# Assessing the influence of BHIVA guidelines on trends in antiretroviral use in pregnancy in the UK and Ireland in 2005-2016

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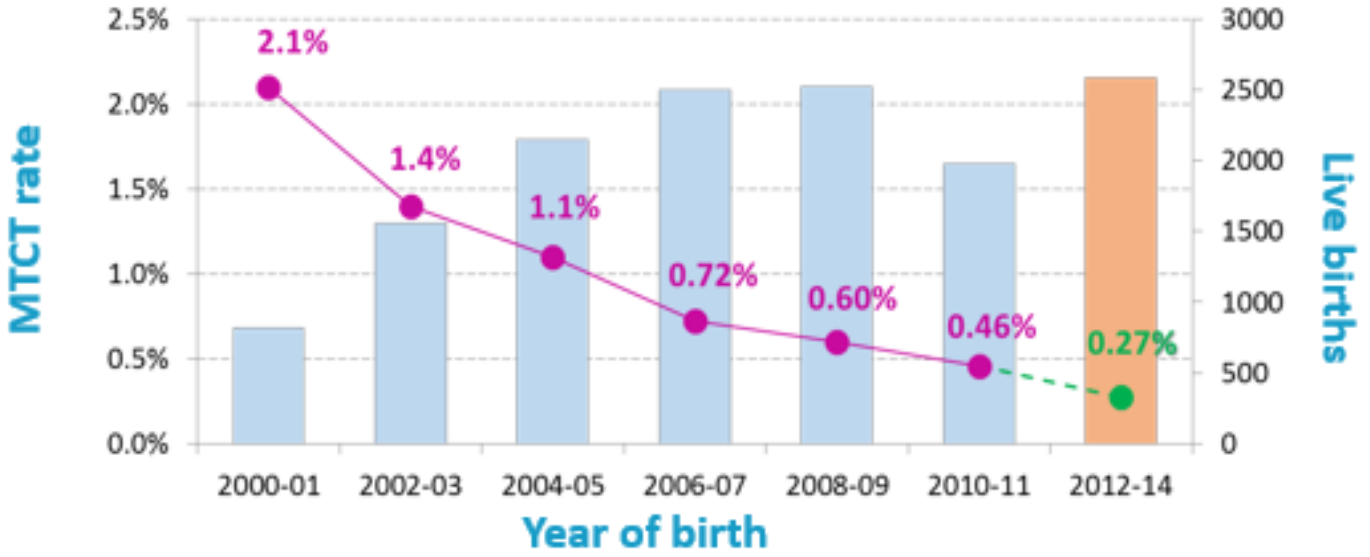
# Background:

There are around 1200 pregnancies among women living with HIV in UK/Ireland annually:

