when she became pregnant? ☐ Yes ☐ No

Did she receive antiretroviral drugs in pregnancy? ☐ Not yet ☐ Yes ☐ No ☐ Declined

Please provide details of antiretrovirals:	Before preg? (please circle)	Date started (or gest week) (if in pregnancy)		Date stopped (or gest week)	
Drug 1	Yes / No	___/___/___	_____	___/___/___	_____
Drug 2	Yes / No	___/___/___	_____	___/___/___	_____
Drug 3	Yes / No	___/___/___	_____	___/___/___	_____
Drug 4	Yes / No	___/___/___	_____	___/___/___	_____
Drug 5	Yes / No	___/___/___	_____	___/___/___	_____

MATERNAL CLINICAL STATUS

CDC Stage C disease ever? ☐ No ☐ Yes* if yes, date of onset: ____/____/____

Symptomatic in this pregnancy? ☐ No ☐ Yes* **Please provide details overleaf if yes to any of these*

Sexual health screening test in this pregnancy? ☐ No ☐ Yes*, 1st screen date this preg: ____/____/____

Concurrent maternal infection(s)? ☐ None ☐ HBV ☐ HCV ☐ Syphilis ☐ Other, specify

MATERNAL TEST RESULTS *first test results available this pregnancy*

Viral load ..... copies/ml Date ____/____/____ **CD4** no._____ (____%) Date ____/____/____

Form completed by: Name _____ Date ___/___/___

Position _____ Telephone _____ Email _____

Thank you for your help. Please return this form to: Surveillance Studies Group, Population, Policy and Practice Programme, UCL Institute of Child Health, 30 Guilford St, London WC1N 1BR. Telephone the NSHPC on 020 7905 2815 or email nshpc@ucl.ac.uk if you have any queries.

NSHPC outcome of notified pregnancy

MREC approval ref: MREC/04/2/009 *form date: 11/12* www.ucl.ac.uk/nshpc

CONFIDENTIAL

Your ref: ..... EDD: Hospital of delivery .....

☐ Livebirth *or* ☐ Stillbirth Date ____/____/____ ☐ Male ☐ Female Gest .....wks Birthweight.....kg

Hospital no ..... NHS no ..... *If twins, tick here* ☐ *give details of second twin overleaf*

Postcode at delivery (leave off last letter) ☐☐☐☐ ☐☐■ Paediatrician .....

Pregnancy complications ☐ None ☐ Pre-eclampsia* ☐ Gest. diabetes ☐ Other* **please give details overleaf*

Invasive procedures in pregnancy ☐ None ☐ Amniocentesis ☐ CVS ☐ Cordocentesis

Date of procedure ____/____/____ Viral load *at time of procedure*..... copies/ml on ____/____/____

Mode of delivery 1.☐ Elective CS to prevent mother-to-child transmission 2.☐ Planned vaginal delivery

3.☐ Elective CS for any other reason 4.☐ Unplanned vaginal delivery 5.☐ Emergency CS

Reason for delivery by 3, 4 or 5:.....

What was *planned* mode of delivery? ☐ Vaginal ☐ Elective CS ☐ Not known

Invasive procedures at delivery *tick all that apply*

☐ None ☐ Ventouse ☐ Forceps, type .. . . ☐ Scalp monitor ☐ FBS

Rupture of membranes ☐ Yes, duration ..... hours ..... minutes ***or*** ☐ Ruptured only at delivery

Congenital abnormalities ☐ No ☐ Yes, specify .....

Any other perinatal problems ☐ No ☐ Yes, specify .....

DRUG TREATMENT DURING PREGNANCY (continue overleaf if necessary)

Ante-partum treatment ☐ No ☐ Yes, reason (if known) ☐ Prevention of mother-to-child transmission ***only***

☐ Maternal health ***and*** prevention of transmission

Antiretrovirals	Date started (or gest week)		Date stopped (or gest week)	
Drug 1	___/___/___	_____	___/___/___	_____
Drug 2	___/___/___	_____	___/___/___	_____
Drug 3	___/___/___	_____	___/___/___	_____
Drug 4	___/___/___	_____	___/___/___	_____
Drug 5	___/___/___	_____	___/___/___	_____

Any other significant drugs (eg. PCP prophylaxis, TB treatment, methadone, illicit drugs)

Drug 1.....date ____/____/____ Drug 2.....date ____/____/____

Additional treatment intra-partum

☐ None ☐ IV AZT ☐ Single dose nevirapine ☐ Other oral antiretrovirals .....

Post-partum for infant ☐ None ☐ Oral AZT ☐ IV AZT ☐ Triple, specify . . ..

MATERNAL CLINICAL STATUS

If woman has died date of death ____/____/____

Symptomatic at delivery ☐ No ☐ Yes, details ..

MATERNAL TEST RESULTS *NEAR DELIVERY* *last before delivery if possible*

Viral load ..... copies/ml Date ____/____/____ **CD4** no._____ (____%) Date ____/____/____

Resistance testing done this pregnancy? ☐ Yes ☐ No ☐ Not known Clade of virus if known .

