

Vaginal delivery as option for HIV-positive women: decreasing late preterm delivery rates in a European cohort collaboration

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Background

- MTCT rates in Europe are <1% in women on successful cART irrespective of mode of delivery

Year of publication of national guidelines in Europe recommending **vaginal delivery** for women with undetectable or very low viral load, 1999-2010

1999	2001	2002	2004	2007	2008	2009	2010
Netherlands	Ireland	France	Moldova	Denmark Lithuania Spain Ukraine	Germany Poland UK	Norway Portugal Switzerland	Italy Sweden

Background

- Findings conflict regarding the association between maternal HIV infection, preterm delivery (PTD) and cART
- The majority of preterm infants are born at 34-36 weeks gestation ('late preterm')
- In the general population, around 30-35% of preterm births are due to maternal or fetal indications, with labour induced or delivery by elective CS
- Compared with term infants, those born at late preterm are both physiologically and developmentally immature and have higher rates of mortality and morbidity

Aim

To explore the impact of updated national guidelines in Europe on rates of late preterm delivery (34-36 completed gestational weeks) in HIV-positive women delivering between 2000 and 2010



Methods

- Pooled analysis of data from the **European Collaborative Study** (ECS) and the **Swiss Mother and Child HIV Cohort Study** (MoCHiV)
- Prospective cohort studies using similar protocols
 - ECS, established in 1986, includes sites in Belgium, Denmark, Germany, Italy, the Netherlands, Poland, Spain, Sweden and the UK
 - MoCHiV, established in 1998, is fully integrated into the adult Swiss HIV Cohort Study

Eligibility:

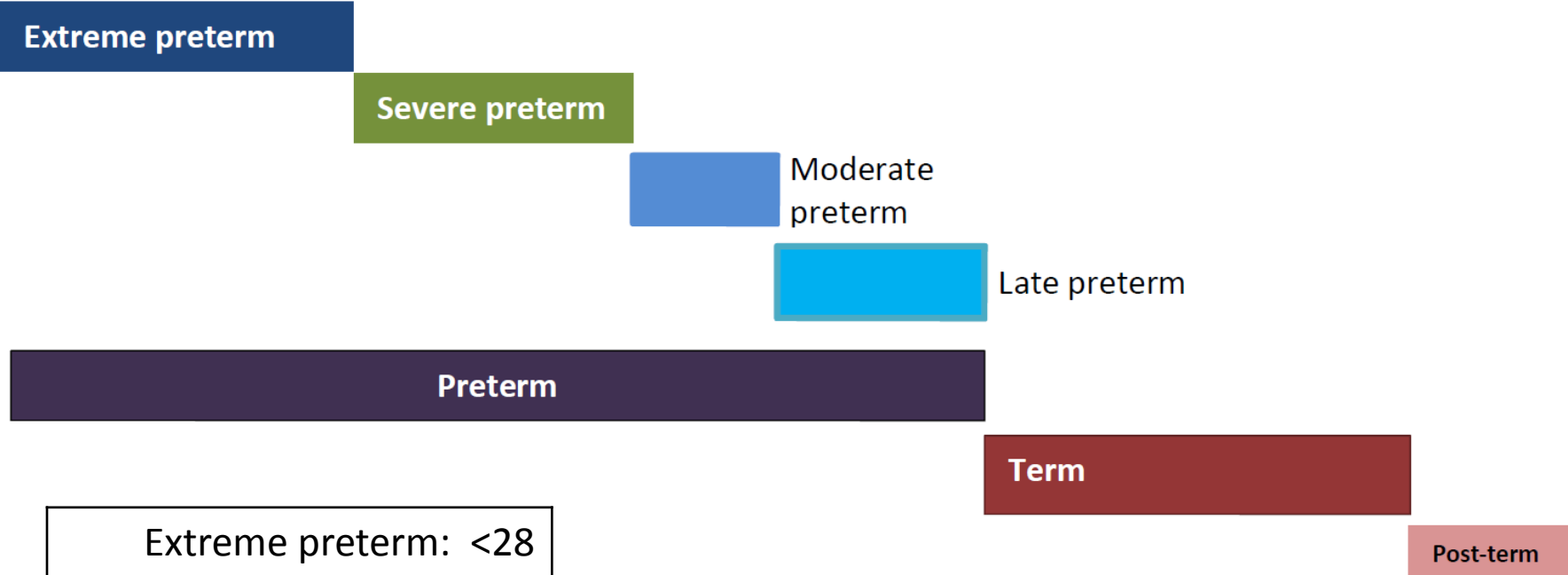
- HIV-positive women diagnosed before or during pregnancy
- Delivering a singleton live birth between 1 Jan 2000 and 31 Dec 2010