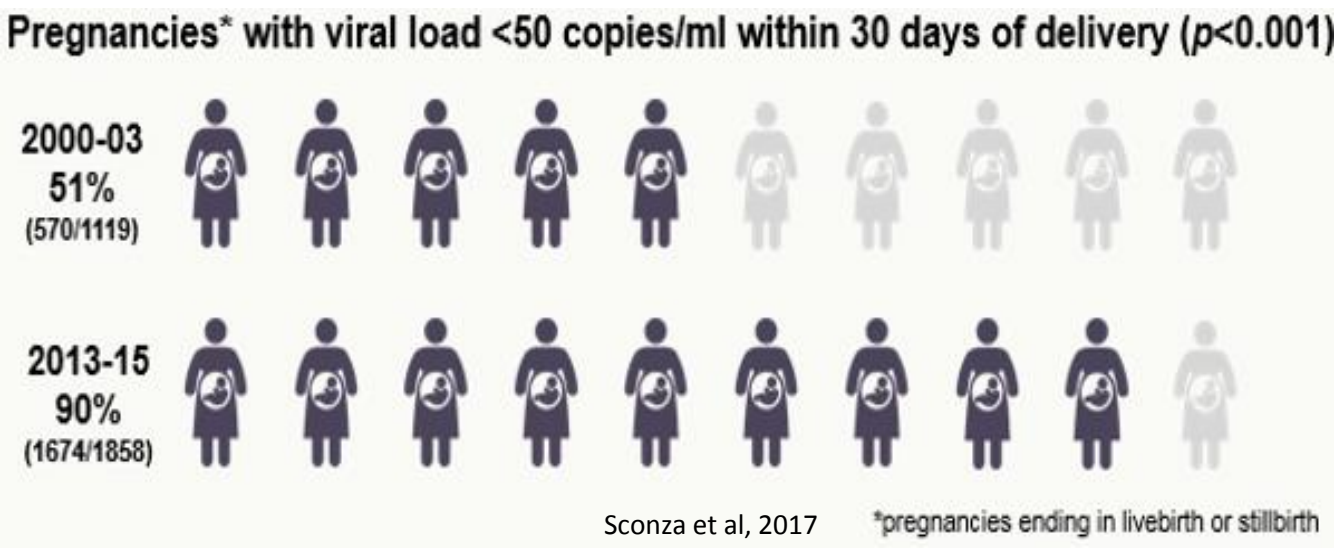
- Increasing number conceived on ART
- Increasing number with VL<50copies/mL at time of delivery
- Overall decreasing of vertical transmission

## MTCT rates in diagnosed women, UK & Ireland 2000-2014




- **Most recent update of MTCT rate 0.27% for 2012-14**
- Significant decline over time (p<0.001)

Peters et al,2016


Sconza et al, 2017

*pregnancies ending in livebirth or stillbirth

## Aims:

1. Generate a “snapshot” of pattern of ARVs usage in the UK/Ireland in 2005-2016
2. Use the snapshot to evaluate how real world use of ARVs has changed among women initiating ART in pregnancy, in relation to updated BHIVA recommendations over time
3. Explore if there is a gap between real world use and recommendations

# National Study of HIV in Pregnancy and Childhood

National Study of HIV in NSHPC Pregnancy and Childhood

- UK/ Ireland ongoing surveillance study on HIV+ pregnant women, their infants, and children diagnosed with HIV
- Based on obstetric and paediatric active reporting schemes
- A quarterly notification request is sent to every maternity unit in UK/Ireland
  - Study-specific forms to collect maternal data (socio-demographics, obstetric history, etc), delivery/ newborn data and infant follow-up (maternity & paediatric respondents)
- Monitoring of all the children born to diagnosed HIV+ women and exposed to ARVs in foetal life
- High response rates and case ascertainment (>95%)