Form completed by: Name _____ Date ____/____/____

Role/position_____ Telephone_____ Email_____

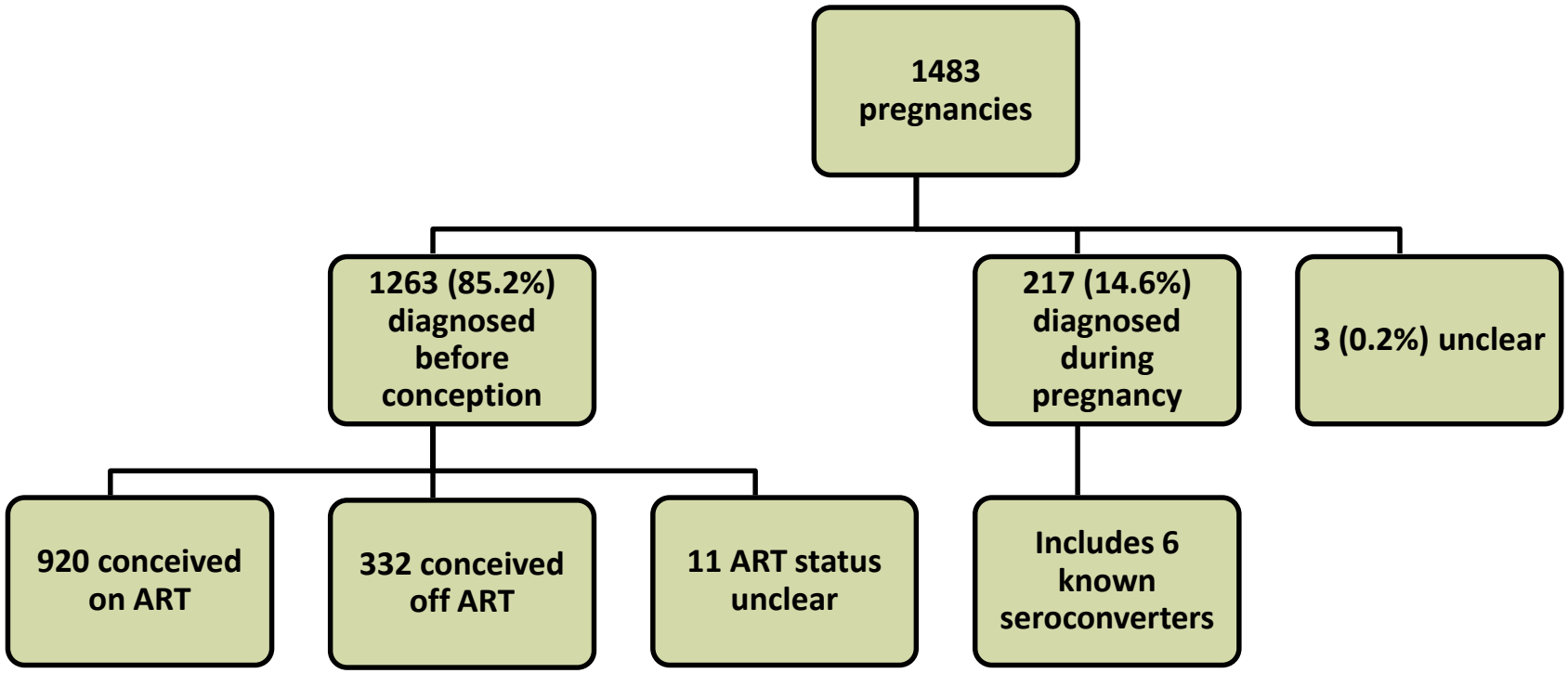
Thank you for your help. Please return this form to: Surveillance Studies Group, MRC Centre of Epidemiology for Child Health, UCL Institute of Child Health, 30 Guilford St, London WC1N 1BR. Telephone the NSHPC on 020 7905 2815 or email nshpc@ucl.ac.uk if you have any queries.

