Web Extra Material

Preventing preterm births in very high human development index countries: modeling trends and potential reductions with current interventions

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Webtable 1. List of countries included in various definitions of "high-income" countries with >10,000 live births in 2010

United Nations Statistics Division developed region (n=40)	
Albania	Lithuania
Australia	Netherlands
Austria	New Zealand
Belarus	Norway
Belgium	Poland
Bosnia and Herzegovina	Portugal
Bulgaria	Republic of Moldova
Canada	Romania
Croatia	Russian Federation
Czech Republic	Serbia
Denmark	Slovakia
Estonia	Slovenia
Finland	Spain
France	Sweden
Germany	Switzerland
Greece	The former Yugoslav Republic of Macedonia
Hungary	Ukraine
Ireland	United Kingdom
Italy	United States
Japan	
Latvia	

World Bank high income economies (n=40)	
Australia	Netherlands
Austria	New Zealand
Bahrain	Norway
Belgium	Oman
Canada	Poland
Croatia	Portugal
Cyprus	Qatar
Czech Republic	Republic of Korea
Denmark	Saudi Arabia
Estonia	Singapore
Equatorial Guinea	Slovakia
Finland	Slovenia
France	Spain
Germany	Sweden
Greece	Switzerland
Hungary	Trinidad and Tobago
Ireland	United Arab Emirates
Israel	United Kingdom
Italy	United States
Japan	
Kuwait	

Webtable 1. List of countries included in various definitions of "high-income" countries with >10,000 live births in 2010 (continued)

United Nations Development Programme very high human development Index countries (n=39)

Argentina
Australia
Austria
Bahrain
Belgium
Canada
Chile
Croatia
Cyprus
Czech Republic
Denmark
Estonia
Finland
France
Germany
Greece
Hungary
Ireland
Israel
Italy
Japan
Latvia
Lithuania
Netherlands
New Zealand
Norway
Poland
Portugal
Qatar
Republic of Korea
Singapore
Slovakia
Slovenia
Spain
Sweden
Switzerland
United Arab Emirates
United Kingdom
United States

Millennium Development Goals developed regions (n=42)

Albania
Australia
Austria
Belarus
Belgium
Bosnia and Herzegovina
Bulgaria
Canada
Croatia
Cyprus
Czech Republic
Denmark
Estonia
Finland
France
Germany
Greece
Hungary
Ireland
Israel
Italy
Japan
Latvia
Lithuania
Netherlands
New Zealand
Norway
Poland
Portugal
Republic of Moldova
Romania
Russian Federation
Serbia
Slovakia
Slovenia
Spain
Sweden
Switzerland
The former Yugoslav Republic of Macedonia
Ukraine
United Kingdom
United States

Webtable 2. List of VHHDI countries with >10,000 livebirths and their source of high-quality preterm birth data for 2000-2010

Countries	Raw reported data	Reported data smoothed by LOESS regression)
Argentina	✓	
Australia		✓
Austria		✓
Bahrain		
Belgium		✓
Canada		✓
Chile	✓	
Croatia		✓
Cyprus		
Czech Republic	✓	
Denmark	✓	
Estonia		✓
Finland		✓
France		
Germany	✓	
Greece		
Hungary	✓	
Ireland	✓	
Israel		
Italy		
Japan	✓	

Webtable 2. List of VHHDI countries with >10,000 livebirths and their source of high-quality preterm birth data for 2000-2010 (continued)

Countries	Raw reported data	Reported data smoothed by LOESS regression)
Latvia	✓	
Lithuania	✓	
Netherlands	✓	
New Zealand		✓
Norway	✓	
Poland	✓	
Portugal	✓	✓
Qatar		
Republic of Korea		
Singapore		
Slovakia		
Slovenia		✓
Spain	✓	
Sweden		✓
Switzerland		
United Arab Emirates		
United Kingdom		
United States		✓

Webtable 3. Estimated 2010 preterm birth rates for 39 VHHDI countries with >10,000 live births in 2010

Country	2010 Preterm birth rate (%)
Argentina	8.0
Australia	7.6
Austria	10.9
Bahrain	14.0
Belgium	7.9
Canada	7.8
Chile	7.1
Croatia	5.5
Cyprus	14.7
Czech Republic	7.3
Denmark	6.7
Estonia	5.7
Finland	5.5
France	6.7
Germany	9.2
Greece	6.6
Hungary	8.6
Ireland	6.4
Israel	8.0
Italy	6.5
Japan	5.9

Country	2010 Preterm birth rate (%)
Latvia	5.3
Lithuania	5.7
Netherlands	8.0
New Zealand	7.6
Norway	6.0
Poland	6.7
Portugal	7.7
Qatar	10.5
Republic of Korea	9.2
Singapore	11.5
Slovakia	6.3
Slovenia	7.5
Spain	7.4
Sweden	5.9
Switzerland	7.4
United Arab Emirates	7.6
United Kingdom	7.8
United States	12.0

Source: Blencowe H et al Lancet 2012

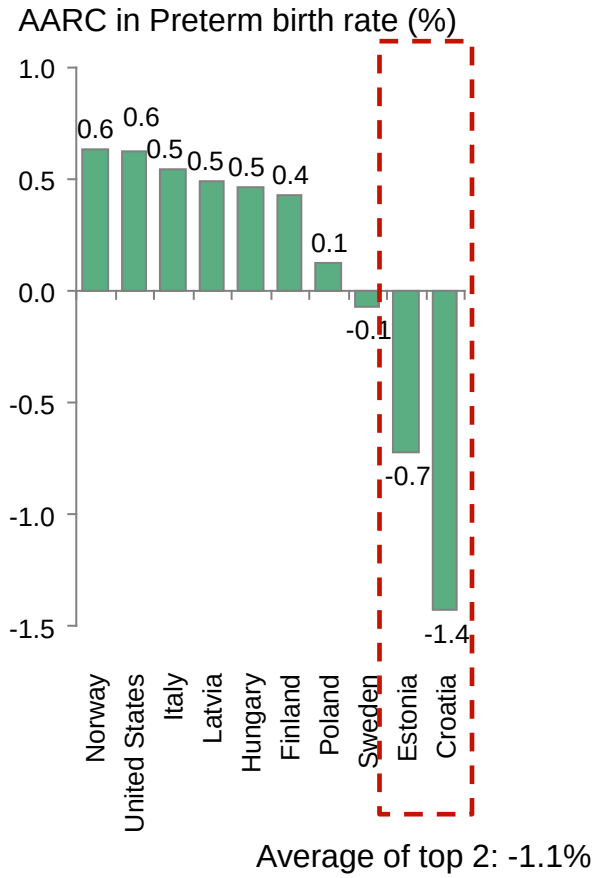
Webtable 4. Preterm birth time trends for 28 countries with high-quality preterm birth rates for 2000-2010

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Data type	VHHDI country?
Argentina	6.2	7.1	7.3	7.6	8.1	7.9	8.1	8.0	8.2	8.2	8.4	Raw data	Yes
Australia	7.2					7.6					7.6	Loess regression	Yes
Austria	10.0					11.1					10.9	Loess regression	Yes
Belarus	4.9					4.5					4.1	Loess regression	No
Belgium	7.5					7.9					7.9	Loess regression	Yes
Canada	7.4					7.8					7.8	Loess regression	Yes
Chile	6.0			6.5			7.2	7.1	7.5		7.2	Raw data	Yes
Croatia	5.1					5.3					5.5	Loess regression	Yes
Czech Republic	5.4	5.5	5.6	5.9	7.0	7.4	7.9	8.1	8.1	8.2	8.0	Raw data	Yes
Denmark	6.3	6.9	6.9	7.1	7.2	6.8	6.7	6.9				Raw data	Yes
Estonia	5.8					6.0					5.7	Loess regression	Yes
Finland	5.8					5.6					5.5	Loess regression	Yes
Germany			8.6	9.0	9.4	9.1	9.1	9.0	9.0			Raw data	Yes
Hungary	8.1	7.9	8.0	8.4	8.6	8.4	8.4	8.6	9.0		8.7	Raw data	Yes
Ireland	5.4	5.5	5.5	5.4	5.5	5.6	5.6	5.8	5.9		5.7	Raw data	Yes
Japan	5.4					5.7	5.7	5.8	5.8	5.7	5.7	Raw data	Yes
Latvia	5.0	5.5	5.5	5.3	5.7	5.6	5.1	5.6	4.8	5.4	5.8	Raw data	Yes
Lithuania	5.3	5.3	5.6	5.5	5.3	5.6	5.7	5.9	5.9	5.8	5.4	Raw data	Yes
Netherlands		8.4	7.9	7.9	7.9	7.9	7.9	7.6	7.7			Raw data	Yes
New Zealand	7.4					7.3					7.6	Loess regression	Yes
Norway	5.1	6.6	6.0	6.4	7.7	5.2	5.2	5.8	8.7	5.4	6.2	Raw data	Yes
Poland					6.8		6.5	6.6	6.6	6.7	6.6	Raw data	Yes
Portugal	5.9	5.6	6.4	6.9	6.8	6.6	7.9	9.1	8.9	8.7	7.7	Raw data	Yes
Slovenia	6.5					6.8					7.5	Loess regression	Yes
Spain	6.7	6.7	7.1	7.2	7.1	6.7	6.8	6.7	6.6	6.7	6.5	Raw data	Yes
Sweden	6.2					6.1					5.9	Loess regression	Yes
United States	11.8					12.5					12.0	Loess regression	Yes
Uruguay	8.8	9.3	9	9.6	8.9	8.7	8.7	9.3				Raw data	No

Source: Blencowe H et al Lancet 2012

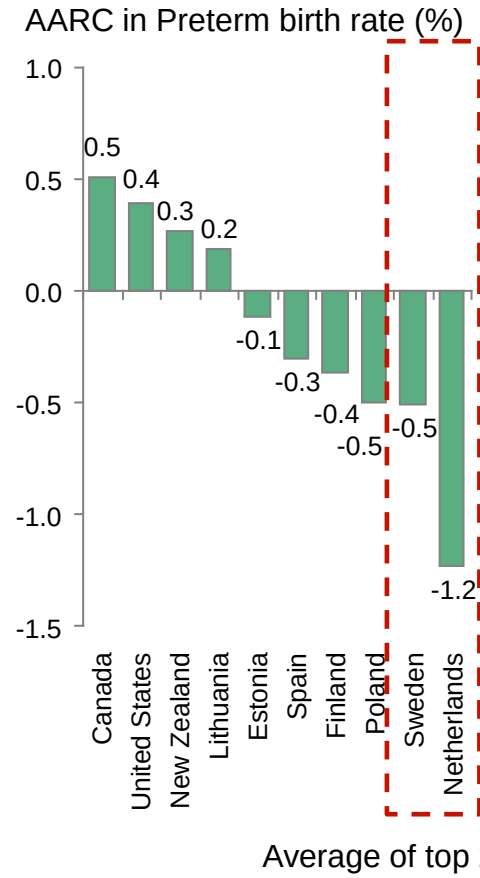
Webtable 5. Top 10 performing VHHDI countries in reduction of preterm birth rate for 1990-2010, 2000-2010, and 2005-2010

Last 20 years[1]: 1990-2010



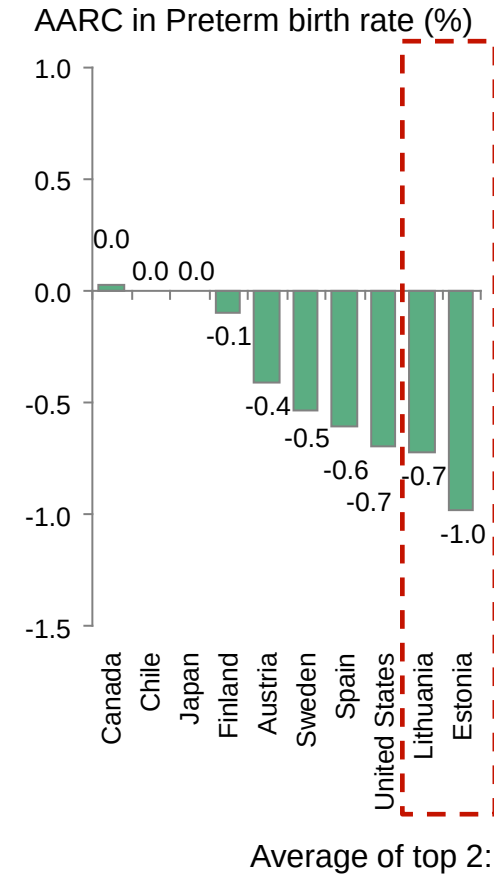
Average of top 2: -1.1%

Last 10 years[2] : 2000-2010



Average of top 2: -0.9%

Last 5 years[2] : 2005-2010

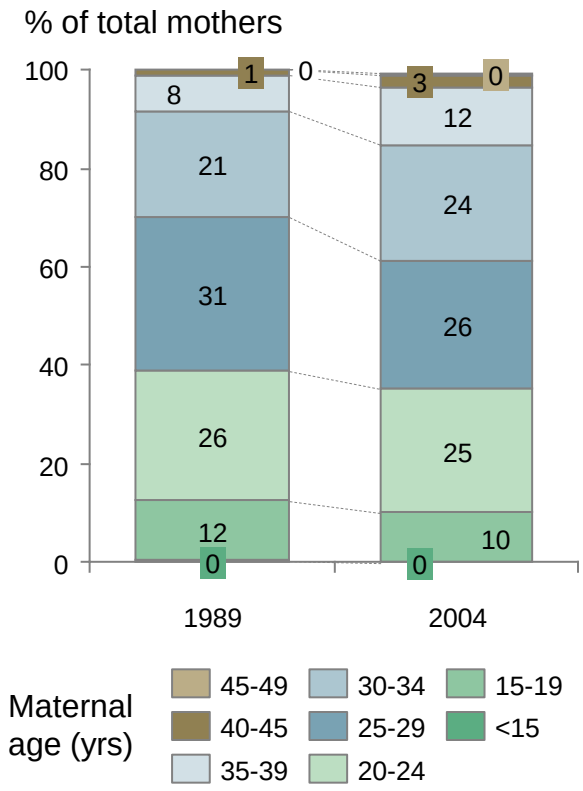


Average of top 2: -0.9%

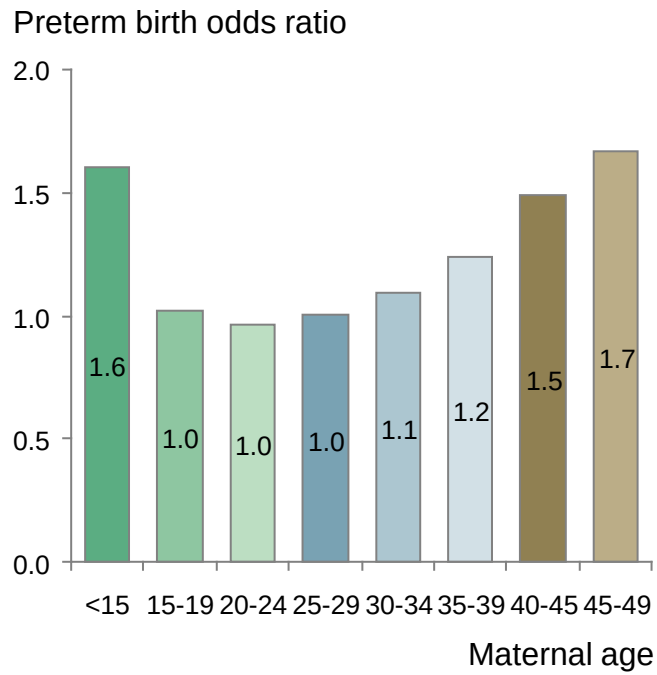
Footnote: 1. Based on subset of 11 very high human development index countries with the most complete data for 1990-2010. 2. Based on subset of 16 very high human development index countries with the most complete data for 2000-2010. AARC = average annual rate of change.