Definitions

- Gestational age (reported to the nearest completed week) based on ultrasound, or last menstrual period if ultrasound not available
- Deliveries were classified into 2 groups: those occurring before and those occurring after the publication of the relevant national guidelines recommending vaginal delivery for women with very low or undetectable VL (month and year of publication).
- Elective caesarean section (CS): performed before the onset of contractions and rupture of membranes

Definitions: preterm births

| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 |

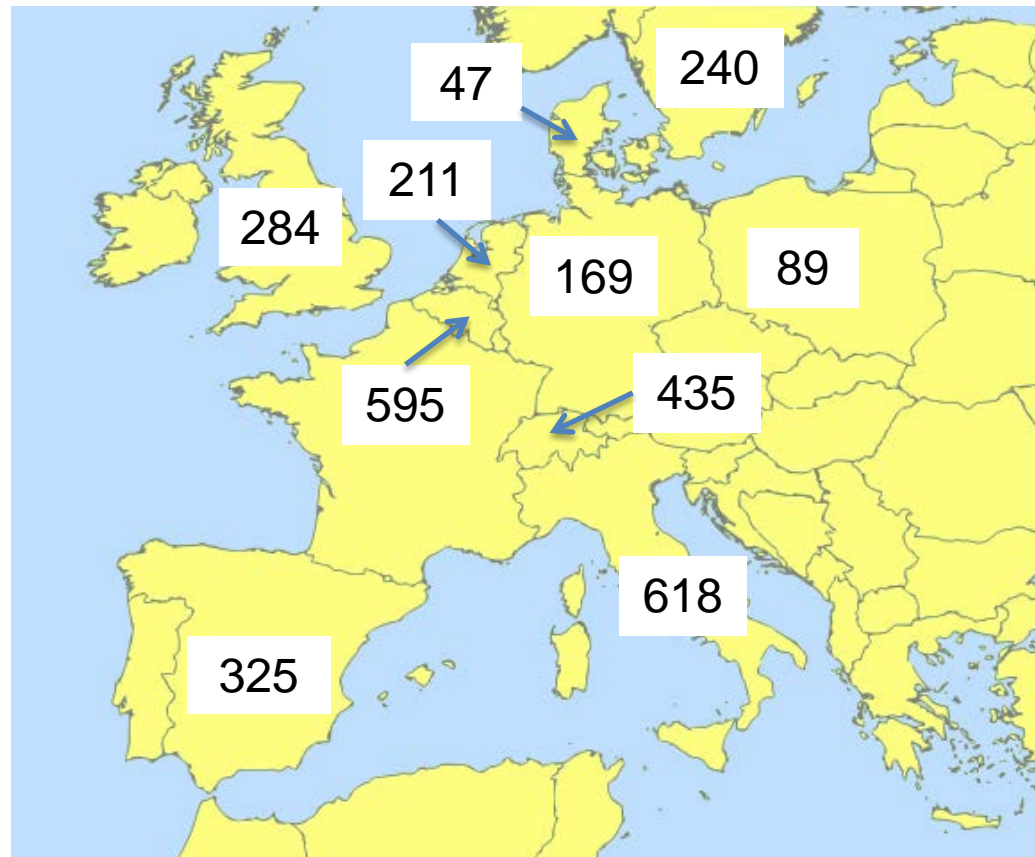


Extreme preterm: <28
Severe preterm: 28-31
Moderate preterm: 32-33
Late preterm: 34-36
Term: 37-42
Post-term: 42-44

Goldenberg et al 2008 Lancet

Results

- 3013 mother-infant pairs included from 10 countries
- 2402 (80%) delivered before and 611 (20%) after the guidelines changed



Results: maternal characteristics

	% or median (IQR)
Maternal socio-demographics	
Age at delivery	32 years (27-36)
Ethnicity	
Black	48%
White	43%
IDU history	16%
Nulliparous	39%
Maternal HIV	
Diagnosis before pregnancy	72%
% diagnosed in 3 rd trim / delivery	5%
CD4 at 1 st antenatal visit	452 cells/mm ³ (319, 638)
% <200 cells/mm ³	8%
CDC clinical stage A	85%