Results

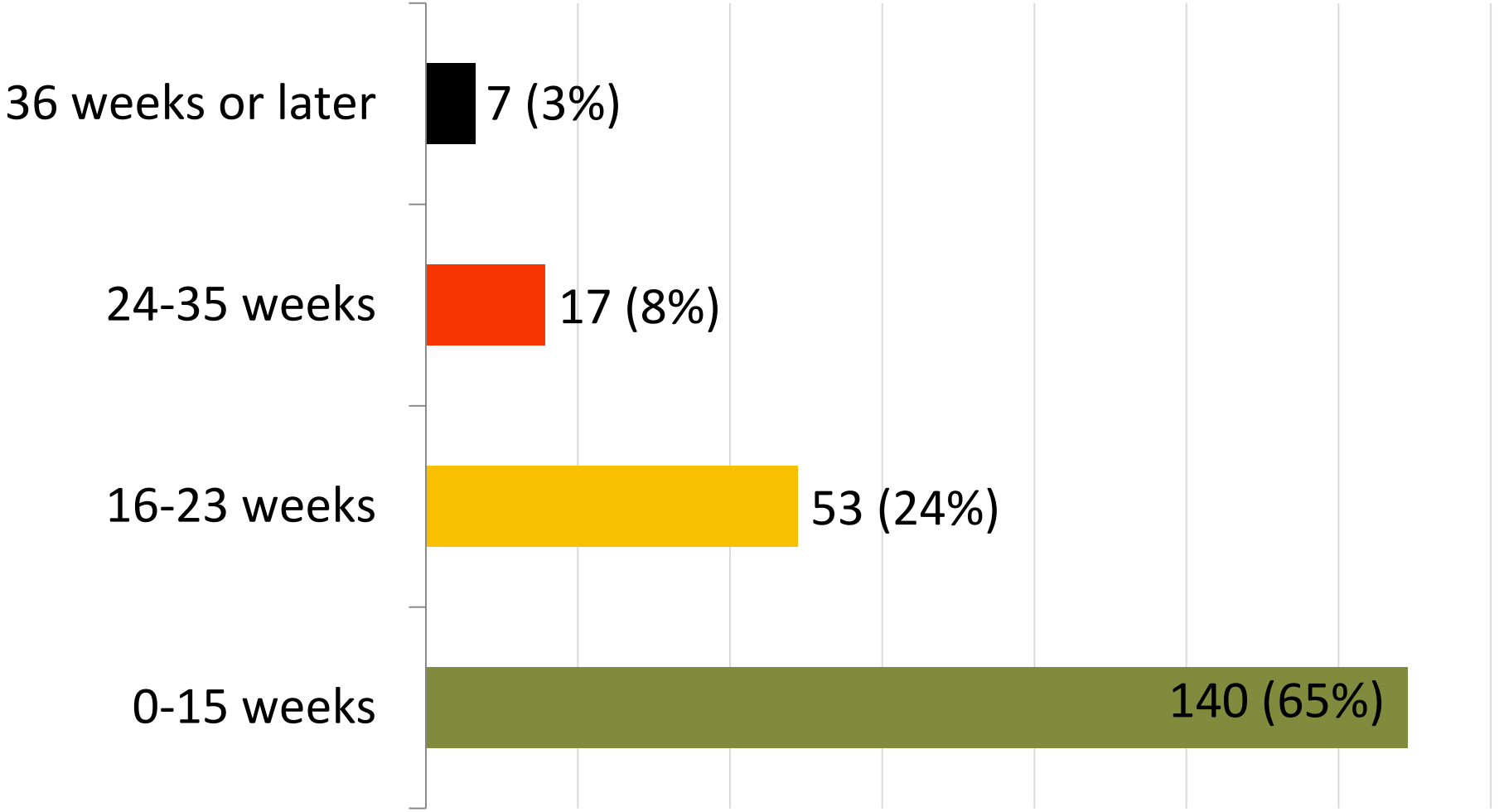
1483 pregnancies in 1469 women

	Number of women	Percent of women
Ethnicity:		
Black African	1083	73.7%
White	250	17.0%
Black Caribbean	46	3.1%
Other/not stated	90	6.1%
Age at EDD:		
16-19	12	0.8%
20-29	344	23.4%
30-39	952	64.8%
40 or over	161	11.0%
HIV acquisition:		
Heterosexual	1251	85.2%
Vertical	21	1.4%
Injecting drug use	17	1.2%
Other/not stated	180	12.3%

HIV diagnosis and ART status



Timing of HIV diagnosis: 217 diagnosed during current pregnancy



Choice of ART regimen

BHIVA guidelines - ART in pregnancy

Conceived on ART	Continue (intensify/switch if on PI monotherapy or D4T/DDI)	920 (62.5%)
Naïve, CD4 <350 or other maternal need for ART	TFV/FTC, ABC/3TC or ZDV/3TC, + EFV, NVP (if CD4 <250 cells/mm^3) or bPI	214 (14.5%)
Naïve, mother does not need ART:		
VL >100,000	TFV/FTC, ABC/3TC or ZDV/3TC + bPI	338 (22.8%)
VL 10,000-100,000	As above or ZDV/3TC/ABC	
VL <10,000	As above, or ZDV monotherapy	
Booked after 28 weeks, VL unknown or >100,000 copies/ml	3-4 drug regimen, suggest include raltegravir	2 (0.1%)

Excludes 13 pregnancies where ART status was unclear. CD4 count not available in 33 pregnancies so compliance with ART based on VL in these pregnancies

BHIVA guidelines - ART in pregnancy

Conceived off ART, CD4 <350 or other maternal need for ART	TFV/FTC, ABC/3TC or ZDV/3TC, + EFV, NVP (if CD4 <250 cells/mm^3) or bPI	214

Recommended NRTIs + EFV, NVP or bPI	178	94% compliant with guidelines
Recommended NRTIs + bPI + RTG	17	
Recommended NRTIs + RTG	3	
More intensive	2	
Recommended NRTIs + unboosted PI	3	3% non-compliant with guidelines
Different NRTIs + bPI	2	
ZDV/3TC/ABC	1	
ZDV	1	
Other or unspecified	5	3% unknown / not reported
None reported	2	

BHIVA guidelines - ART in pregnancy

Conceived off ART, mother does not need ART:

VL >100,000	TFV/FTC, ABC/3TC or ZDV/3TC + bPI	338
VL 10,000-100,000	As above or ZDV/3TC/ABC	
VL <10,000	As above, or ZDV monotherapy	

BHIVA guidelines - ART in pregnancy

Conceived off ART, mother does not need ART:

VL >100,000	TFV/FTC, ABC/3TC or ZDV/3TC + bPI	11
VL 10,000-100,000	As above or ZDV/3TC/ABC	81
VL <10,000	As above, or ZDV monotherapy	162
VL not recorded		84

BHIVA guidelines - ART in pregnancy

Conceived off ART, mother does not need ART:

VL >100,000	TFV/FTC, ABC/3TC or ZDV/3TC + bPI	11
VL 10,000-100,000	As above or ZDV/3TC/ABC	81
VL <10,000	As above, or ZDV monotherapy	162
VL not recorded		84