Webtable 6. Detailed data and methodology used in analysis of drivers for preterm birth in US (maternal age)

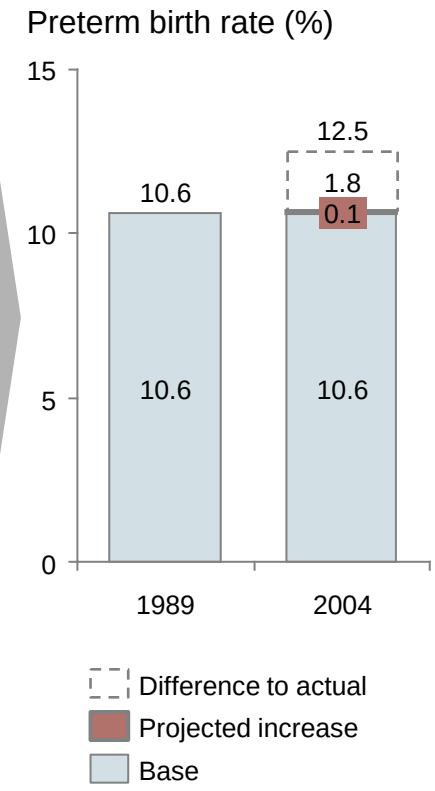
Maternal age demographics (1989 & 2004)



Preterm birth odds ratio[1] by maternal age



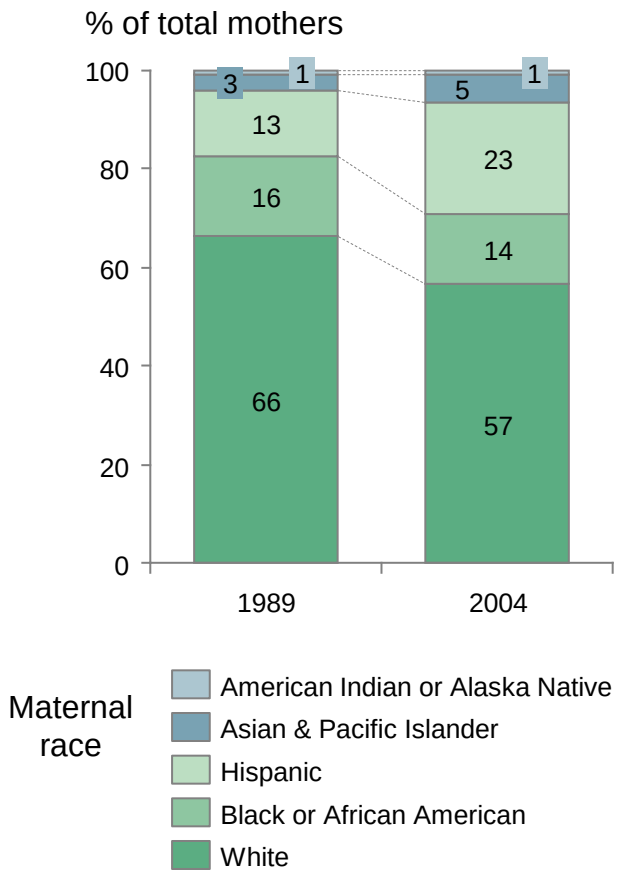
Projected effect on Preterm birth rate



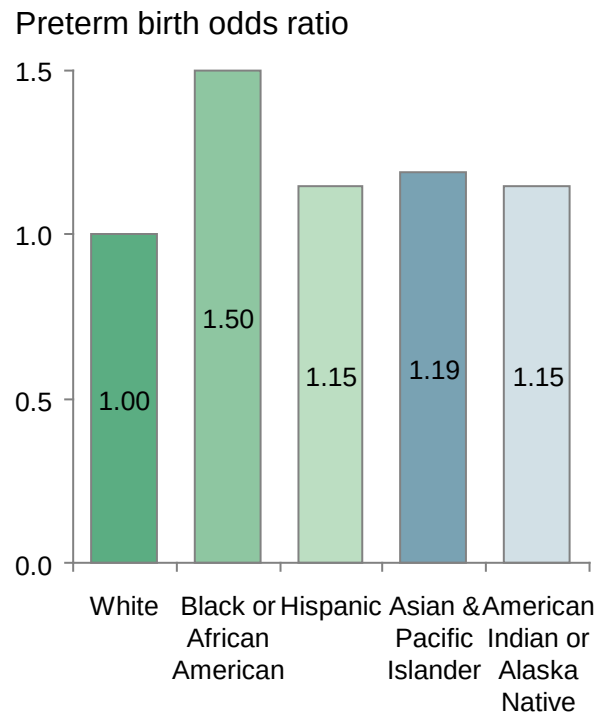
1. We were unable to identify published results for the relative risk for preterm birth among mothers of different ages, thus odds ratios were used instead. This is an approximation, but given the incidences are relatively small (particularly for the age brackets with higher odds ratios), we expect the deviation to be small. See McNutt LA, Wu C, Xue X, Hafner JP. Estimating the relative risk in cohort studies and clinical trials of common outcomes. Am J Epidemiol. 2003 May 15;157(10):940-3. Other sources: VanderWeele et al, (2012), Social Science & Medicine (2012)

Webtable 7. Detailed data and methodology used in analysis of drivers for preterm birth in US (maternal race)

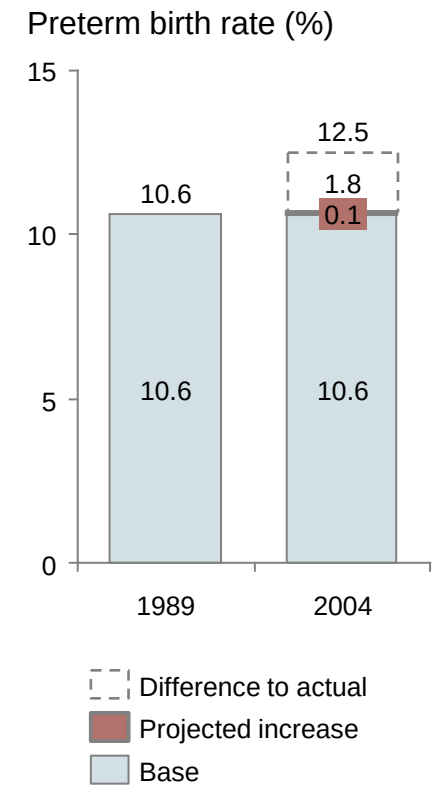
Maternal racial demographics (1989 & 2004)



Preterm birth odds ratio[1] by maternal race



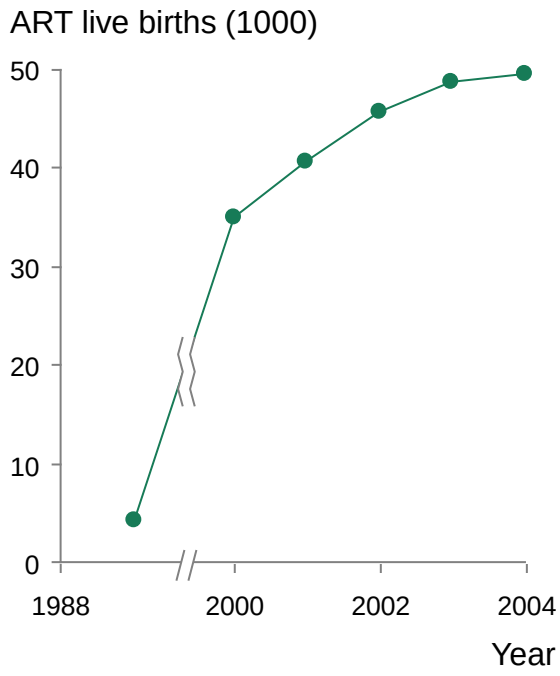
Projected effect on Preterm birth rate



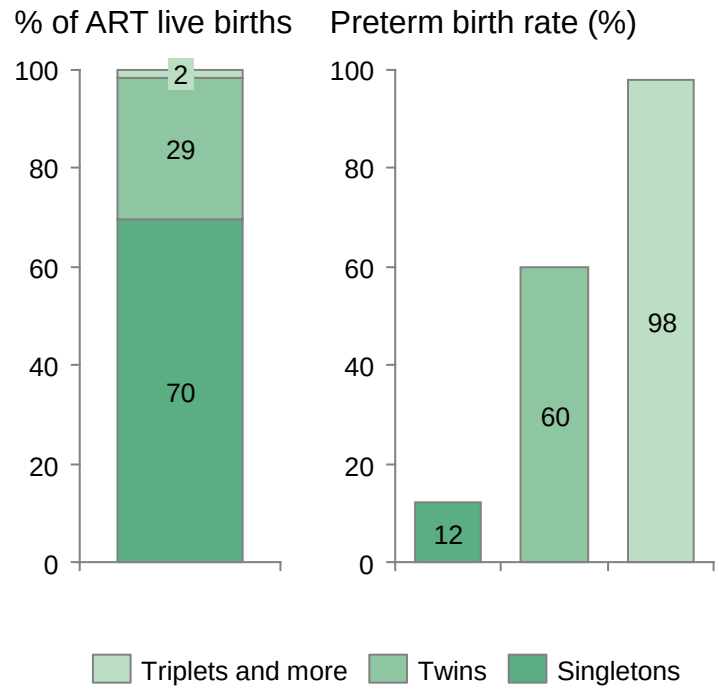
1. We were unable to identify published results for the relative risk for preterm birth among mothers of different races, thus odds ratios were used instead. This is an approximation, but given the incidences are relatively small (particularly for the races with higher odds ratios), we expect the deviation to be small. See McNutt LA, Wu C, Xue X, Hafner JP. Estimating the relative risk in cohort studies and clinical trials of common outcomes. Am J Epidemiol. 2003 May 15;157(10):940-3. Other sources: VanderWeele et al, (2012), Social Science & Medicine , US Census Brief (2010)

Webtable 8. Detailed data and methodology used in analysis of drivers for preterm birth in US (assisted reproductive technology)

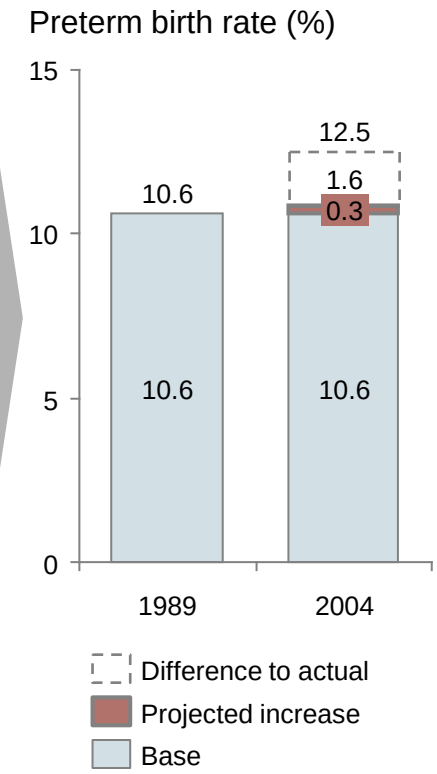
Significant increase in ART births (1989-2004)...