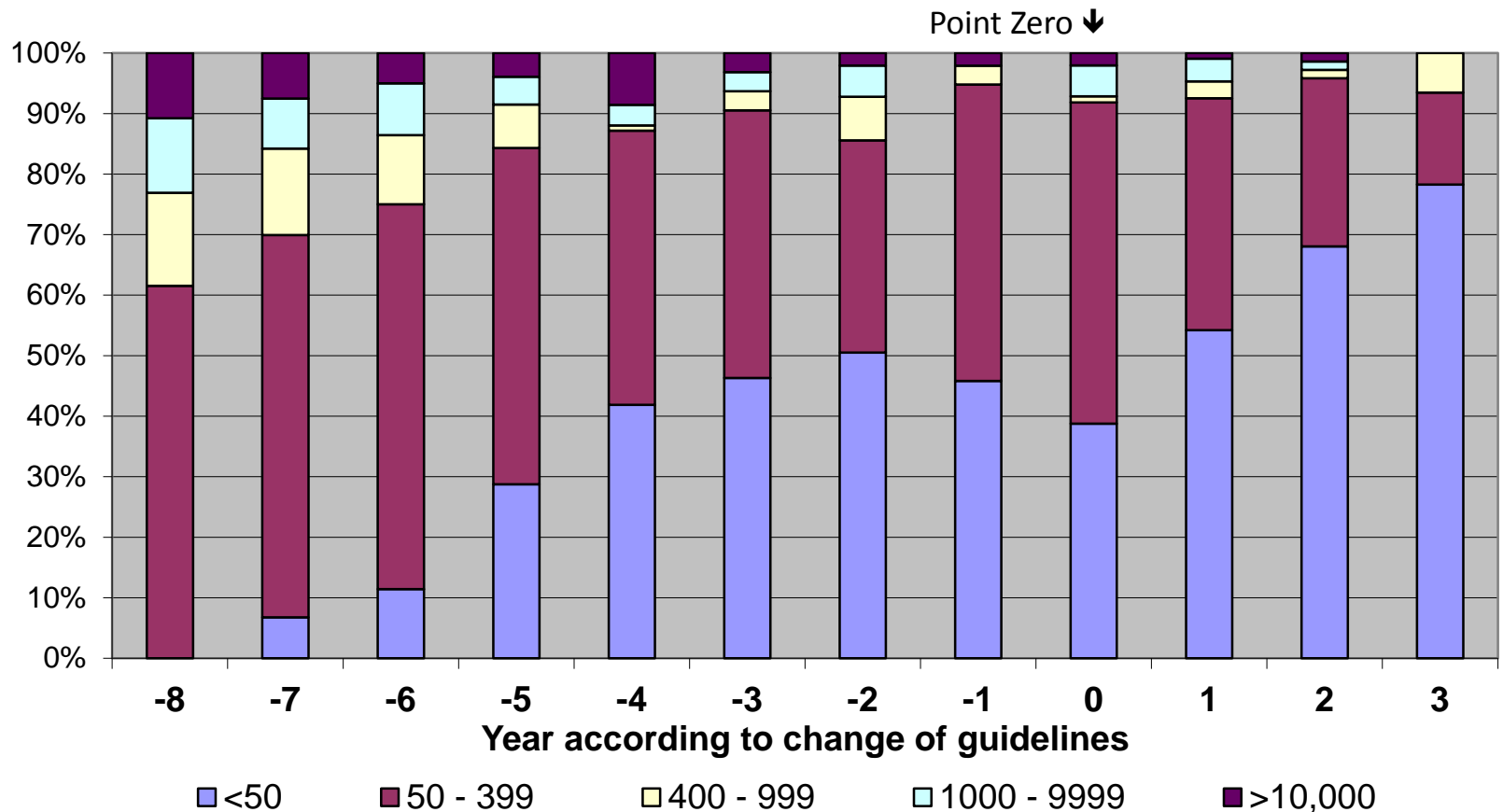
Results: antenatal ART

Antenatal ART	%
Mono / dual therapy	11%
cART	76%
ART, unknown type	4%
None	9%

- 24% on cART at conception
- Of remainder, 74% started cART in 1st or 2nd trimester