	All	<10,000	10,000-100,000	>100,000
ART*	293 (87%)	132 (82%)	79 (98%)	11 (100%)
ART, unboosted PI	1 (<1%)	1 (<1%)	0	0
Triple NRTI	22 (7%)	19 (12%)	1 (1%)	0
ZDV monotherapy	9 (3%)	8 (5%)	0	0
Other	2 (<1%)	1 (<1%)	0	0
None recorded	11 (3%)	1 (<1%)	1 (1%)	0
		98% compliant	99% compliant	100% compliant

*Any regimen containing 2 or more NRTIs, plus NNRTI, bPI and/or RTG

BHIVA guidelines - ART in pregnancy

Booked after 28 weeks, VL unknown or >100,000 copies/ml	3-4 drug regimen, suggest include raltegravir	2

Only two women booked after 28 weeks with VL >100,000 copies/ml

Both started intensive regimens containing raltegravir

100% compliant with guidelines

Further ART points

- 9 women started NVP and had a reported CD4>250 cells/mm^3
- Raltegravir was included in 1st regimen in:
  - 5.1% of pregnancies overall
  - 15.3% of pregnancies with ART started at VL >30,000 copies/ml
- 73 women started on darunavir during pregnancy despite it not being a preferred agent. 2014 guidelines advise considering twice daily dosing

No reported ART

- No ART was reported in 12 pregnancies
  - 8 were ongoing at last report with incomplete information; ART might have been used

- The remaining 4 resulted in live births:
  - 2: ART declined, delivered by elective CS
  - 1: HIV diagnosed in labour, delivered vaginally
  - 1: known HIV positive, not booked for antenatal care, delivered vaginally

Timing of ART initiation

BHIVA guidelines - timing of ART in pregnancy

ART needed for maternal health	Start as soon as possible, audit start date within 2 weeks of diagnosis	214

ART for prevention MTCT:

VL <30,000*	Start by beginning of week 24	402

ART for prevention MTCT:

VL >30,000	Start by beginning of week 16	123

*Also includes women who conceived off ART where viral load was not reported

BHIVA guidelines - timing of ART in pregnancy

ART needed for maternal health	Start as soon as possible, audit start date within 2 weeks of diagnosis	214

105 women were diagnosed during pregnancy with CD4 <350

Started within 14 days of diagnosis	30
Started at 15-28 days of diagnosis	25
Started ART at 29 days or more after diagnosis	43
Start date or diagnosis date unknown	7

29% within 2 weeks

108 women were diagnosed HIV positive before conception with CD4 <350

Started before or within 14 days of booking	33
Started at 15-28 days of booking	13
Started ART at 29 days or more after diagnosis	44
Start date or booking date unknown	18

1 woman – timing of diagnosis unclear, start date unknown

BHIVA guidelines - timing of ART in pregnancy

ART for prevention MTCT:

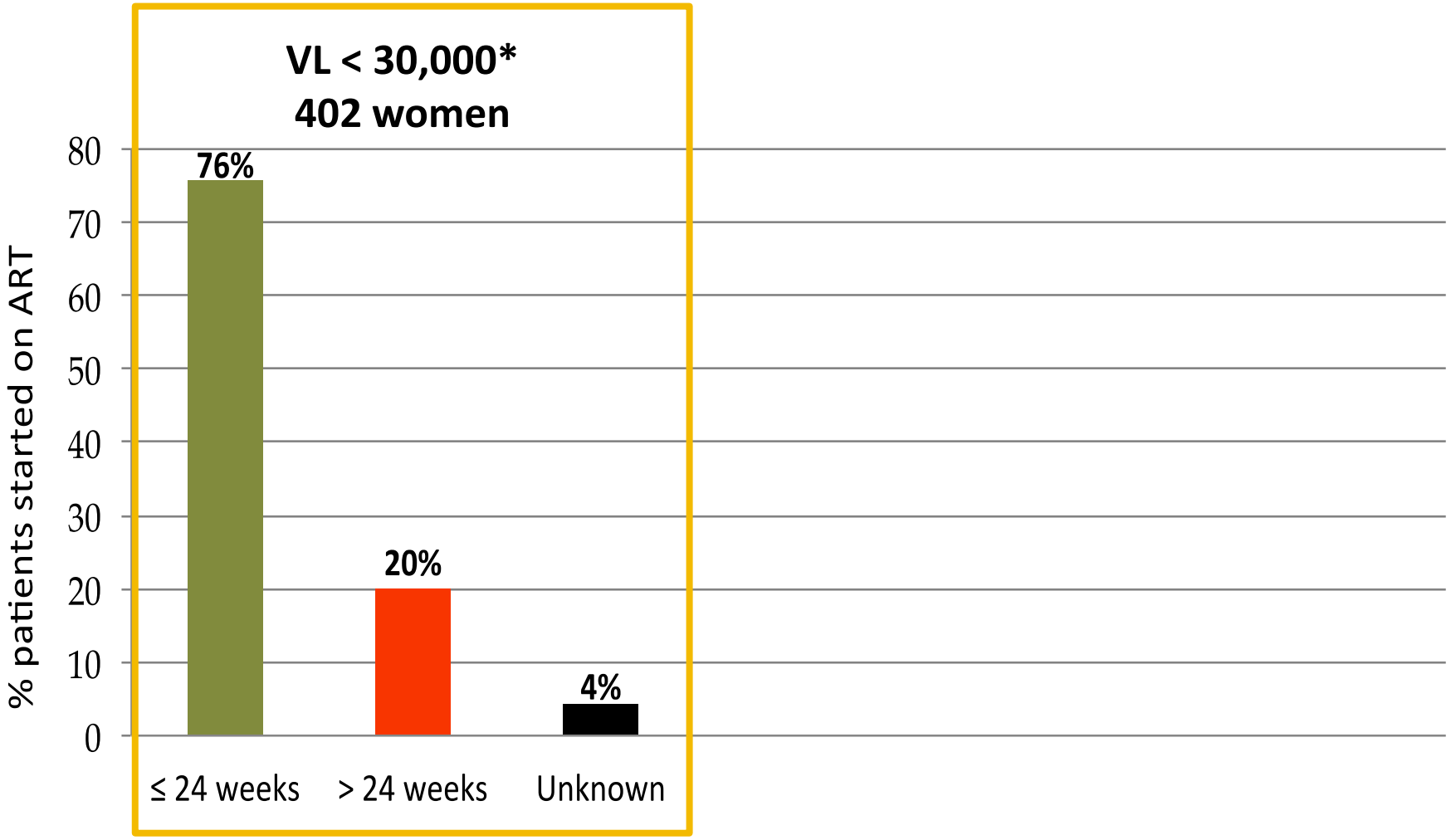
VL <30,000*	Start by beginning of week 24	402