www.ucl.ac.uk/nshpc

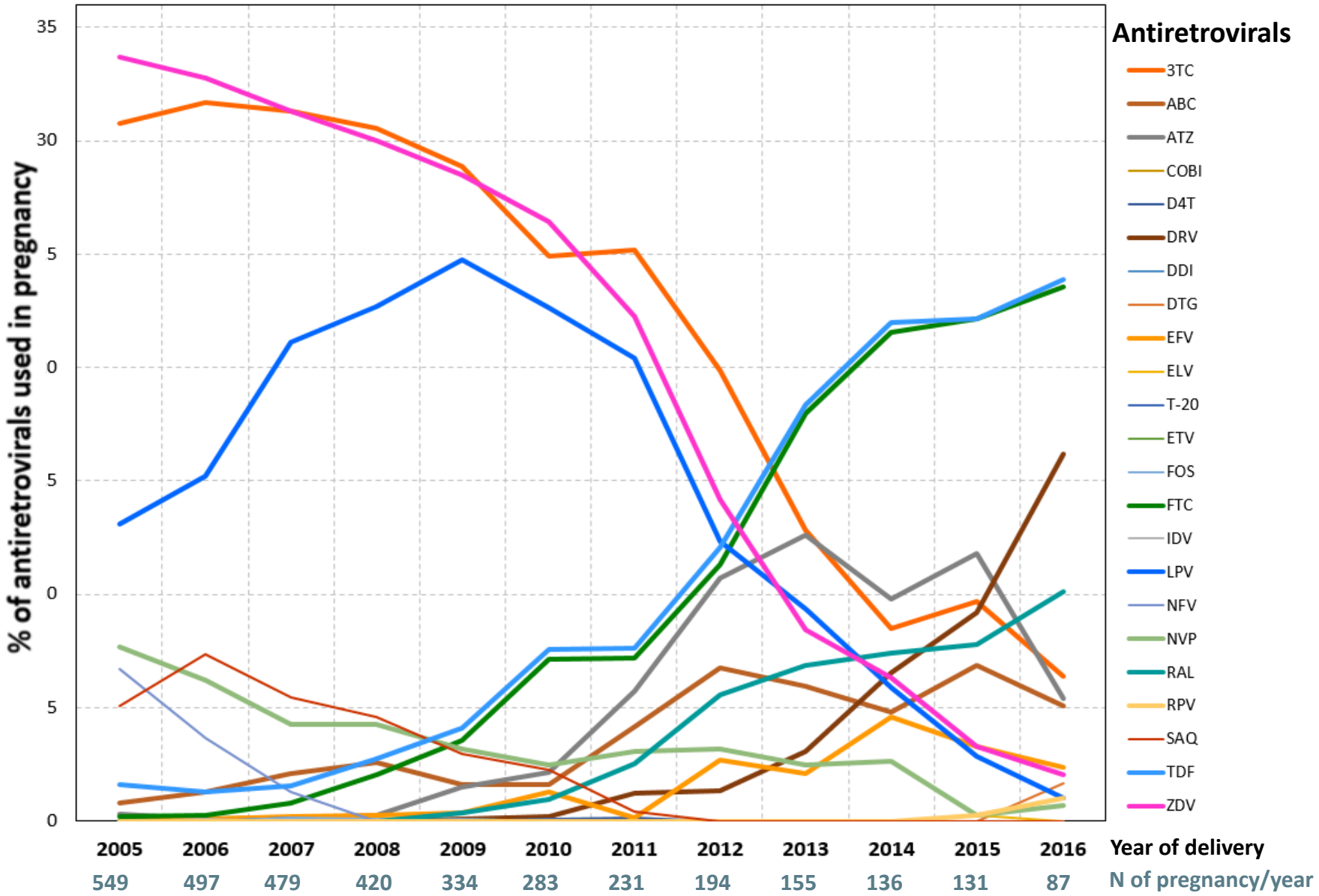
# Methods:

1. **NSHPC data** on ARV use in pregnancies with date of delivery from 1-01-2005 to 31-12-2016
   - All singleton pregnancies resulting in live- or stillbirth reported to NSHPC by the end of Sep 2017
   - Data on maternal-foetal exposure to every component of an ART combination used during pregnancy- i.e. every agent was the unit of the analysis, except for ritonavir as booster (e.g. 3TC/ZDV as 2, EFV+FTC+TDF as 3 drugs; ATZ/r as 1)
   - For time trends analysis the total number of drugs used in pregnancies delivering per calendar year was the denominator
   - "Snapshot" of total ARV exposure in pregnancy, without taking account of timing of initiation of individual drugs
   - Main analyses focussed on **women with new HIV diagnosis starting ART in pregnancy**
2. **BHIVA guidelines** for the therapeutic management of HIV+ pregnant women from 2005-16
   - Changes in recommendations for women starting ART in pregnancy over time

# Overall results

- 10,009 women and 13,757 singleton pregnancies in study population
- 54,002 single ARVs prescribed (2005-2016), of these:
  - 40,255 (74.5%) were drugs started prior to conception
  - 13,747 (25.5%) were drugs started during pregnancy
- 29 different ARV agents and 38 different drug combinations
- There were 3496 pregnancies among the newly diagnosed women initiating ART during pregnancy
  - This group had antenatal use of 11,036 ARVs over the study period