- Comparing pre-guideline group with post-guideline group:
 - cART use increased from 72% to 90%
 - Non-receipt of antenatal ART decreased from 10% to 4%
 - Mono / dual therapy decreased from 13% to 2%

Results: viral load closest to delivery, by time before / after guidelines publication



Point Zero: year of publication of national guidelines recommending vaginal delivery in women with undetectable viral load

VL closest to delivery: at delivery or in 3rd trimester

Results: delivery outcomes

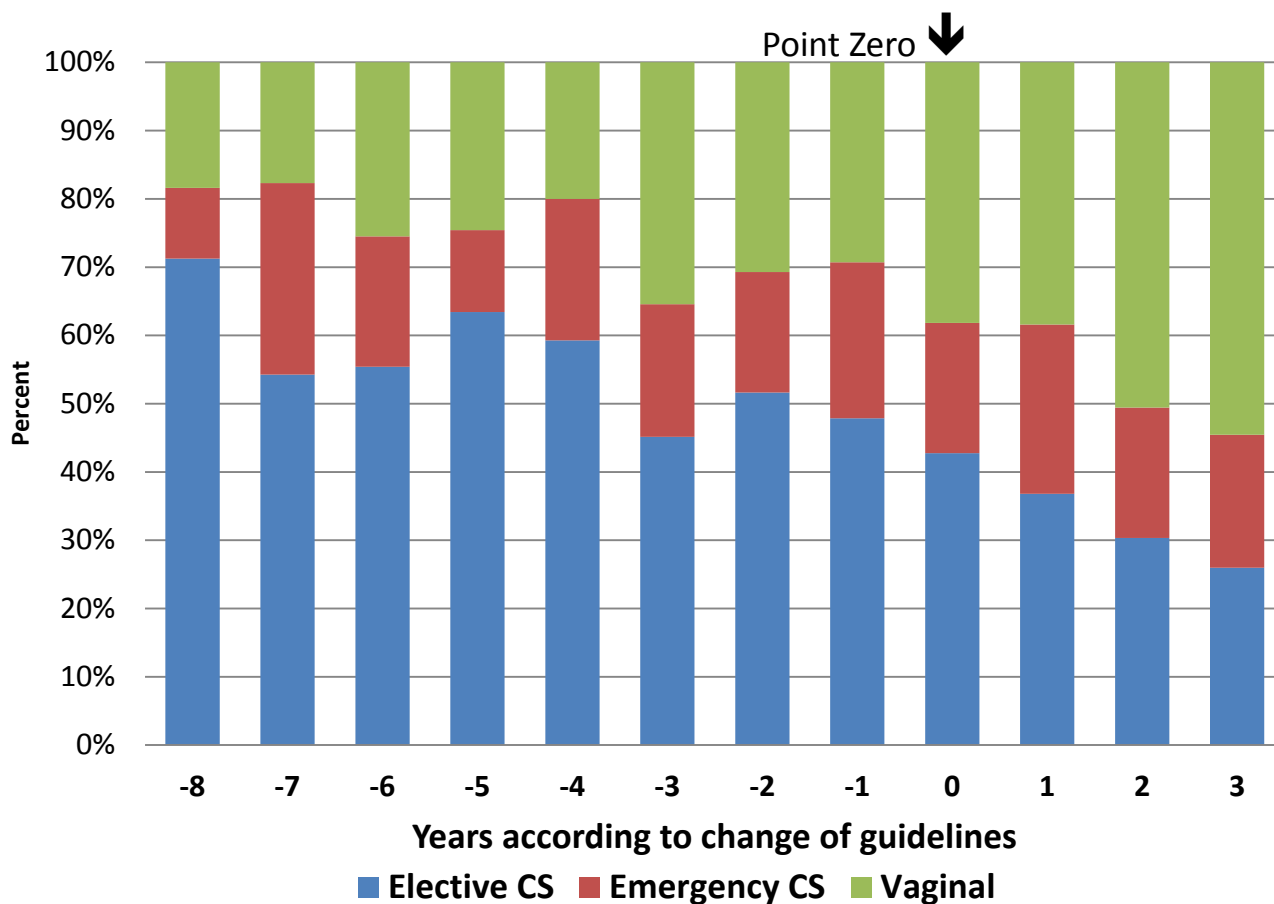
- Median gestational age was 38 weeks (IQR: 37, 39)
- Median birth weight was 2.9 kg (IQR: 2.5, 3.2)
- MTCT rate was 1.6% (95% CI 1.1, 2.1)
- Preterm births:

	%	(n)
Extreme preterm (<28 GW)	1.0%	(29)
Severe preterm (28-31 GW)	2.5%	(74)
Moderate preterm (32-33 GW)	3.0%	(88)
Late preterm (34-36 GW)	14.2%	(419)
Term	79.3%	(2342)

**PTD rate:
20.7%**

GW: gestational weeks (completed); N=2953

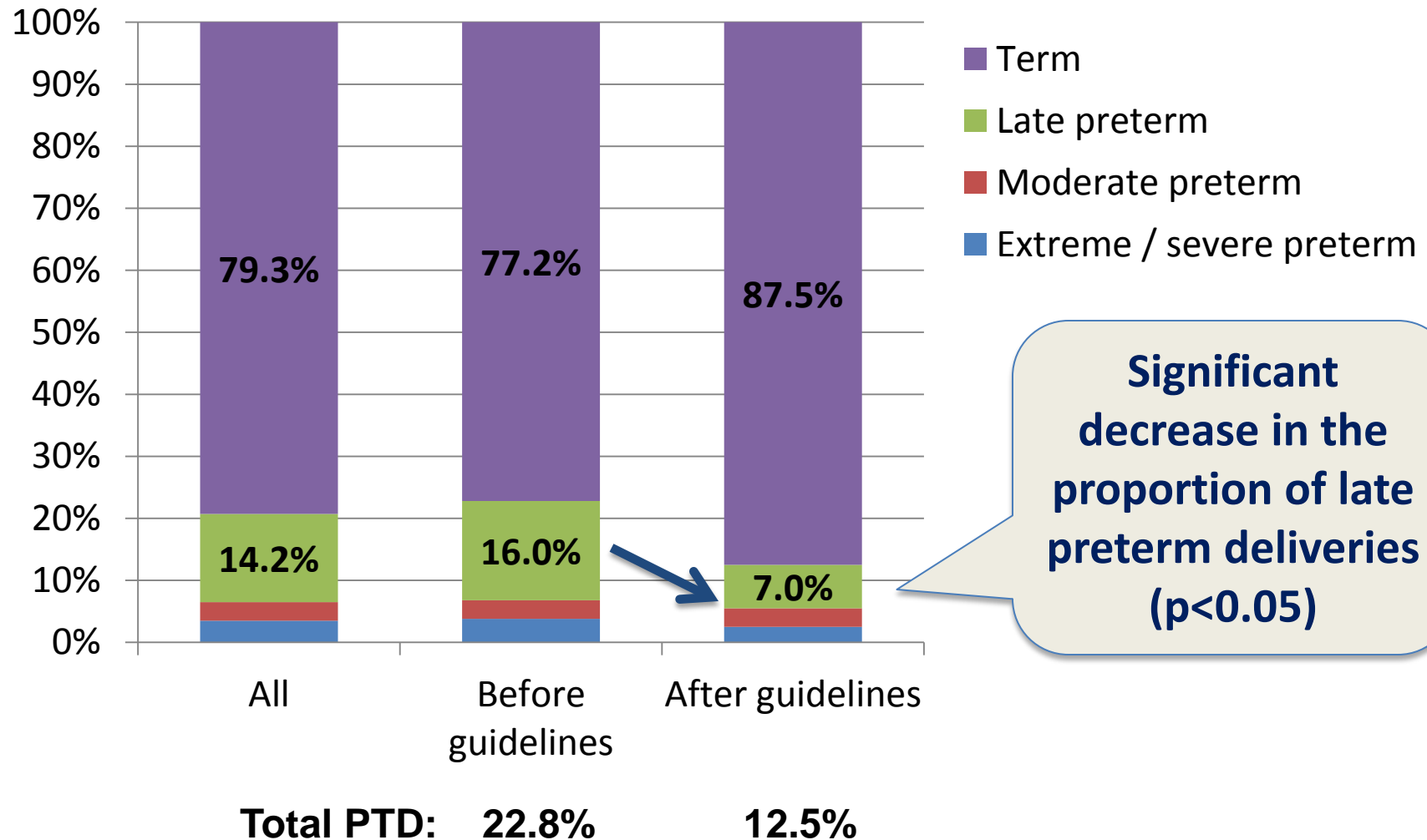
Results: Mode of delivery by time before / after guidelines publication