...drives increase in multiple births and Preterm birth rate



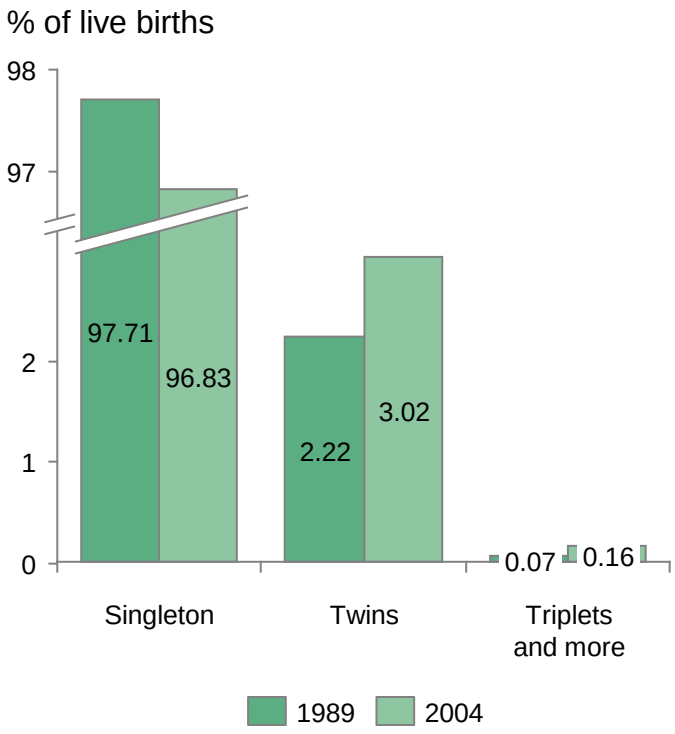
Projected effect on Preterm birth rate



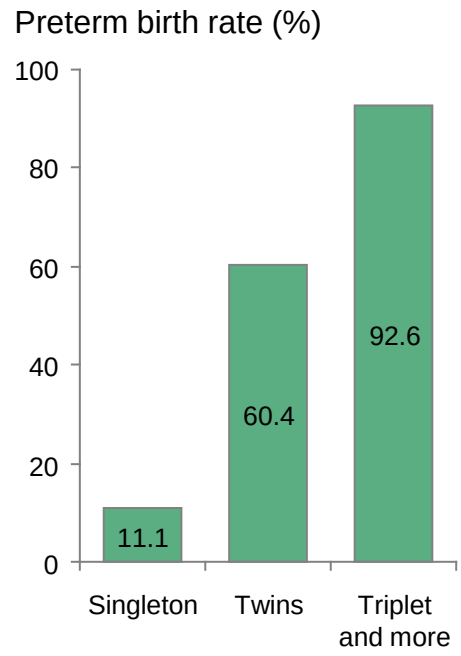
Source: CDC assisted reproductive technology (ART) report (2009), US Census Bureau, Statistical Abstract of the United States: 2012, Testart et al, (1992), Human Reproduction

Webtable 9. Detailed data and methodology used in analysis of drivers for preterm birth in US (non-ART multiple gestations)

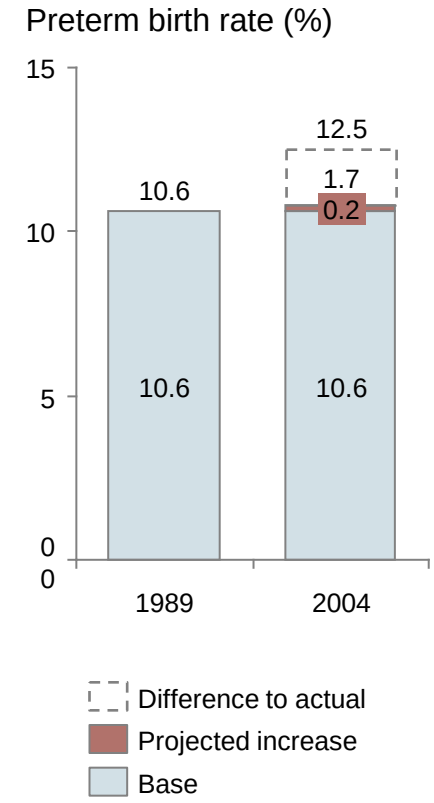
Prevalence of non-ART multiple gestations (1989 & 2004)



Preterm birth rate by pregnancy plurality



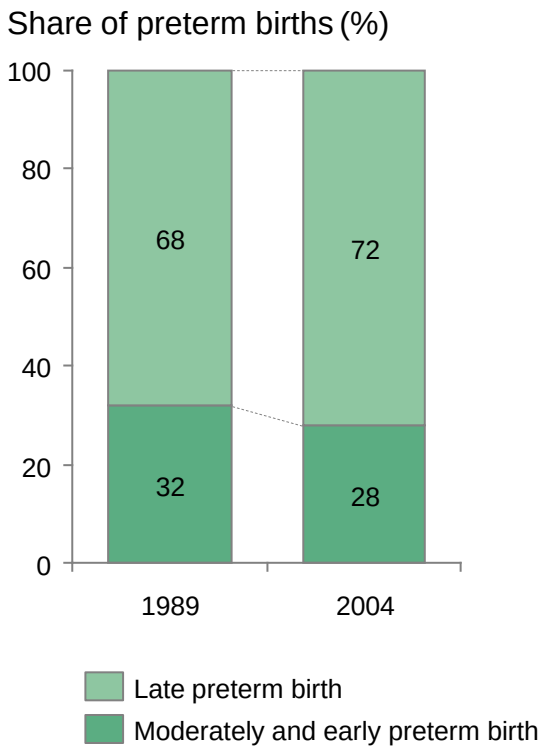
Projected effect on Preterm birth rate



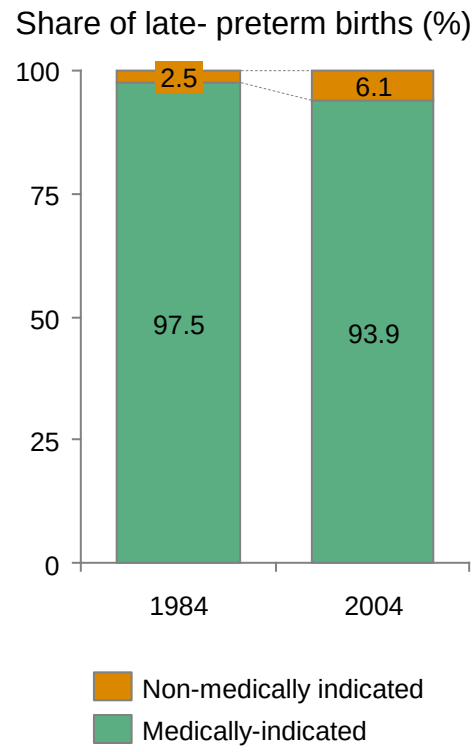
Source: National Vital Statistics Report (2009): Final birth data 2006, VanderWeele et al (2012), Social Science & Medicine,

Webtable 10. Detailed data and methodology used in analysis of drivers for preterm birth in US (caesarean delivery & labor induction)

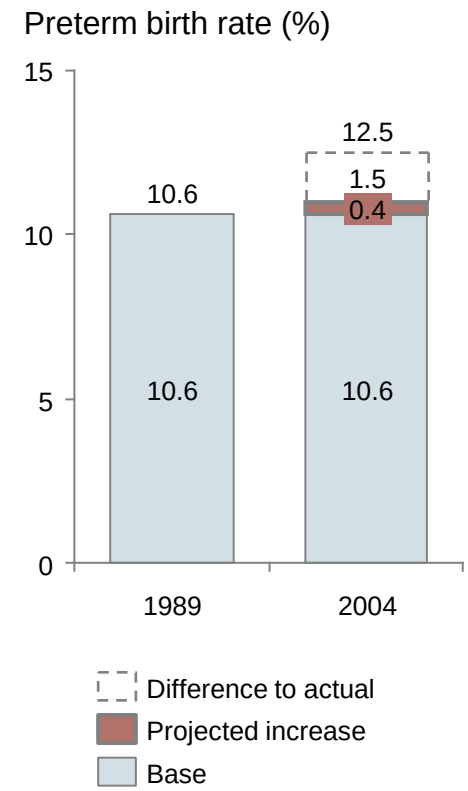
Slight increase in share of late preterm births among all Preterm birth...



...and higher non-medically indicated fraction among late preterm births



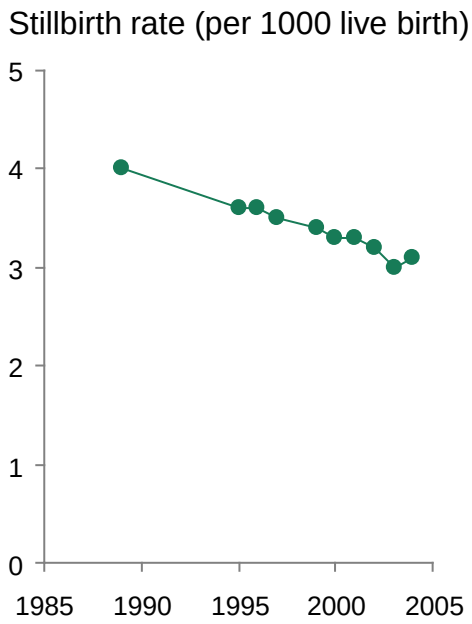
Projected effect on preterm birth rate



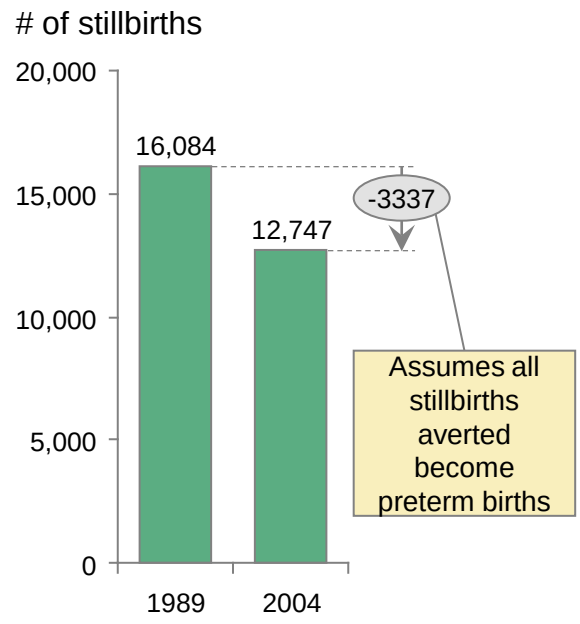
Note: Assumes that all non-late preterm births delivered through Caesarean delivery are medically-indicated. Also assumes that the rate of increase in non-medically indicated Caesarean deliveries among late preterm births is the same as the rate of increase in non-medically indicated Caesarean deliveries among all live births. Source: National Vital Statistics Report (2009): Final birth data 2006, Declercq et al, (2006), A J Public Health, VanderWeele et al (2012), Social Science & Medicine,

Webtable 11. Detailed data and methodology used in analysis of drivers for preterm birth in US (stillbirth)

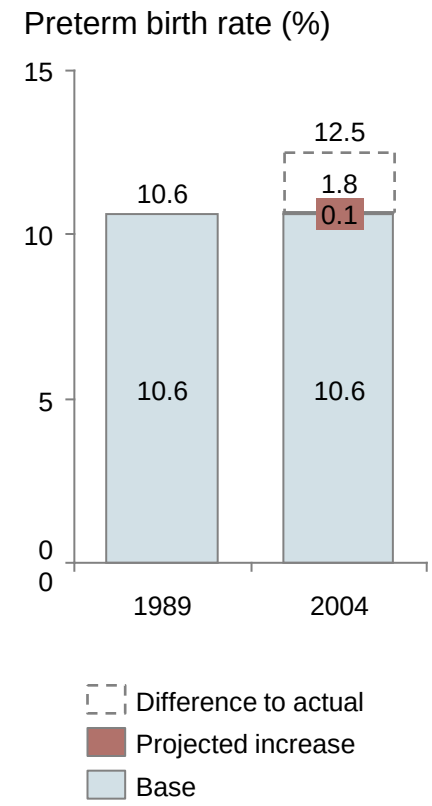
Stillbirth rates in US[1] (1989 - 2004)



Incidence of stillbirths in US (1989-2004)



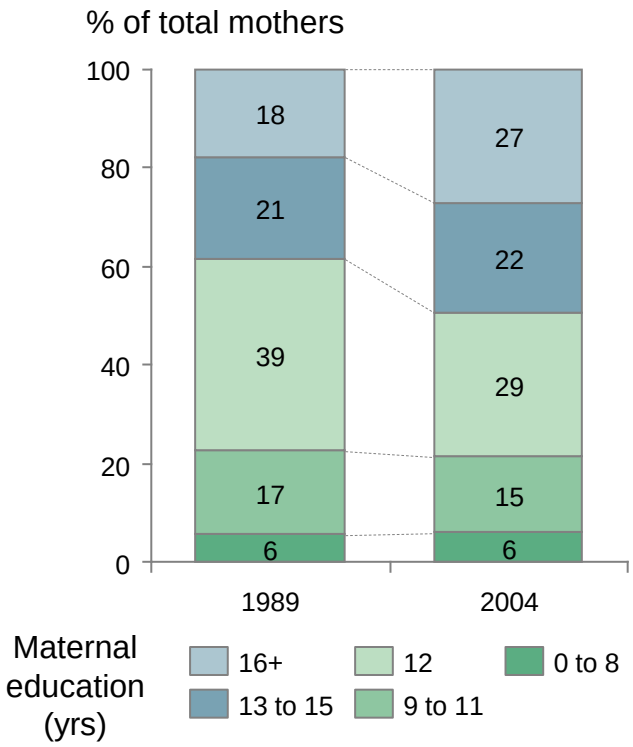
Projected effect on preterm birth rate



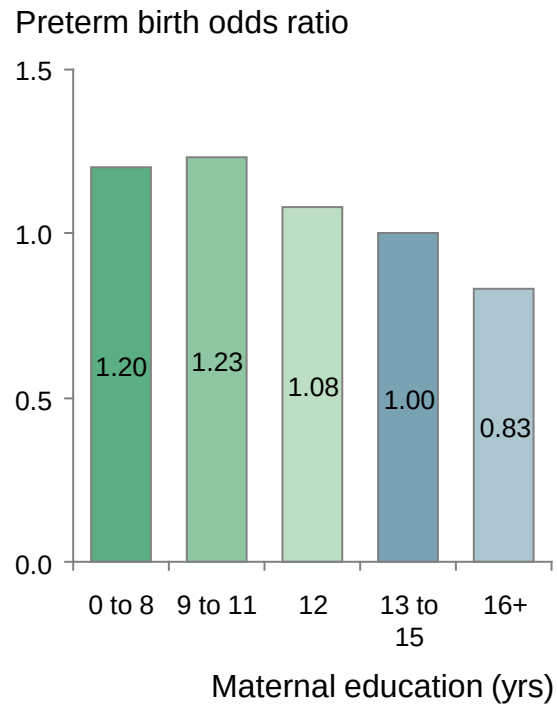
Source: Cousens et al. (2010) Lancet,

Webtable 12. Detailed data and methodology used in analysis of drivers for preterm birth in US (maternal education)