ART for prevention MTCT:

VL >30,000	Start by beginning of week 16	123

*Also includes women who conceived off ART where viral load was not reported

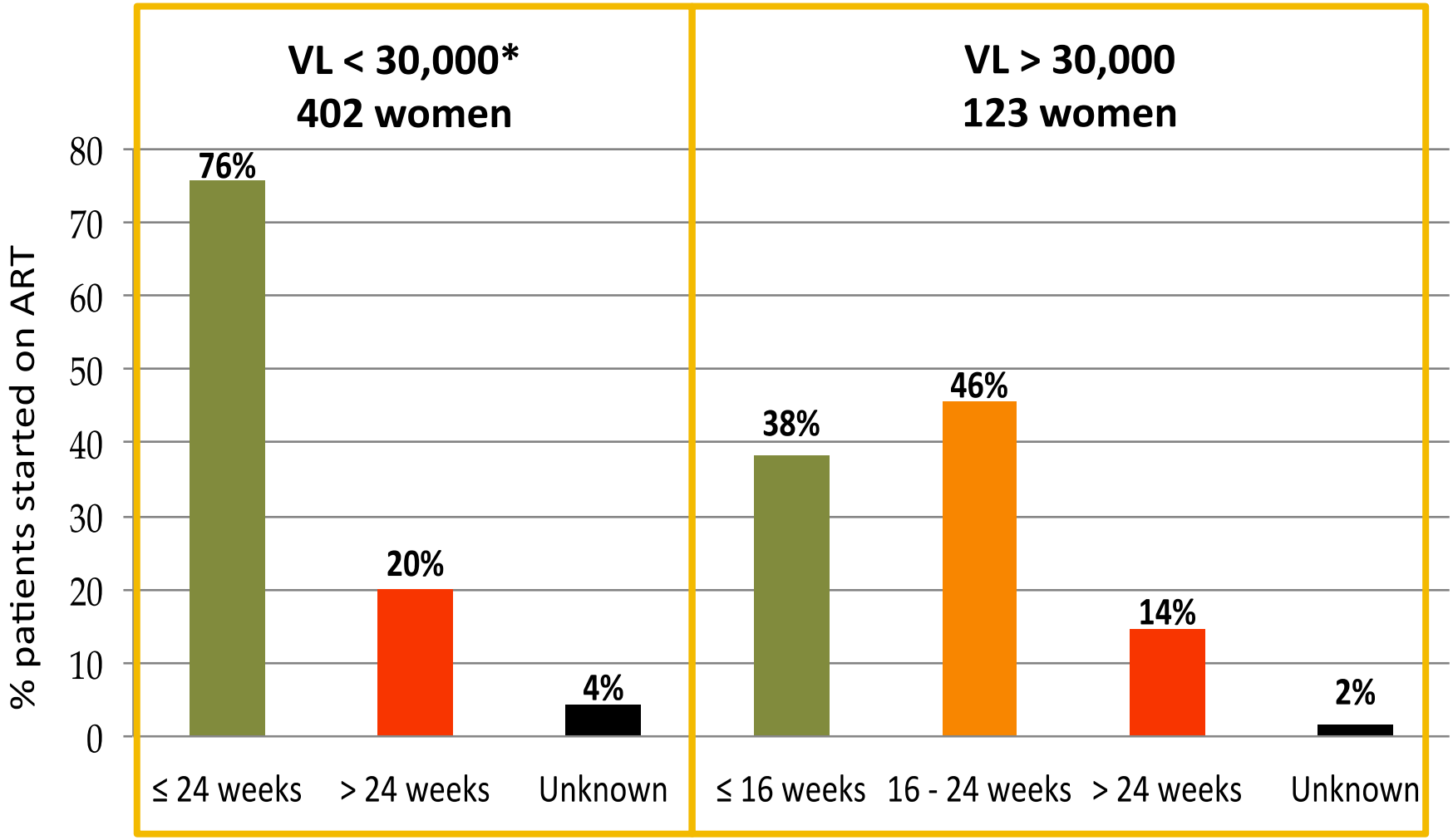
BHIVA guidelines - timing of ART in pregnancy