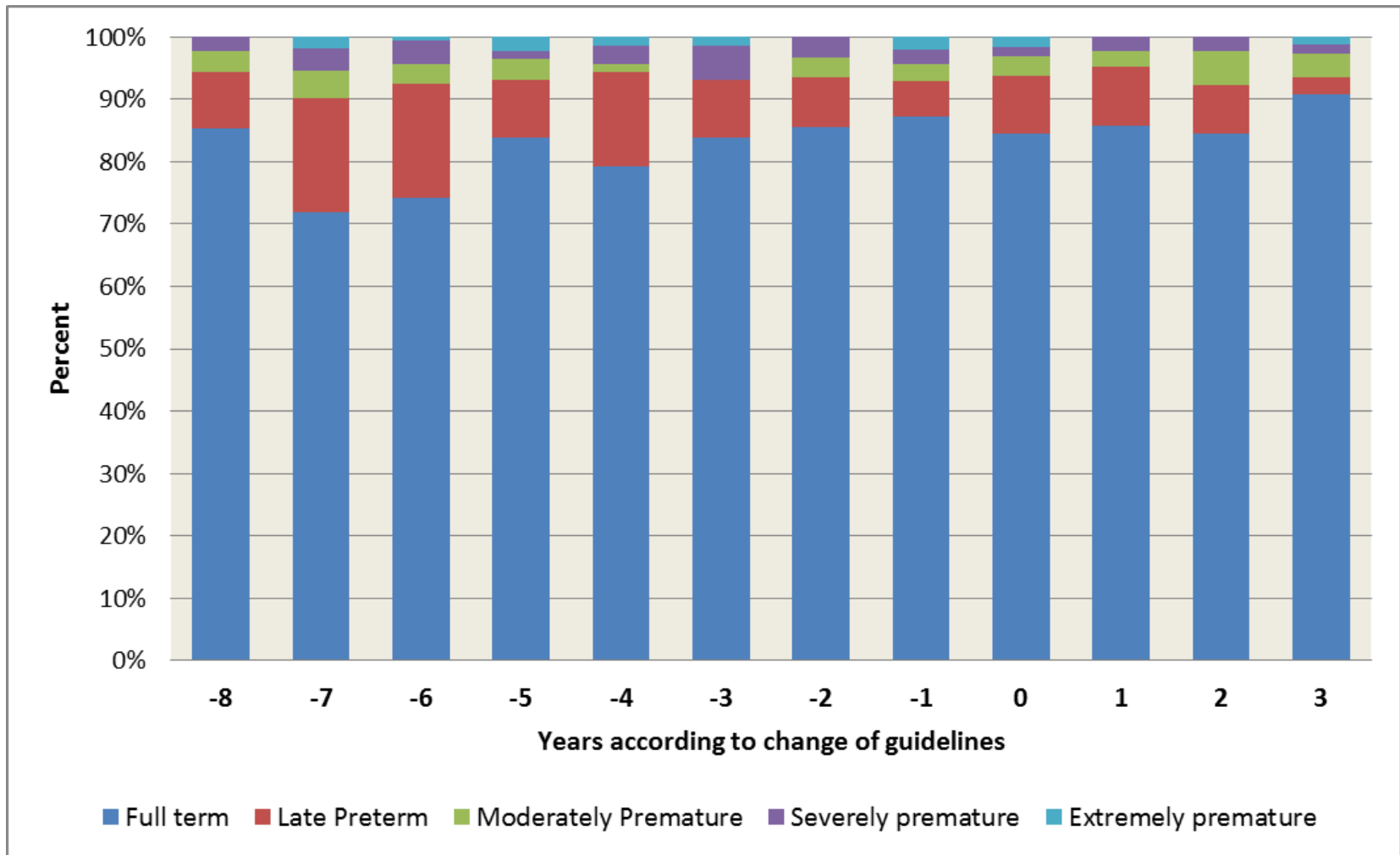
Rate of vaginal delivery increased from **25%** before to **52%** after guidelines

Point Zero : year of publication of guidelines recommending vaginal delivery in women with undetectable viral load