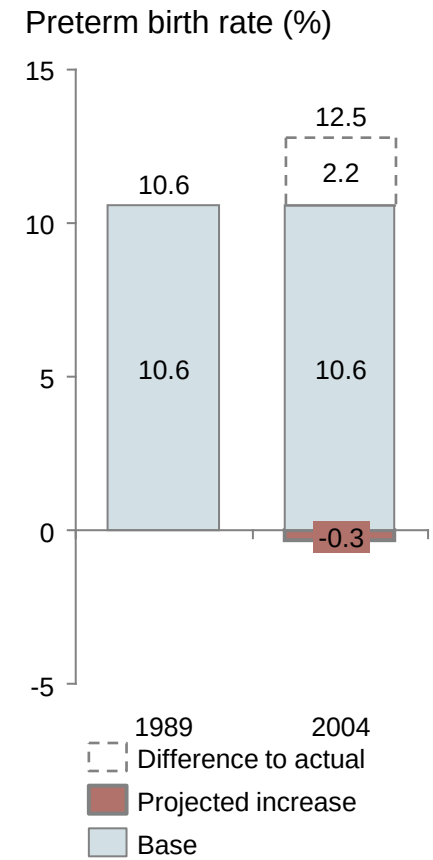
Maternal education demographics (1989 & 2004)



Preterm birth odds ratio[1] by maternal education



Projected effect on preterm birth rate



1. We were unable to identify published results for the relative risk for preterm birth among mothers with different years of education, thus odds ratios were used instead. This is an approximation, but given the incidences are relatively small (particularly for the education duration brackets with higher odds ratios), we expect the deviation to be small. See McNutt LA, Wu C, Xue X, Hafner JP. Estimating the relative risk in cohort studies and clinical trials of common outcomes. Am J Epidemiol. 2003 May 15;157(10):940-3. Other sources: VanderWeele et al, (2012), Social Science & Medicine , US Census Brief (2010)

Webtable 13. Preventive interventions for preterm birth excluded from analysis

Interventions	Evidence of efficacy for preterm birth by GRADE criteria	Rec. for implementation for preterm birth	Rationale for exclusion from analysis
Birth spacing	Mod	Weak	Weak GRADE recommendation by GAPPS[1]
Periconceptional folate	Mod	Weak	Weak GRADE recommendation by GAPPS
Indoor air pollution control	Very low	Weak against	Weak GRADE recommendation by GAPPS
Balanced protein energy supplementation	High no effect	Strong against	Negative GRADE recommendation by GAPPS
Multiple Micronutrient supplementation	High no effect	Strong against	Negative GRADE recommendation by GAPPS
Iron and folate supplementation	Mod no effect	Strong against	Negative GRADE recommendation by GAPPS
Magnesium sulfate supplementation	Mod	Weak against	Weak GRADE recommendation by GAPPS
Calcium supplementation	Mod	Weak	Weak GRADE recommendation by GAPPS
Fatty acids supplementation	High no effect	Strong against	Negative GRADE recommendation by GAPPS
Screening and treatment of syphilis	Mod	Weak	Weak GRADE recommendation by GAPPS
Intermittent presumptive treatment during pregnancy (PTp) for malaria	Low	Weak	Weak GRADE recommendation by GAPPS
Insecticide-treated mosquito nets (ITNs)	Low	Weak	Weak GRADE recommendation by GAPPS
Screening and treatment of asymptomatic bacteriuria	Low	Weak	Weak GRADE recommendation by GAPPS
Screening and treatment of bacterial vaginosis	High no effect	Strong against	Negative GRADE recommendation by GAPPS
Prevention of Mother-to-Child transmission of HIV	Low	Limited outcomes, no recommendation	No GRADE recommendation by GAPPS
Anti-Helminithic treatment	Low	Weak against	Negative GRADE recommendation by GAPPS
Screening and treatment of peridontal disease	Mod	Weak against	Negative GRADE recommendation by GAPPS
Multivitamins for HIV+ women	Mod no effect	Weak against	Negative GRADE recommendation by GAPPS

1.Global Alliance to Prevent Prematurity and Stillbirth. Source: Barros FC, Bhutta ZA, Batra M, Hansen TN, Victora CG, Rubens CE. Global report on preterm birth and stillbirth (3 of 7): evidence for effectiveness of interventions. *BMC pregnancy and childbirth* 2010; **10 Suppl 1**: S3.

Webtable 14. Summary of assumptions and data used in analysis of intervention impact

Intervention	Target population (*# countries with data/all countries*)	Incremental coverage	Efficacy	References
Cerclage	% preterm births attributable to maternal population with prior Preterm birth due to short cervix[1] *(39/39)*	99.7% of maternal population (0.3% existing coverage in US)[2]	25% reduction in preterm birth with cerclage[3]	1.See Webappendix p.24-25 2. Osterman MJ et al. (2011) National Vital Statistics 3. Owen J et al. Am J Obstet Gynecol. 2009
Progesterone	% of preterm births attributable to maternal population with prior Preterm birth without short cervix[1] *(39/39)*	67% of target population[2]	20% reduction in preterm birth with progesterone[3]	1. See Webappendix p.24-25 2. Assumption based on literature review 3. Dodd et al. Cochrane Review 2012,
Smoking cessation	% of preterm births from mothers who smoke[1,2] *(25/39)*	100% of target population[3]	4% success rate in smoking cessation programs targeting pregnant women[4]	1. See Webappendix p. 27 for complete list of references 2. Shah et al. Am J Obstet Gynecol 2000 3. Aspirational goal 4. Cobb et al. Nicotine Tob Res. 2005

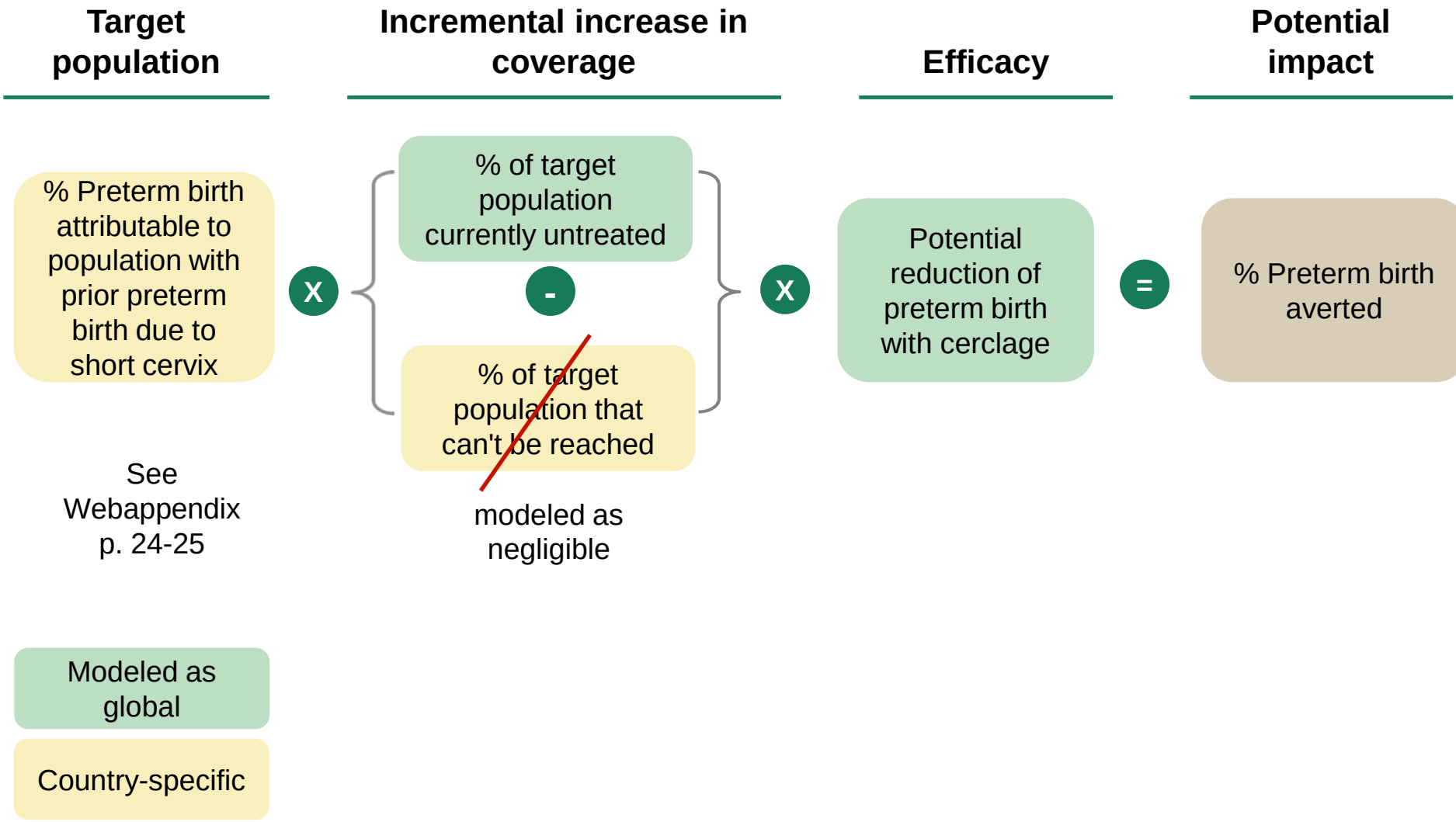
Note: where there is incomplete data, European average was used.

Webtable 14. Summary of assumptions and data used in analysis of intervention impact (continued)

Intervention	Target population *(# countries with data/all countries)*	Incremental coverage *(# countries with data/all countries)*	Efficacy	References
Decreasing non-medically indicated induction and Caesarean delivery	% of late preterm births among all preterm births[1] *(global)*	% of non-medically indicated Caesarean delivery and induction among late preterm births: • Scaled to that of US[2] based on rate of elective C-delivery[3] *(33/39)*	80% reduction[4]	1. Born Too Soon report 2. Laughon et al, Obstet Gynecol. 2010 3. Gibbons et al. World Health Report 2010 4. Aspirational but based on Donovan et al, AJOG, 2012.
Decreasing multiple births from assisted reproductive technology (ART)	Current preterm births from ART as function of: • Total ART live births[1,2] *(11/39)* • Current rate of multiple births from ART[1,3] *(20/39)* • Preterm birth rate associated with each plurality among ART births[1,3,4] *(12/39)*	Difference between current and target preterm births from ART assuming target final plurality distribution of: • Singleton: 89.5% • Twins: 10% • Triplets: 0.5%	See previous two categories	1. ESHRE 2012 report Human Reproduction, Supplementary materials 2. US Census Bureau Statistical Abstract 2012 3. CDC ART report 2009 4. Helmerhorst et al. BMJ 2004 5. Aspirational goal based on expert interviews

Note: where there is incomplete data, European average or country-appropriate data was used.

Webtable 15. Methodology and data used in analysis of potential impact of cervical cerclage



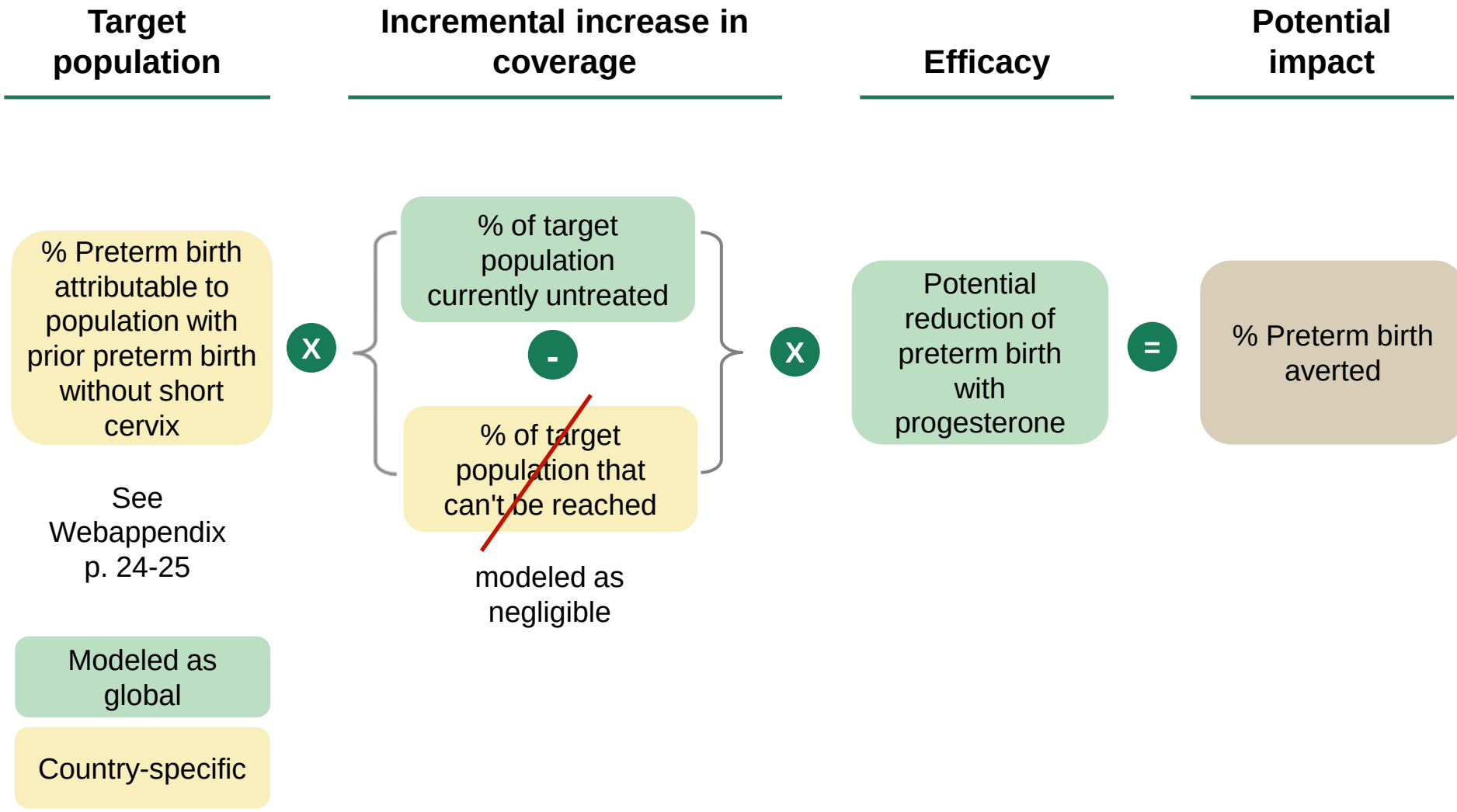
Data sources for anlaysis: Owen J et al. Am J Obstet Gynecol. 2009, Michelle JK et al. (2011) National Vital Statistics,