76% compliant with guidelines

*Also includes women who conceived off ART where viral load was not reported

BHIVA guidelines - timing of ART in pregnancy



76% compliant with guidelines

38% compliant with guidelines

*Also includes women who conceived off ART where viral load was not reported

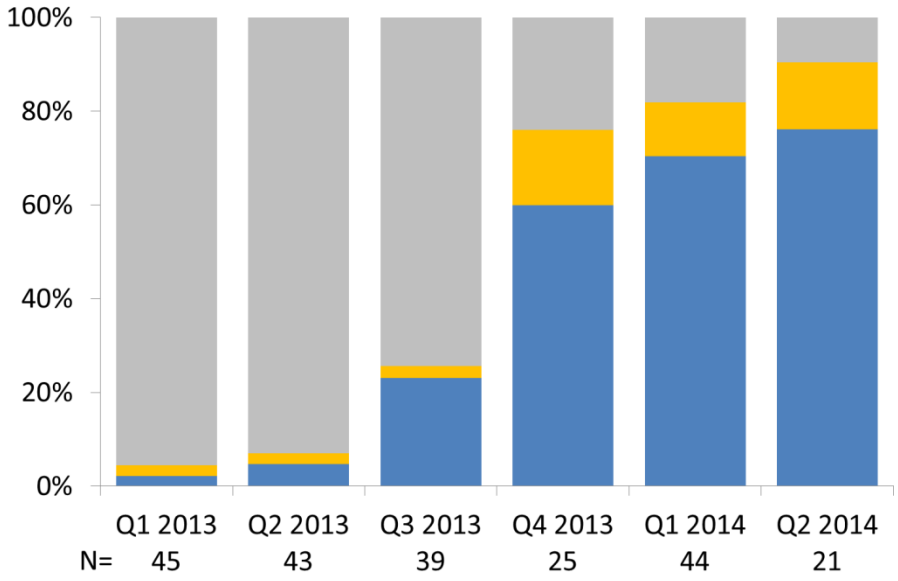
Sexual health screening

BHIVA guideline - sexual health screening

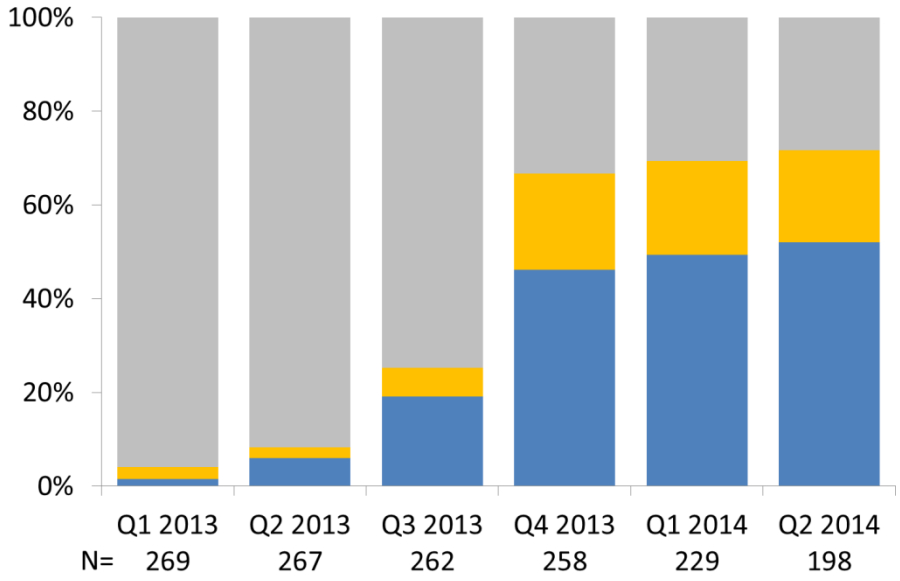
Guidelines: Recommend near start of pregnancy if newly diagnosed, suggest for all. Consider repeat at 28 weeks.

SH screening was added to NSHPC for this audit, and its reporting increased over time

SH screening by EDD quarter:



HIV diagnosed during pregnancy



All pregnancies

Reported screened; Reported not screened; Not reported.

Mode of delivery

BHIVA guidelines – mode of delivery

ART, VL ≤50 at ≥ 36 weeks	Plan vaginal delivery
ART, VL 50-399 at ≥ 36 weeks	Consider caesarean section taking account of individual factors
ART, VL ≥ 400 at ≥ 36 weeks	Plan caesarean section
ZDV monotherapy:	
except elite controllers	Plan caesarean section
elite controllers who maintain VL <50 untreated	Vaginal delivery acceptable

Availability of VL data

Excluding 5 stillbirths and 124 pregnancies for which outcome data not yet reported:

	Number (%) of pregnancies resulting in live birth
Total	1354 (100%)
VL reported between 36 weeks and delivery	613 (45%)
VL reported at 34-35 weeks	287 (21%)
VL reported earlier in pregnancy	398 (29%)
No reported VL in current pregnancy	56 (4%)

BHIVA guidelines – mode of delivery

ART, VL ≤50 at ≥ 36 weeks	Plan vaginal delivery

1134 women had a VL ≤ 50 copies/ml at some point during pregnancy

	All	≥ 36 weeks
Vaginal planned	786 (69%)	391* (72%)
Caesarean planned	320 (28%)	148 (27%)
No reported plan	28 (3%)	1 (<1%)
Total	1134	540