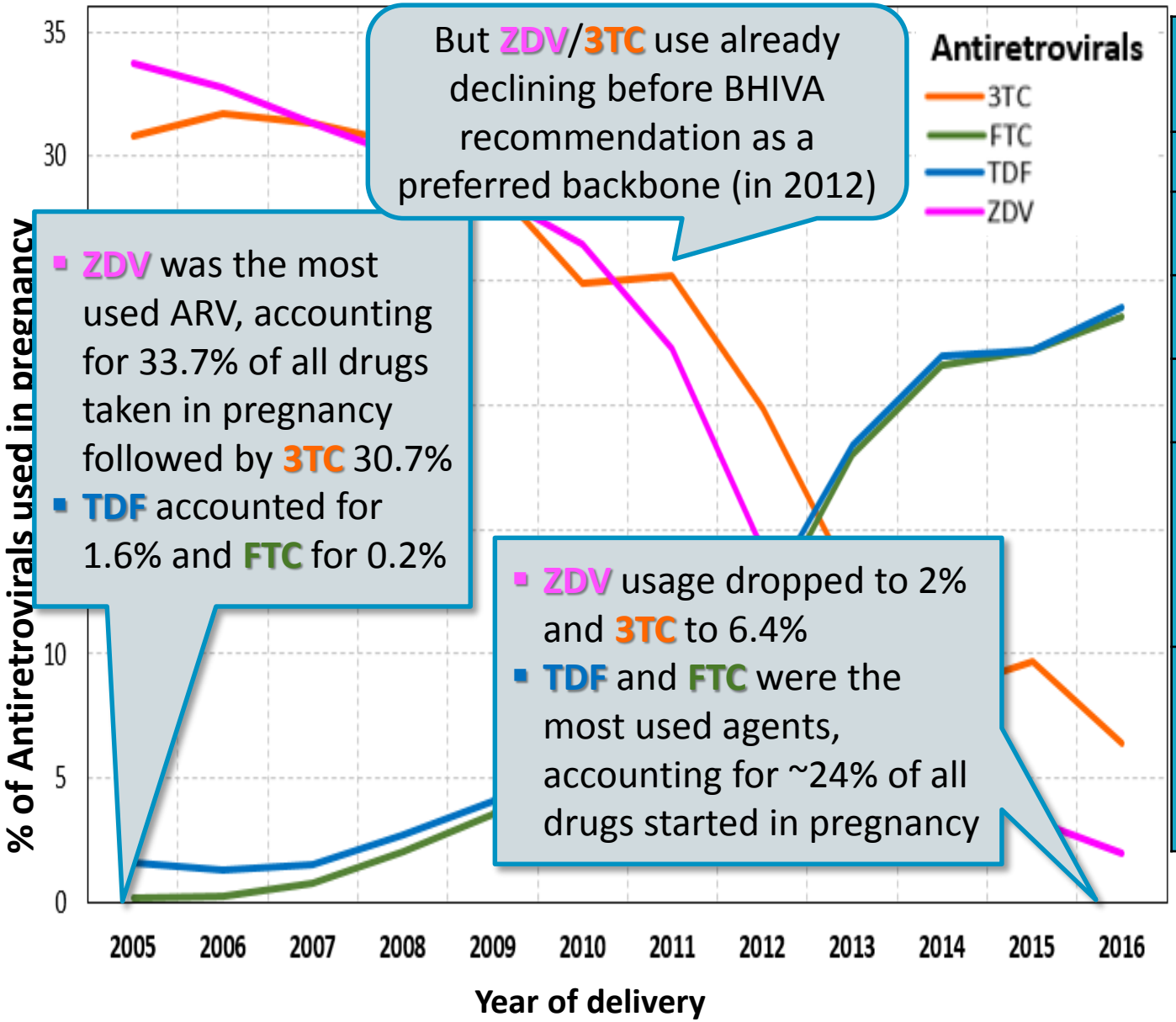
# Trends in ARV use: newly diagnosed women with antenatal ART initiation




- N= 3496 pregnancies starting combination ART antenatally
- N= 11036 ARVs used overall, 2005-16

- Number of women newly diagnosed and starting ART declined from 549 in 2005 to 87 in 2016.