Webtable 15. Methodology and data used in analysis of potential impact of cervical cerclage

Country	Total birth rate (babies per woman)	% Preterm birth attributed to prior preterm birth with SC
Argentina	2.25	8.3%
Australia	1.93	6.5%
Austria	1.38	2.7%
Bahrain	2.63	10.1%
Belgium	1.79	5.6%
Canada	1.65	4.6%
Chile	1.90	6.3%
Croatia	1.42	2.9%
Cyprus	1.51	3.5%
Czech Republic	1.41	2.8%
Denmark	1.85	6.0%
Estonia	1.64	4.5%
Finland	1.84	5.9%
France	1.97	6.8%
Germany	1.36	2.5%
Greece	1.46	3.2%
Hungary	1.34	2.4%
Ireland	2.10	7.5%
Israel	2.91	11.6%
Italy	1.38	2.6%

Country	Total birth rate (babies per woman)	% Preterm birth attributed to prior preterm birth with SC
Japan	1.32	2.2%
Latvia	1.41	2.9%
Lithuania	1.41	2.8%
Netherlands	1.75	5.2%
New Zealand	2.14	7.7%
Norway	1.92	6.5%
Poland	1.32	2.2%
Portugal	1.36	2.5%
Qatar	2.40	9.0%
Republic of Korea	1.29	2.0%
Singapore	1.25	1.8%
Slovakia	1.27	1.9%
Slovenia	1.39	2.7%
Spain	1.41	2.9%
Sweden	1.90	6.3%
Switzerland	1.46	3.2%
United Arab Emirates	1.86	6.0%
United Kingdom	1.83	5.8%
United States	2.07	7.4%

Webtable 16. Methodology and data used in analysis of potential impact of progesterone



Data sources for analysis: Dodd et al. Cochrane Review 2012,

Webtable 16. Methodology and data used in analysis of potential impact of progesterone

Country	Total birth rate (babies per woman)	% Preterm birth attributed to prior preterm birth w/o SC
Argentina	2.25	1.8%
Australia	1.93	0.9%
Austria	1.38	0.4%
Bahrain	2.63	2.9%
Belgium	1.79	0.8%
Canada	1.65	0.7%
Chile	1.90	0.9%
Croatia	1.42	0.4%
Cyprus	1.51	0.5%
Czech Republic	1.41	0.4%
Denmark	1.85	0.9%
Estonia	1.64	0.6%
Finland	1.84	0.8%
France	1.97	1.0%
Germany	1.36	0.4%
Greece	1.46	0.5%
Hungary	1.34	0.3%
Ireland	2.10	1.3%
Israel	2.91	3.7%
Italy	1.38	0.4%

Country	Total birth rate (babies per woman)	% Preterm birth attributed to prior preterm birth w/o SC
Japan	1.32	0.3%
Latvia	1.41	0.4%
Lithuania	1.41	0.4%
Netherlands	1.75	0.7%
New Zealand	2.14	1.4%
Norway	1.92	0.9%
Poland	1.32	0.3%
Portugal	1.36	0.4%
Qatar	2.40	2.2%
Republic of Korea	1.29	0.3%
Singapore	1.25	0.3%
Slovakia	1.27	0.3%
Slovenia	1.39	0.4%
Spain	1.41	0.4%
Sweden	1.90	0.9%
Switzerland	1.46	0.5%
United Arab Emirates	1.86	0.9%
United Kingdom	1.83	0.8%
United States	2.07	1.2%

Webtable 17. Assumptions used in estimating preterm births attributable to women with prior preterm birth with or without short cervix

Preterm birth in women without short cervix

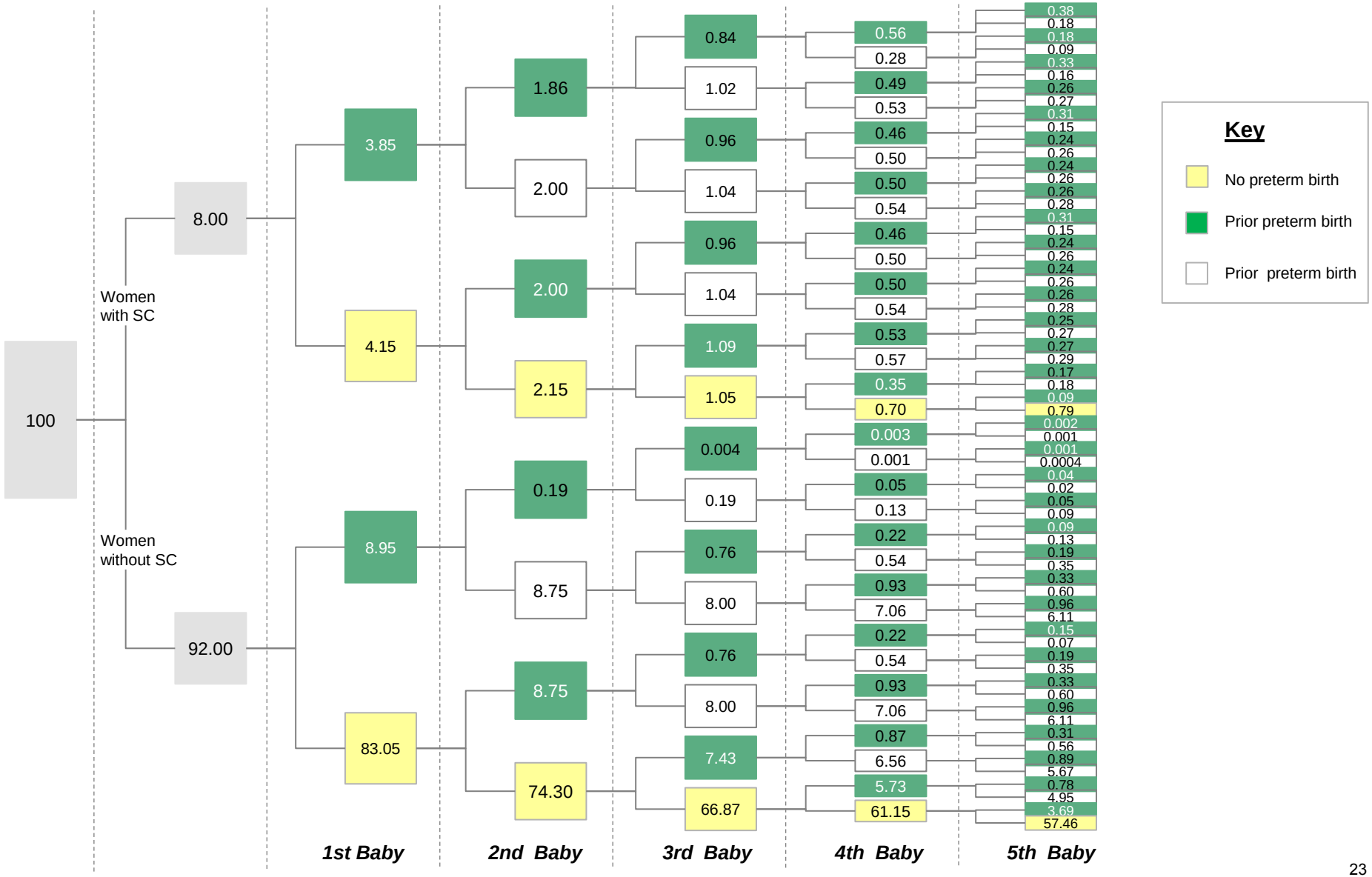
- Overall preterm birth prevalence in target geographies = 12.8%
- Fertility rate of ~5 in target geographies
- Irrespective of the prior preterm birth order
  - P (2 Preterm birth) = 16%
  - P (3 Preterm birth) = 41%
  - P (4 Preterm birth) = 67%
  - P (5 Preterm birth) = 67%
- Efficacy of progesterone in women with history of preterm birth = 20% (37 weeks endpoint)

Preterm birth in women with short cervix

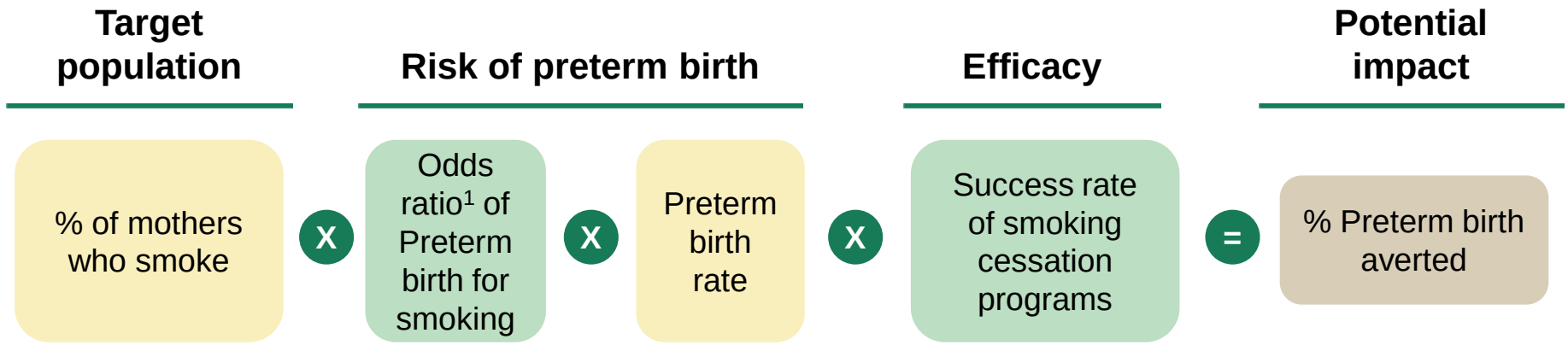
- Overall preterm birth prevalence in target geographies = 12.8%
- SC defined as ≤ 25mm
- % of pregnant women with SC = 8%
- Fertility rate of up to 5 in the target geographies
- Recurrent pregnancies and pessary use do not change cervical length
- Irrespective of the prior preterm birth order
  - P (Preterm birth/ SC) = 48%
  - P (2 Preterm birth) = 48%
  - P (3 Preterm birth) = 48%
  - P (4 Preterm birth) = 67%
  - P (5 Preterm birth) = 67%
- Efficacy of cervical pessary in women with short cervix = 64% (37 weeks endpoint)
- Efficacy of progesterone in women with short cervix ranges from 11% (37 weeks for <=25mm) - 42% (34 weeks for <15mm)

Source**:** WHO (2012): Born too Soon - The Global Action Report on Preterm Birth, Bloom et al - Obstet Gynecol (2001): Recurrence of preterm birth in singleton and twin pregnancies, Goya et al -Lancet. (2012): Cervical pessary in pregnant women with a short cervix: an open-label randomized controlled trial, Iams et al -NEJM (1996): The length of the cervix and the risk of spontaneous premature delivery, Dodd et al - Cochrane Library (2012): Prenatal administration of progesterone for preventing preterm birth in women considered to be at risk of preterm birth , Romero et al -Am J Obstet Gynecol (2012): Vaginal progesterone in women with an asymptomatic sonographic short cervix in the mid-trimester decreases preterm delivery and neonatal morbidity: a systematic review and meta-analysis of individual patient data

Webtable 18. Methodology for estimating preterm births attributable to women with prior preterm birth with or without short cervix



Webtable 19. Methodology and data used in analysis of potential impact of smoking



Modeled as global

Country-specific

1. We were unable to identify published results for the relative risk of preterm birth among mothers who smoke, thus the odds ratio was used instead. This is an approximation but given that the rates of preterm birth and maternal smokers are both small, and roughly equal (~10%), we expect the deviation to be small. See McNutt LA, Wu C, Xue X, Hafner JP. Estimating the relative risk in cohort studies and clinical trials of common outcomes. Am J Epidemiol. 2003 May 15;157(10):940-3. Source: For references on prevalence of maternal smokers for each country see next slide. Other sources: Cobb et al. Nicotine Tob Res. 2005, Shah et al. Am J Obstet Gynecol 2000

Webtable 19. Methodology and data used in analysis of potential impact of smoking