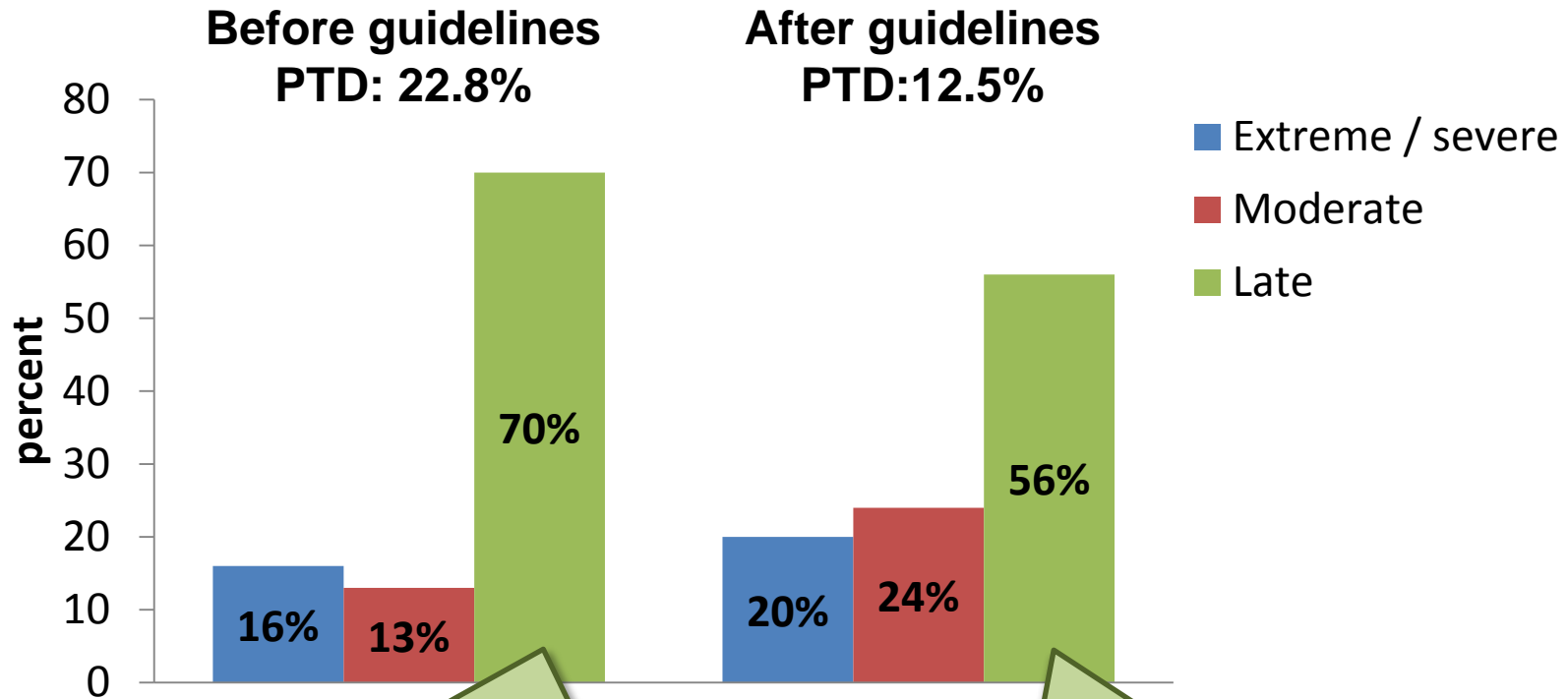
Results: deliveries, by gestational age



Results: proportion of preterm deliveries, by time before/after guideline publication



Results: preterm deliveries



56% delivered by elective CS
HIV = indication in 89%*
29% delivered by emerg. CS

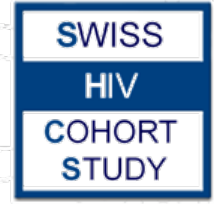
29% delivered by elective CS
none with HIV as indication
45% delivered by emerg. CS

*Indications for CS only available in ECS

Summary and conclusion

- Overall, 14% of deliveries were late preterm, decreasing from 16% before to 7% after the guidelines recommending vaginal delivery were published
- Prior to guideline changes, nearly three-fifths of late preterm deliveries were delivered by elective CS, in most cases with maternal HIV as the indication
 - Concerns about potential preterm delivery led to iatrogenic PTD with elective CS to avoid intrapartum risk with labour / ROM
- Change in mode of delivery policy led to reduction of iatrogenic late PTD due to maternal HIV and thus a decrease in proportion of late PTD infants

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