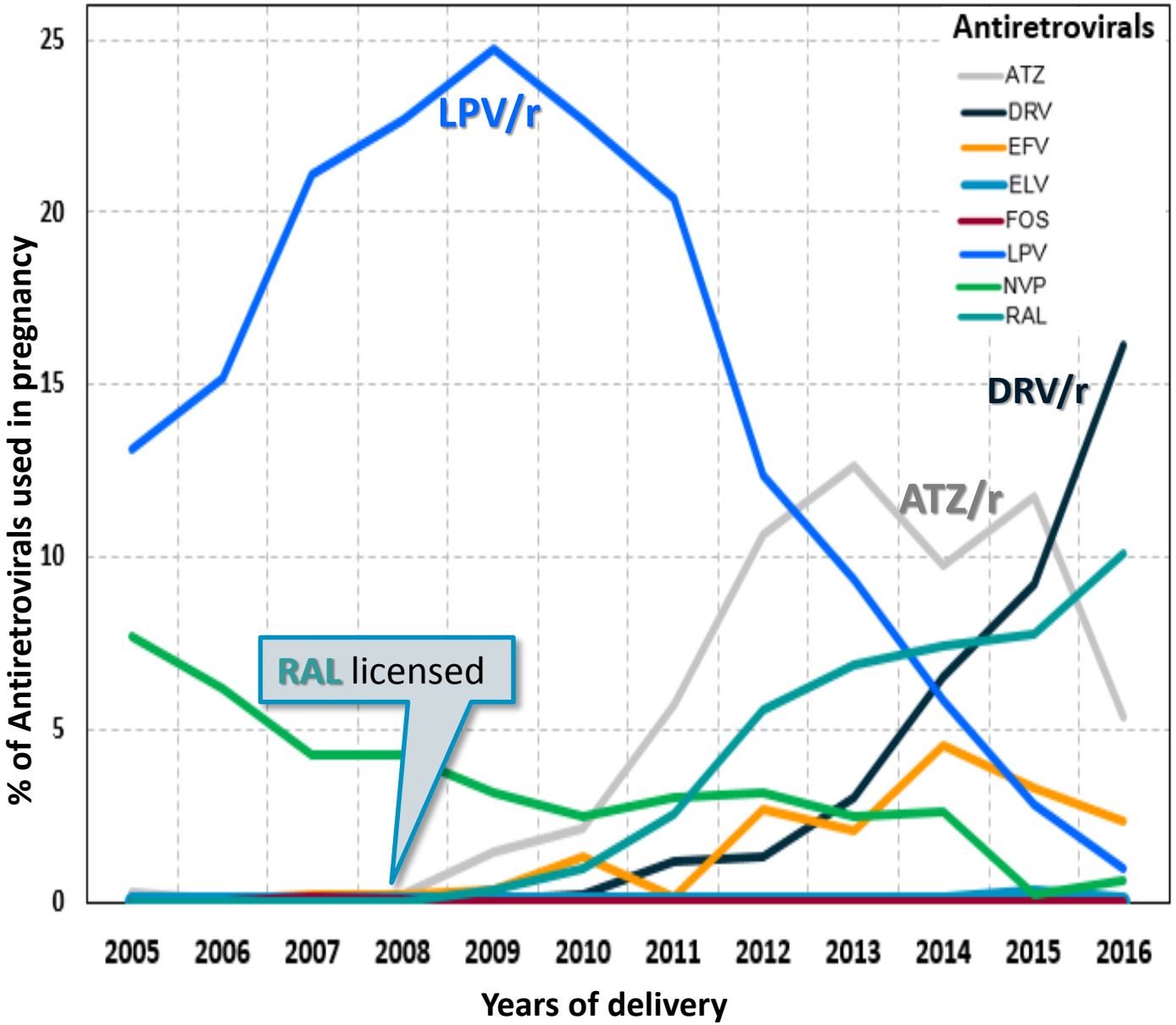
# NRTIs




| BHIVA guidelines updates on preferred and alternative regimes over time | | | |
|---|---|---|---|
| **Year** | **Regimen** | **Preferred** | **Alternative** |
| **2005** | **NRTI backbone** | ZDV monotherapy | ZDV /3TC |
| **2008** | **NRTI backbone** | ZDV monotherapy | ZDV/3TC |
| **2012** | **NRTI backbone** | ZDV /3TC | TDF /FTC or ABC/3TC or ZDV monotherapy [χ] |
| **2014** | **NRTI backbone** | ZDV/3TC | TDF/FTC or ABC[α]/3TC or ZDV/3TC |
| | **Newly diagnosed** | TDF /FTC +ATV/r, DRV/r, or + EFV or + RAL or EVG/COBI | ABC/3TC + LPV/r, FPV/r or +NVP[%] |
| **2016** | **NRTI backbone** | TDF /FTC or ZDV/3TC or ABC/3TC | ZDV monotherapy[χ] |
| | **Newly diagnosed** | TDF/FTC +ATV/r, DRV/r, or + EFV or + RAL or EVG/COBI | ABC/3TC + LPV/r, FPV/r or +NVP[%] |

[%]CD4<250c/µL; [α]VL<100,000cps/mL; [χ] PCS, baseline VL<10,000 HIV RNA cps/mL, CD4>350c/µL; *known resistance

# Third agents




| BHIVA guidelines updates on preferred and alternative regimes over time | | | |
|---|---|---|---|
| **Year** | **Regimen** | **Preferred** | **Alternative** |
| **2005** | **3rd agent** | | NVP |
| **2008** | **3rd agent** | NVP monotherapy | PI/r |
| **2012** | **3rd agent** | EFV | NVP% or any PI/r |
| **2014** | **3rd agent** | EFV (or NVP% or any PI/r) | NVP% or any PI |
| | **Newly diagnosed** | TDF/FTC + ATZ /r, DRV/r, or + EFV or + RAL or ELV/COBI | ABC/3TC+ LPV /r, FOS/r or +NVP% |