72% compliant

*Includes 3 women on ZDV monotherapy. all possible elite controllers with VL <50 copies/ml reported prior to ART initiation as well as at ≥36 weeks

BHIVA guidelines – mode of delivery

ART, VL 50-399 at ≥ 36 weeks	Consider caesarean section taking account of individual factors

50 women had a VL 50-399 copies/ml at ≥36 weeks:

- 24 planned for vaginal delivery
- 26 planned for caesarean section

A further 21 women with last reported VL 50-399 copies/ml at 0-35 weeks planned for vaginal delivery – possibly reflecting under-reporting of VL measurements

BHIVA guidelines – mode of delivery

ART, VL ≥ 400 at ≥ 36 weeks	Plan caesarean section

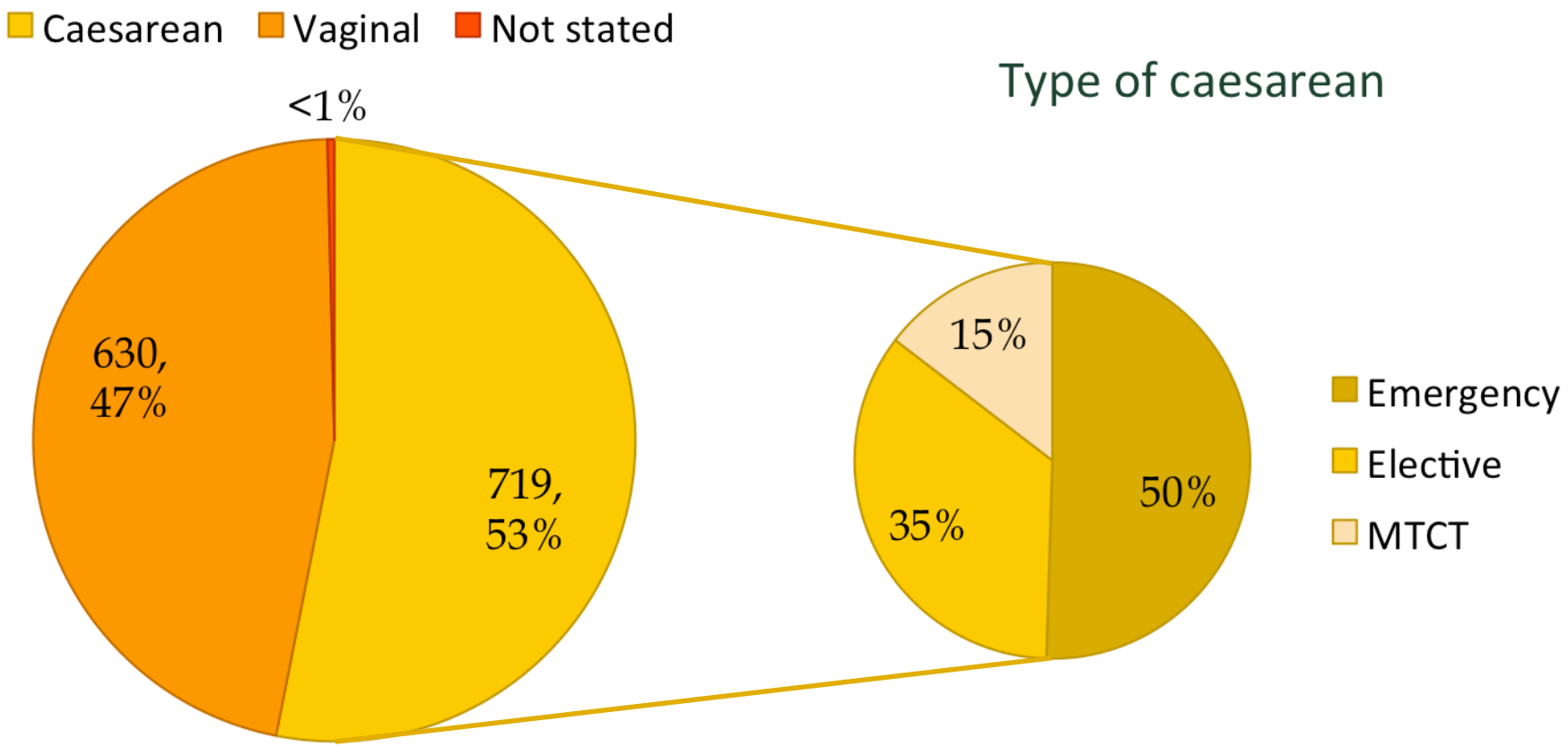
24 women had a VL ≥ 400 copies/ml at ≥36 weeks:

- 19 planned for caesarean section
  - 18 went on to have caesarean section
  - 1 had an unplanned vaginal delivery (see next slide)
- 3 planned for vaginal delivery
  - All 3 went on to have a caesarean section
- 1 woman was diagnosed during labour (see next slide)
- 1 woman did not book antenatally (see next slide)