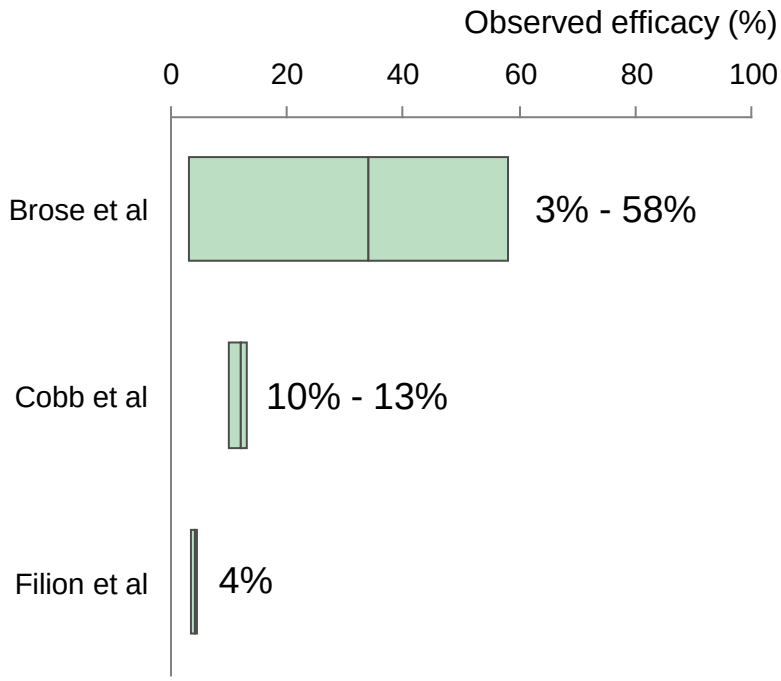
Country	Mothers who smoke (%)
Argentina	-
Australia	18%
Austria	-
Bahrain	-
Belgium	7%
Canada	10%
Chile	28%
Croatia	-
Cyprus	-
Czech Republic	4%
Denmark	20%
Estonia	9%
Finland	21%
France	22%
Germany	17%
Greece	12%
Hungary	20%
Ireland	53%
Israel	-
Italy	7%

Country	Mothers who smoke (%)
Japan	17%
Latvia	-
Lithuania	1%
Netherlands	8%
New Zealand	17%
Norway	-
Poland	12%
Portugal	14%
Qatar	-
Republic of Korea	-
Singapore	-
Slovakia	-
Slovenia	-
Spain	30%
Sweden	27%
Switzerland	10%
United Arab Emirates	-
United Kingdom	14%
United States	23%

Source: Lanting et al. (2009) PLoS One, Wells (2011) The Sydney Morning Herald, Szilagyi et al. (2010) WHO, Lauria et al. (2012) Scientific World Journal, Al-Sahab et al. (2010) BMC Pregnancy Childbirth, Javier et al. (2007) Rev. chil. enferm. respir, Vogazianos (2005) Cent Eur J Publ Health, Palma et al. (2007) BMC Public Health, Jaslow (2012) CBS news (healthpop.com), Lu (2001) Health Promotion International, Lee et al. (1994) BMJ, Kaneita et al. (2006) Prev Med, Jensen et al. (2004) Am J Epidemiol, Wojtyła et al. (2012) Ann Agric Environ Med, MacDorman et al. (1997) Am J Epidemiol, Tarrant et al. (2011) Eur J Clin Nutr., Kankudti (2012) Medical daily

Webtable 19. Methodology and data used in analysis of potential impact of smoking

Smoking cessation programs vary greatly in their reported efficacy...

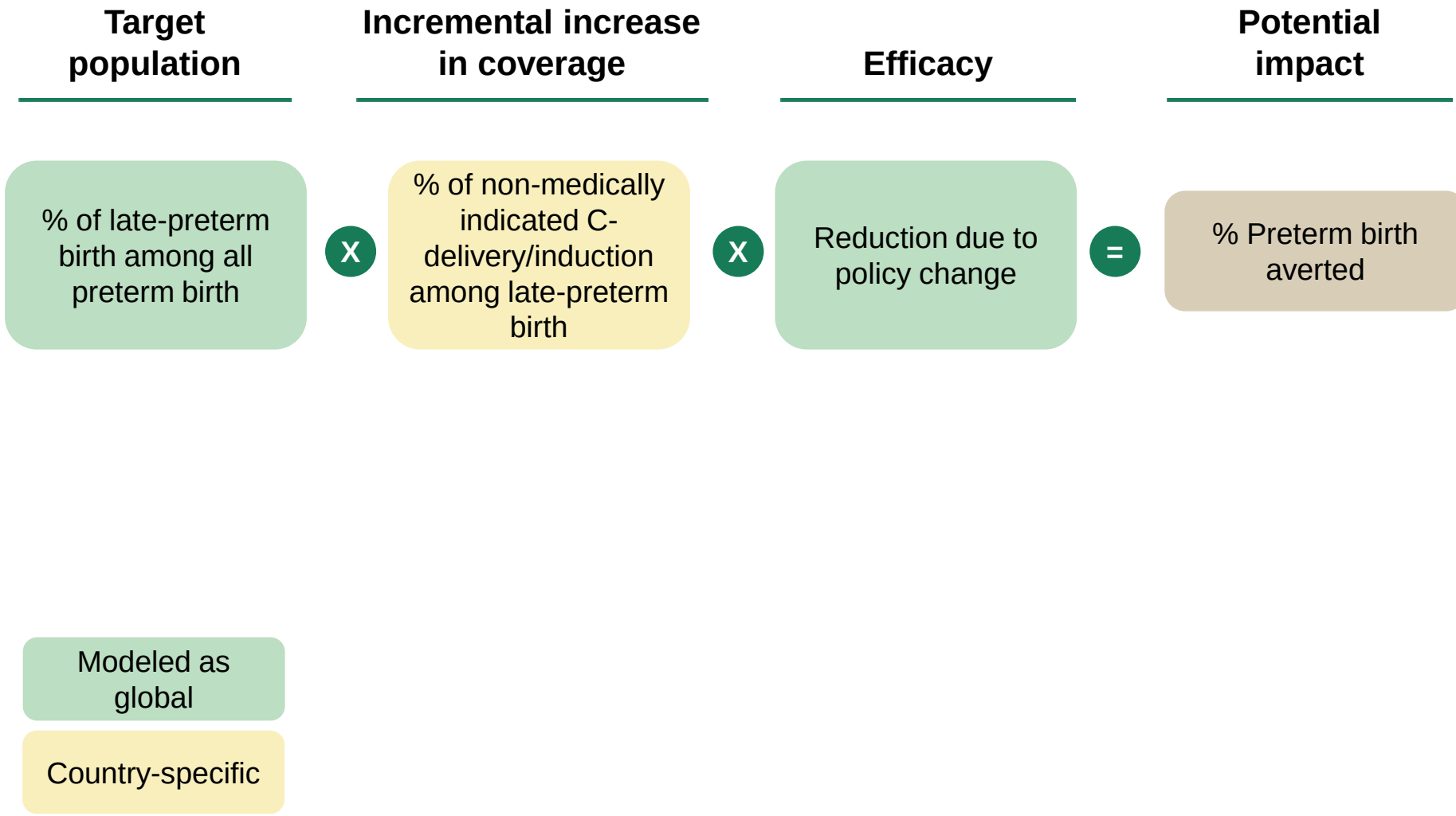


...as well as program design and target population

Reference	Types of program	Target population
Brose et al. (2011) Thorax	Individual, group, and telephone counseling Medication treatment	All comers
Cobb et al. (2005) Nicotine Tob Res.	Disseminated smoking cessation Website (QuitNet)	All comers
Filion et al. (2011) BJOG (meta-analysis)	Individual, group, and telephone counseling	Pregnant smokers only

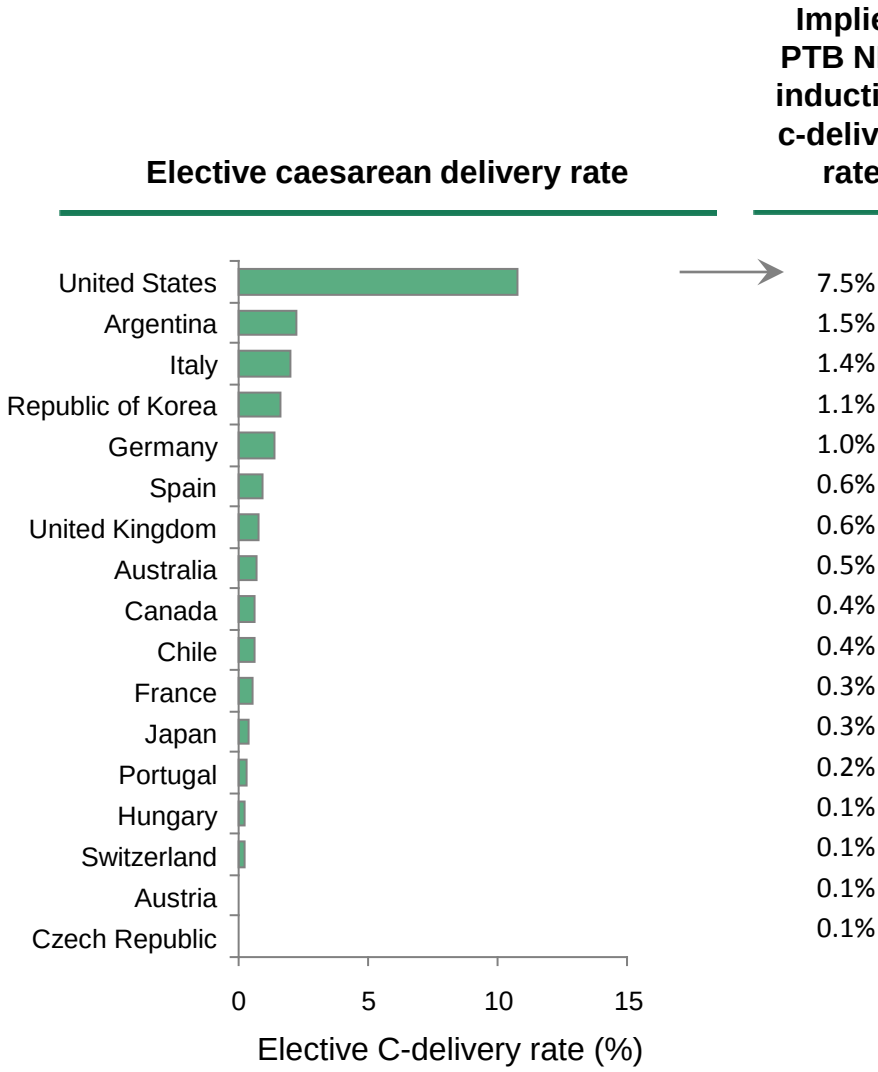
Source: Brose et al. (2011), Thorax, Cobb et al. (2005) Nicotine Tob Res, Filion et al. (2011) BJOG

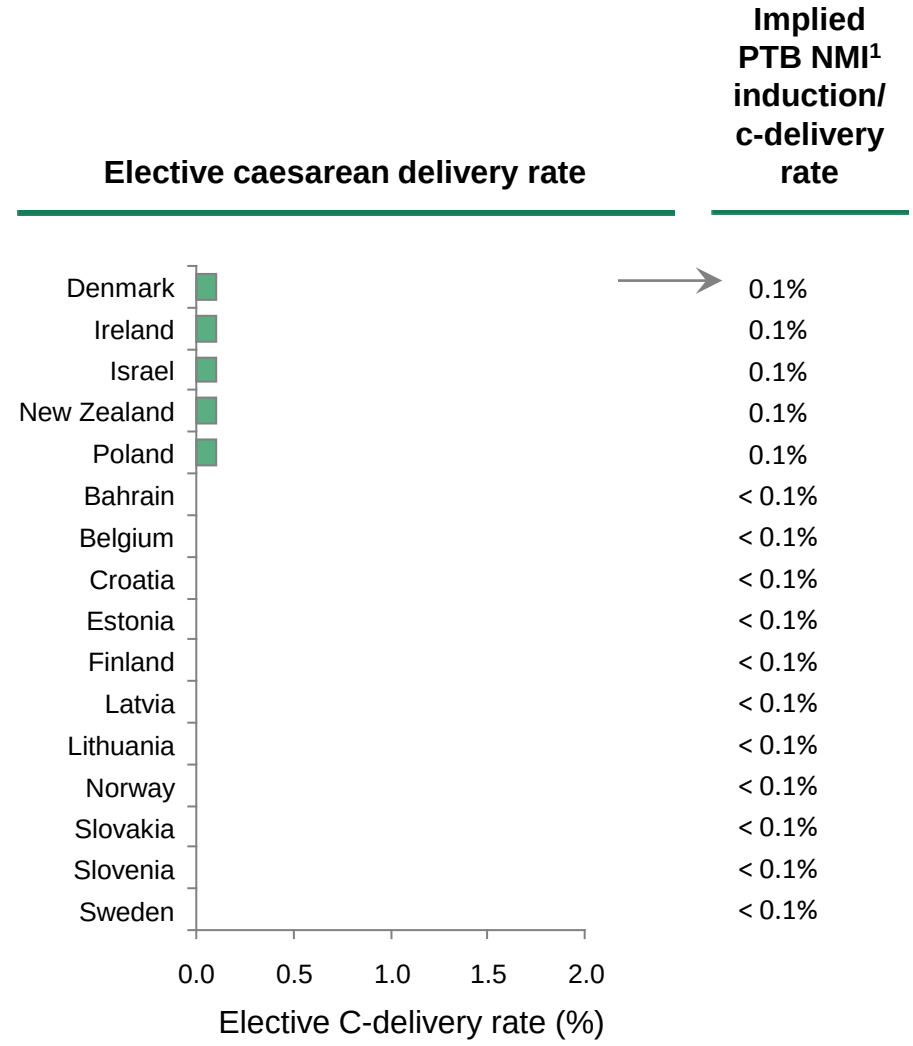
Webtable 20. Methodology and data used in analysis of potential impact of non-medically indicated caesarean delivery and labor induction