| **2016** | **3rd agent** | EFV or NVP or any PI | DRV* |
| | **Newly diagnosed** | TDF/FTC + ATZ /r, DRV /r, or + EFV or + RAL or ELV/COBI | ABC/3TC + LPV /r, FPV/r or +NVP% |

%CD4<250c/µL; αVL<100,000cps/mL; ᵡ PCS, VL<10,000 HIV RNA cps/mL, CD4>350c/µL; *known resistance

- **RAL** use started to increase following its licensing. First detection in the study population was in 2009 (<1%)
- BHIVA recommended **RAL** for newly diagnosed women from 2014, by which time it accounted for nearly 8% of all ARVs used in pregnancy.

# Conclusions:

- This “snapshot analysis” using national data on pregnant women living with HIV provides an insight into the complex relationship between “real world” and guidelines
- Guidelines are always “catching up” with the clinical evidence base
- However, where there is limited evidence, guidelines may be driven by clinical practice via observational studies
- Other factors are also at work with respect to prescribing patterns, e.g. commissioning
- Our analysis was focussed on newly diagnosed women starting ART in pregnancy:
  - NRTI agents – trends seemed to precede guideline recommendations
  - 3rd agents – increased use appears accelerated by their specific recommendation
- A similar snapshot analysis may be a useful approach to explore patterns of *in utero* ARV exposure in infants

# Thank you!

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