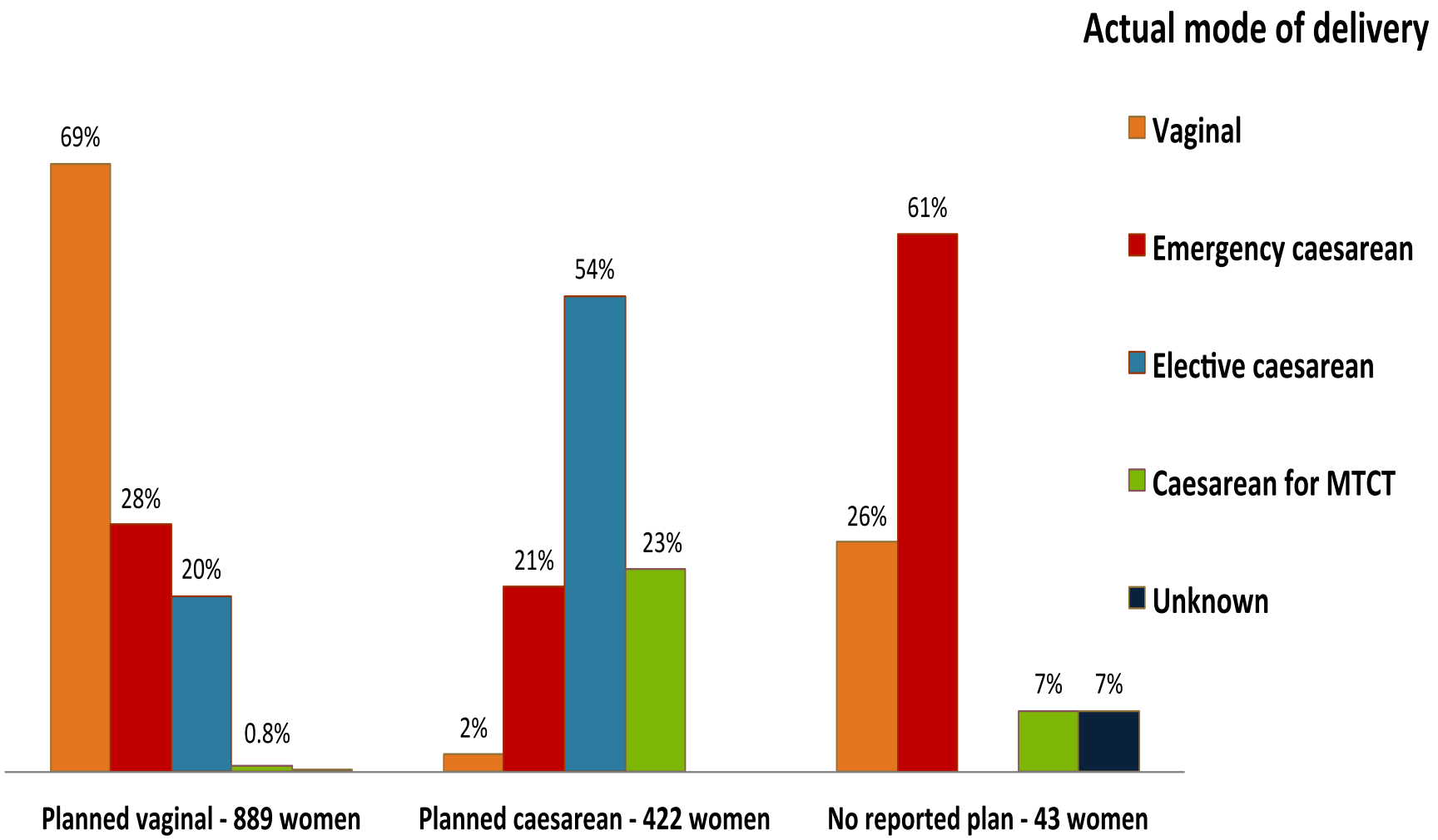
Vaginal delivery in viraemic women

- Because of incomplete VL data it is unclear how many women delivered vaginally while viraemic but this could have been up to 29
- At least 3 women did so at ≥ 37 weeks:
  - 1 planning CS on ART had an unplanned vaginal birth at 37 weeks, VL 16,402 copies/mL
  - 1 HIV diagnosed during labour, VL 18,924 copies/mL
  - 1 known HIV positive but unbooked for antenatal care, VL post-delivery 57,000 copies/mL

Actual mode of delivery



Planned and actual mode of delivery



Conclusions

Limited data, particularly regarding VL, affected this audit but:

- Initial ART regimens were nearly all in accordance with guidelines
- Combination ART was initiated in over 80% of cases
- Only 29% of newly diagnosed women with CD4 <350 cells/mm^3 started ART within 2 weeks
- Many women started ART late, and in most cases this was not explained by late booking

Conclusions

- More than half of deliveries were by CS
- 27% of women with VL <50 copies/ml measured at ≥36 weeks planned for CS
- National survey of management of pregnancy in women living with HIV, presented at autumn BHIVA 2014 found that some centres have a policy of maternal choice rather than recommending vaginal delivery for eligible women which should be reviewed

Recommendations

- Maternity and HIV services should review and agree pathways to ensure swift assessment and prompt ART initiation
- Clinicians should encourage women to plan vaginal delivery unless obstetric factors or insufficient virological control present a clear indication for CS
- Use of ART should be consistently reported to the Antiretroviral Pregnancy Registry (APR) to increase confidence of ART use in pregnancy

Acknowledgements

BHIVA wishes to thank all clinical services who reported data to NSHPC

Collaborators:

NSHPC: P Tookey, H Peters

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British HIV Association

BHIVA

21st Annual Conference of the British HIV Association (BHIVA)

#BHIVA2015

21–24 April 2015

The Brighton Centre, Brighton, UK