Data sources for analysis: Born Too Son report, Laughon et al, Obstet Gynecol. (2010)

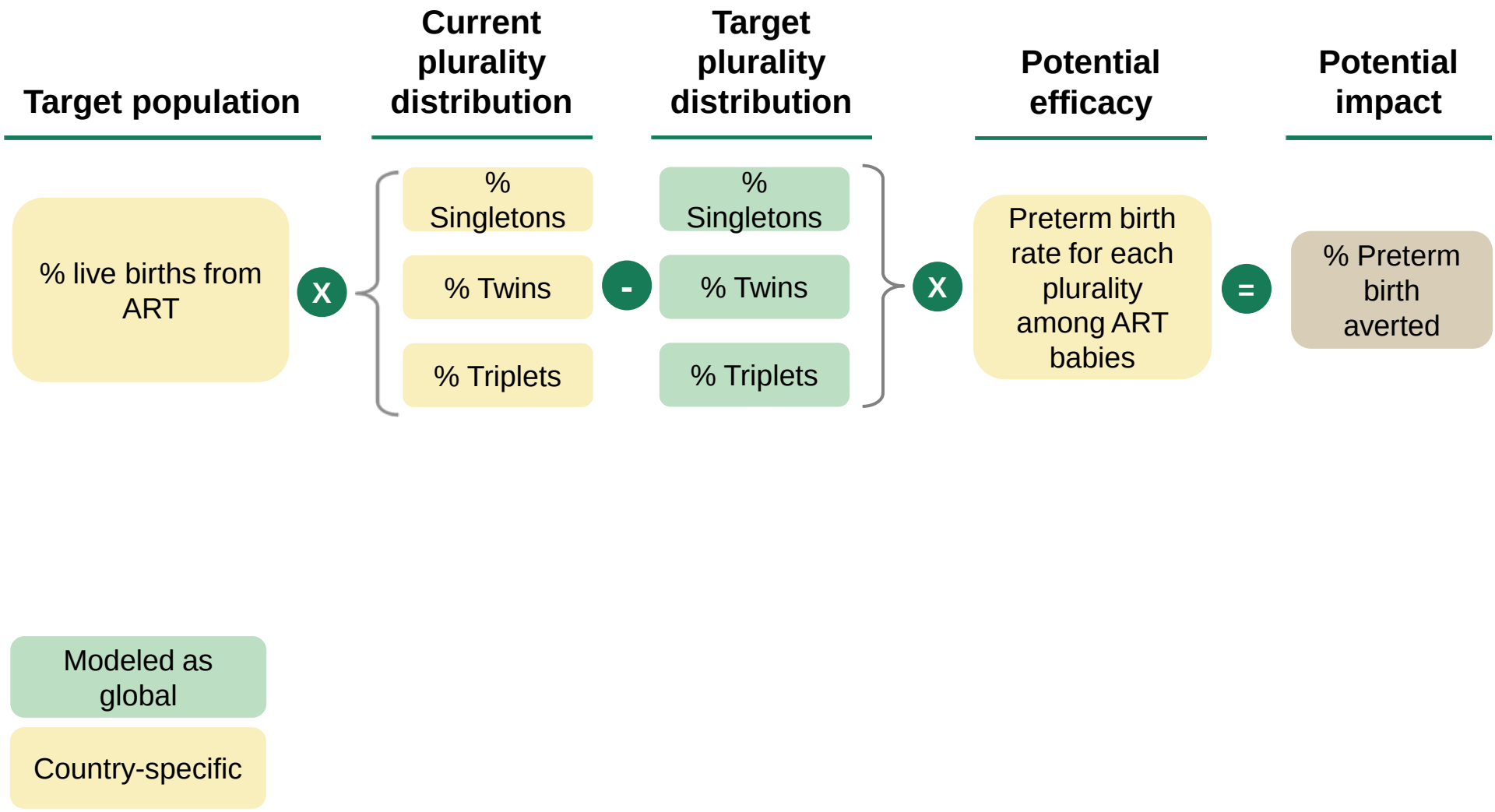
Webtable 20. Methodology and data used in analysis of potential impact of non-medically indicated caesarean delivery and labor induction





1.Non-medially indicated. Shows here data for only the countries with elective caesarean delivery rates from the literature. European average used for others in the complete analysis.
Source: The Global Numbers and Costs of Additionally Needed and Unnecessary Caesarean Sections Performed per Year, World Health Report (2010), Background Paper, 30

Webtable 21. Methodology and data used in analysis of potential impact of preterm births as result of multiple births from assisted reproductive technology



Webtable 21. Methodology and data used in analysis of potential impact of preterm births as result of multiple births from assisted reproductive technology

	Decreasing multiple births from ART									
Country	% ART live births (2009)	Curr. ART singleton (%)	Curr. ART twins (%)	Curr. ART triplets (%)	Target ART singleton (%)	Target ART twins (%)	Target ART triplets (%)	Preterm birth rate singleton	Preterm birth rate twin	Preterm birth rate triplet
Argentina					89.5%	10.0%	0.5%			
Australia					89.5%	10.0%	0.5%			
Austria					89.5%	10.0%	0.5%			
Bahrain					89.5%	10.0%	0.5%			
Belgium	3.9%	86.4%	13.3%	0.4%	89.6%	10.0%	0.4%	9.0%	55.2%	81.9%
Canada					89.5%	10.0%	0.5%			
Chile					89.5%	10.0%	0.5%			
Croatia					89.5%	10.0%	0.5%			
Cyprus					89.5%	10.0%	0.5%			
Czech Republic					89.5%	10.0%	0.5%			
Denmark	4.6%	89.9%	9.8%	0.3%	89.9%	9.8%	0.3%			
Estonia	4.1%	79.4%	17.5%	3.2%	89.5%	10.0%	0.5%			
Finland	3.1%	89.6%	10.0%	0.4%	89.6%	10.0%	0.4%	6.7%	53.2%	100.0%
France		90.2%	9.8%	0.1%	90.1%	9.8%	0.1%			
Germany	1.7%	84.9%	14.8%	0.4%	89.6%	10.0%	0.4%	11.2%	62.3%	95.4%
Greece		88.0%	12.0%	0.0%	90.0%	10.0%	0.0%	22.2%	84.6%	100.0%
Hungary		80.7%	18.4%	0.9%	89.5%	10.0%	0.5%			
Ireland		86.8%	12.1%	1.1%	89.5%	10.0%	0.5%			
Israel					89.5%	10.0%	0.5%			
Italy	1.3%	83.3%	16.7%	0.0%	90.0%	10.0%	0.0%			

Source: ESHRE 2012, Human Reproduction, Vol.27, No.9 pp. 2571–2584, 2012, US Census Bureau Statistical Abstract 2012

Webtable 21. Methodology and data used in analysis of potential impact of preterm births as result of multiple births from assisted reproductive technology (continued)

	Decreasing multiple births from ART									
Country	% ART live births (2009)	Curr. ART singleton (%)	Curr. ART twins (%)	Curr. ART triplets (%)	Target ART singleton (%)	Target ART twins (%)	Target ART triplets (%)	Preterm birth rate singleton	Preterm birth rate twin	Preterm birth rate triplet
Japan					89.5%	10.0%	0.5%			
Latvia					89.5%	10.0%	0.5%			
Lithuania		100.0%	0.0%	0.0%	100.0%	0.0%	0.0%			
Netherlands					89.5%	10.0%	0.5%			
New Zealand					89.5%	10.0%	0.5%			
Norway		91.1%	8.9%	0.0%	91.1%	8.9%	0.0%			
Poland		80.9%	18.3%	0.7%	89.5%	10.0%	0.5%	30.7%	64.1%	100.0%
Portugal	1.3%	81.4%	18.6%	0.0%	90.0%	10.0%	0.0%	10.0%	60.0%	100.0%
Qatar					89.5%	10.0%	0.5%			
Republic of Korea					89.5%	10.0%	0.5%			
Singapore					89.5%	10.0%	0.5%			
Slovakia					89.5%	10.0%	0.5%			
Slovenia	4.4%	87.5%	12.5%	0.0%	90.0%	10.0%	0.0%	10.1%	55.5%	100.0%
Spain		80.9%	18.6%	0.5%	89.5%	10.0%	0.5%	11.3%	54.8%	94.6%
Sweden	3.3%	94.7%	5.2%	0.1%	94.7%	5.2%	0.1%	5.2%	35.8%	100.0%
Switzerland		85.3%	14.3%	0.4%	89.6%	10.0%	0.4%	49.0%	97.1%	100.0%
United Arab Emirates					89.5%	10.0%	0.5%			
United Kingdom	1.9%	85.0%	14.9%	0.1%	89.9%	10.0%	0.1%	9.2%	51.7%	97.6%
United States	1.5%	69.5%	28.9%	1.6%	89.5%	10.0%	0.5%	25.0%	60.0%	97.5%

Source: ESHRE 2012, Human Reproduction, Vol.27, No.9 pp. 2571–2584, 2012, US Census Bureau Statistical Abstract 2012

Webtable 22. Projected preterm births averted and estimated total economic cost savings assuming application of selected interventions among VHHDI countries

Country	Preterm birth averted (#)	Estimated incremental cost per preterm birth (US$)	Total economic cost saved (US$)
Argentina	2769	$22,558	$ 62,455,672
Australia	1158	$54,708	$ 63,349,218
Austria	403	$56,880	$ 22,921,722
Bahrain	161	$34,139	$ 5,483,241
Belgium	485	$57,727	$ 27,996,405
Canada	1491	$51,680	$ 77,064,011
Chile	873	$30,760	$ 26,851,998
Croatia	118	$33,959	$ 4,006,403
Cyprus	95	$80,928	$ 7,673,771
Czech Republic	419	$30,835	$ 12,921,872
Denmark	213	$73,913	$ 15,756,535
Estonia	47	$32,207	$ 1,498,825
Finland	168	$62,709	$ 10,531,980
France	2655	$59,250	$ 157,327,905
Germany	3212	$55,627	$ 178,680,686
Greece	388	$45,819	$ 17,762,505
Hungary	426	$33,247	$ 14,152,472
Ireland	229	$64,826	$ 14,864,544
Israel	619	$42,738	$ 26,456,495
Italy	1817	$55,612	$ 101,051,272

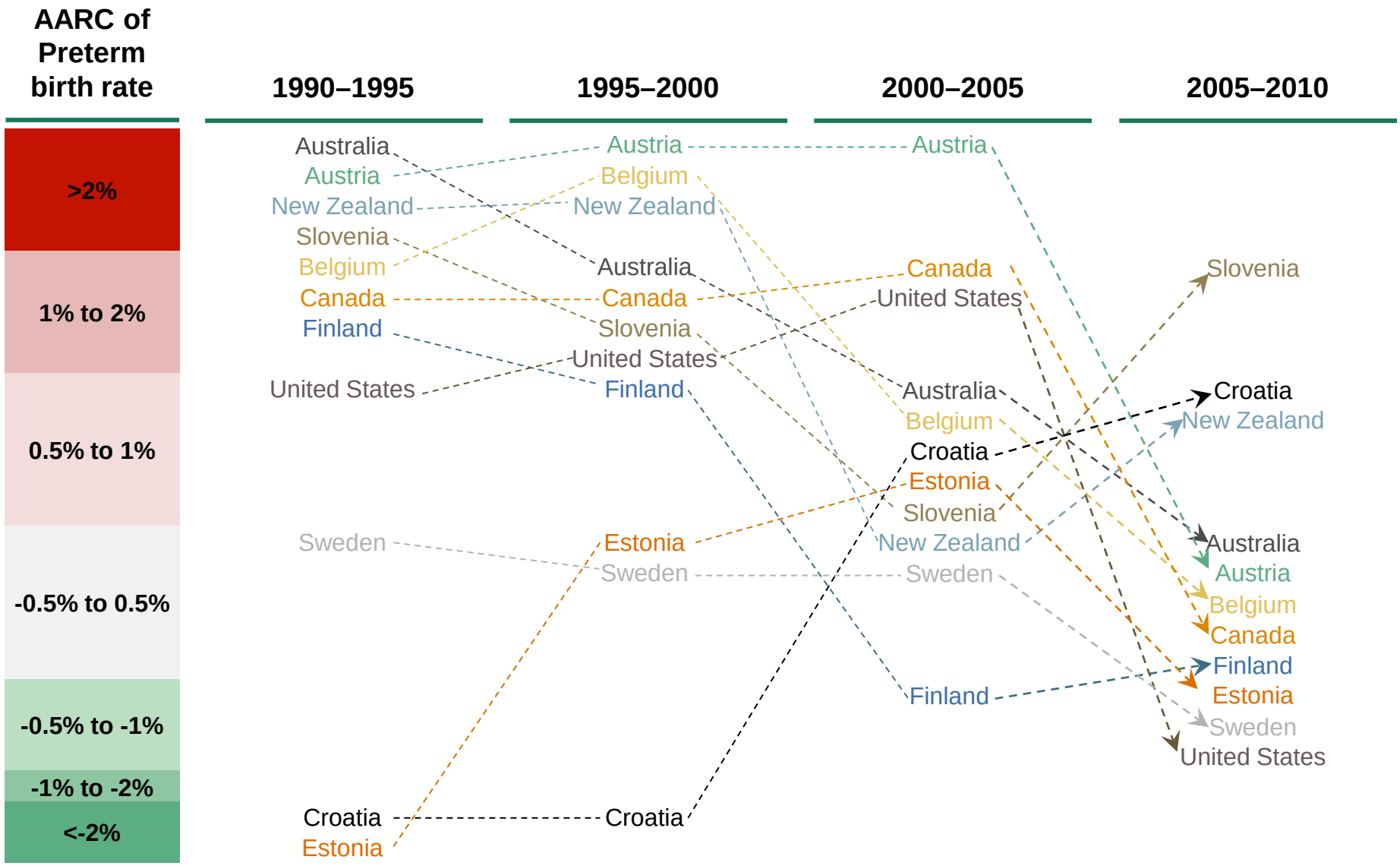
Notes: discrepancy between the estimated total economic cost saved and that obtained by multiplying preterm births averted by estimated incremental cost per preterm birth shown above are due to rounding errors.

Webtable 22. Projected preterm births averted and estimated total economic cost savings assuming application of selected interventions among VHHDI countries (continued)

Country	Preterm birth averted (#)	Estimated incremental cost per preterm birth (US$)	Total economic cost saved (US$)
Japan	3177	$ 23,974	$ 192,708,092
Latvia	64	$ 3,581	$ 1,766,538
Lithuania	99	$ 3,683	$ 2,730,382
Netherlands	731	$ 31,838	$ 42,055,172
New Zealand	243	$ 19,622	$ 13,534,523
Norway	182	$ 48,805	$ 12,935,261
Poland	1361	$ 4,074	$ 40,569,900
Portugal	378	$ 14,784	$ 16,618,862
Qatar	109	$ 12,945	$ 4,230,503
Republic of Korea	2197	$ 8,289	$ 87,321,772
Singapore	262	$ 7,397	$ 8,758,049
Slovakia	180	$ 5,160	$ 5,103,167
Slovenia	76	$ 12,455	$ 2,968,409
Spain	1856	$ 17,732	$ 91,078,827
Sweden	334	$ 30,555	$ 21,598,781
Switzerland	283	$ 46,019	$ 20,442,060
United Arab Emirates	346	$ 7,388	$ 11,861,126
United Kingdom	2965	$ 25,688	$ 176,946,605
United States	25872	$ 51,600	$ 1,334,995,254
Total	**58458**		**$ 2,937,030,812**

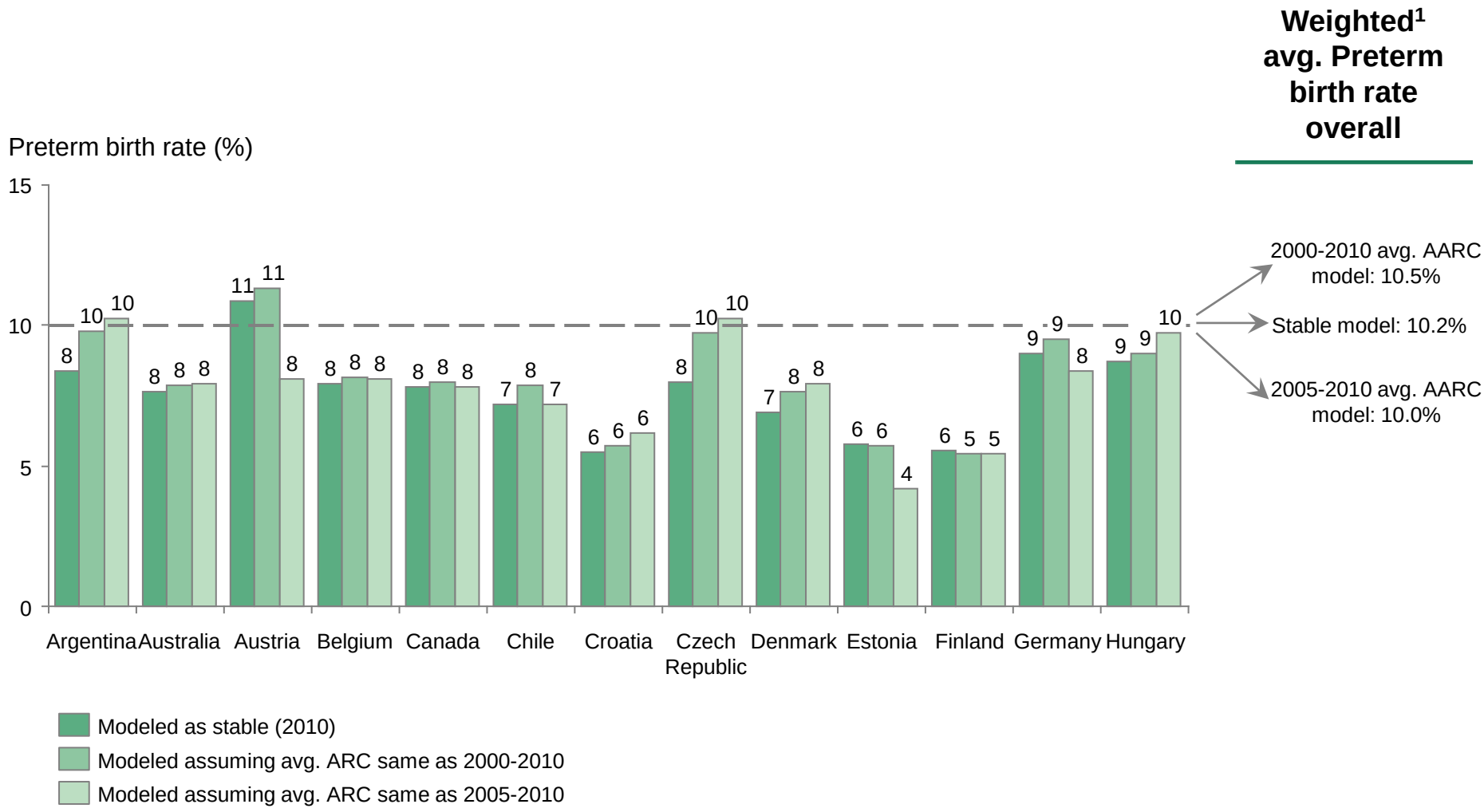
Notes: discrepancy between the estimated total economic cost saved and that obtained by multiplying preterm births averted by estimated incremental cost per preterm birth shown above are due to rounding errors.

Webtable 23. Average annual rate of change (AARC) in preterm birth rates for 12 countries with high-quality data for 1990-2010



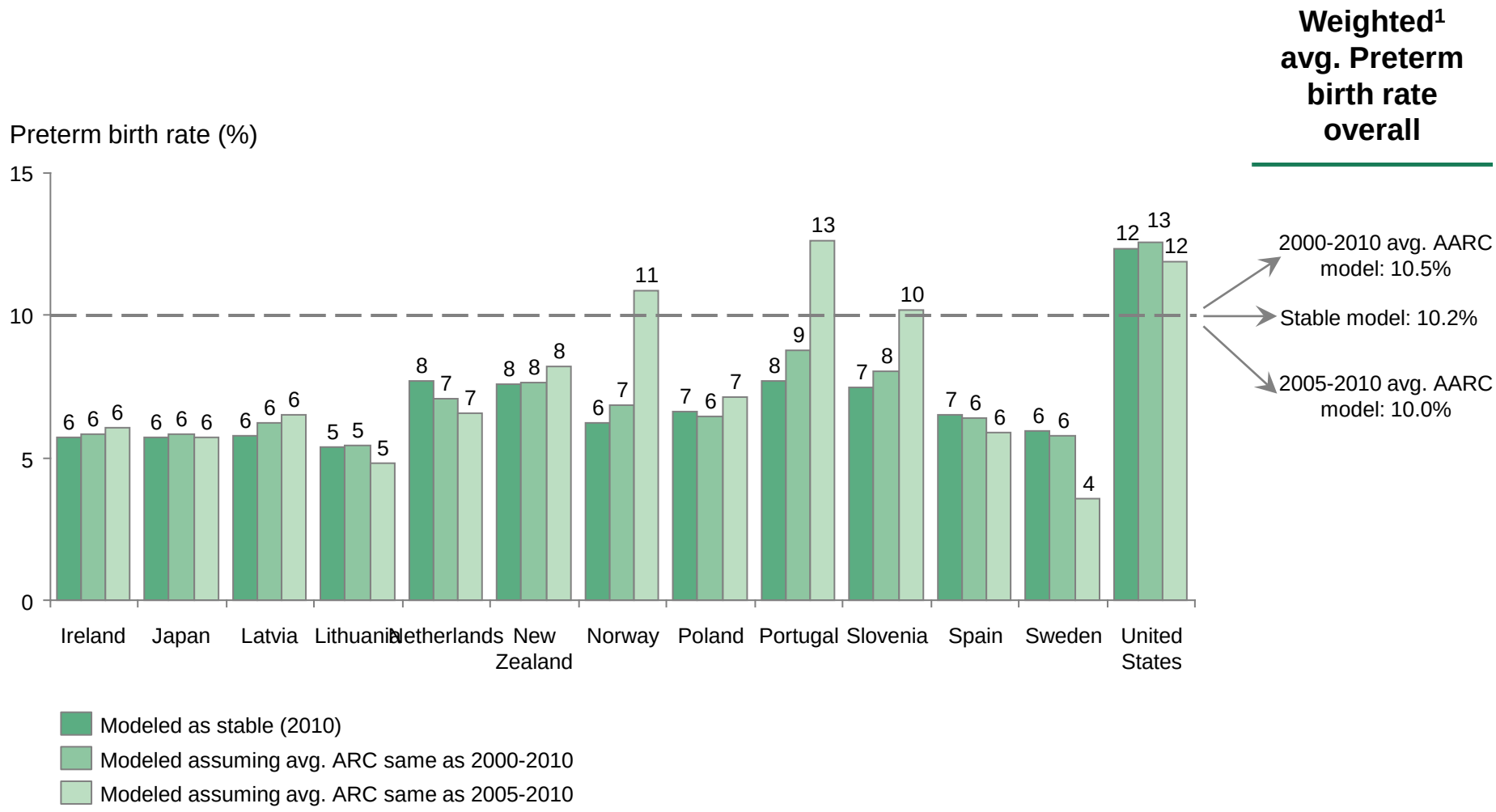
Footnote: AAR = averaged annual reduction. Shown for the 12 countries with Loess regressed data for 1990-2010, 11 of which are UNDP VHHDI countries

Webtable 24. Projected 2015 preterm birth rates assuming various models for 26 VHHDI countries with high-quality preterm birth data for 2000-2010



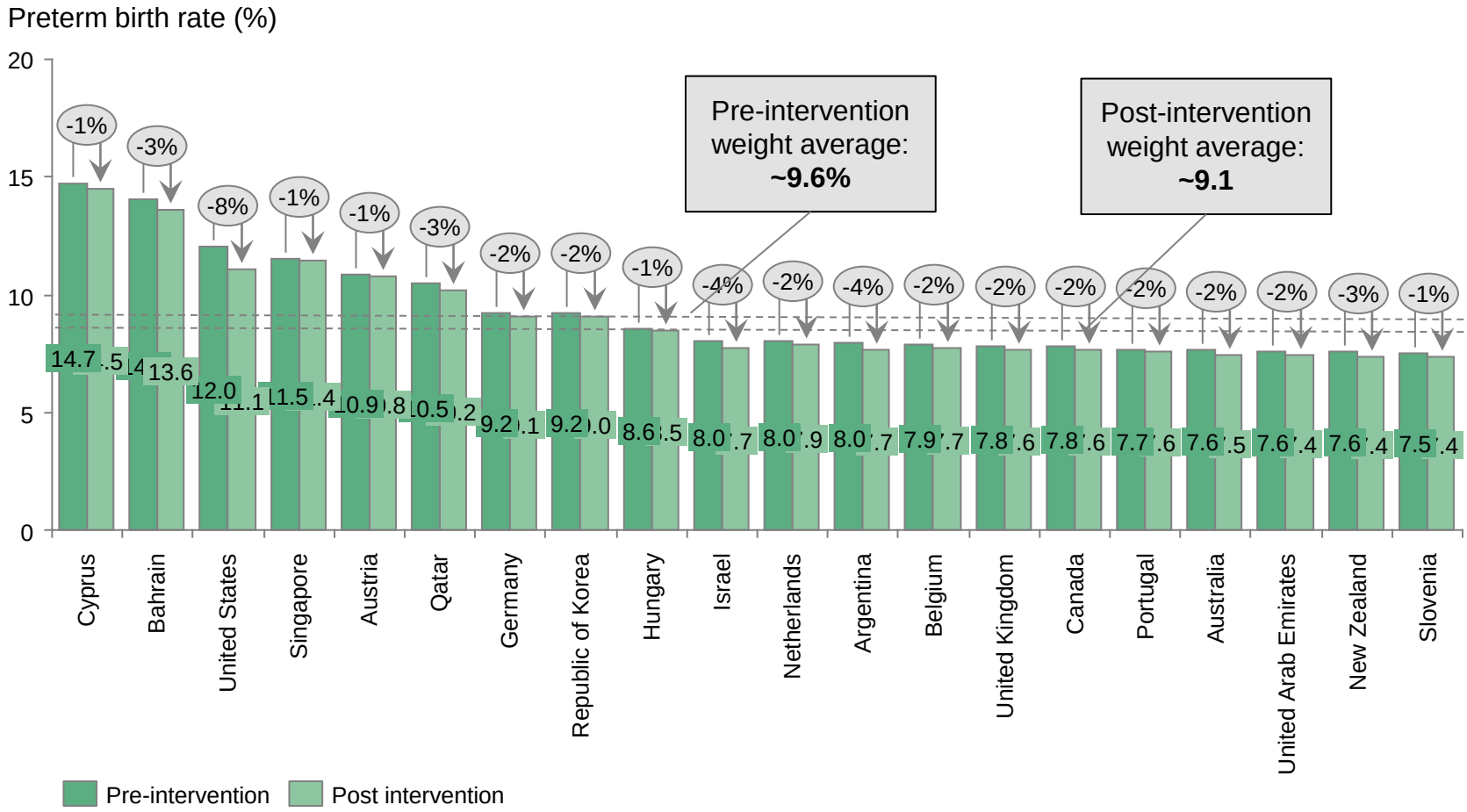
1. Weighted by total preterm births for 2010.

Webtable 24. Projected 2015 preterm birth rates assuming various models for 26 VHHDI countries with high-quality preterm birth data for 2000-2010 (continued)

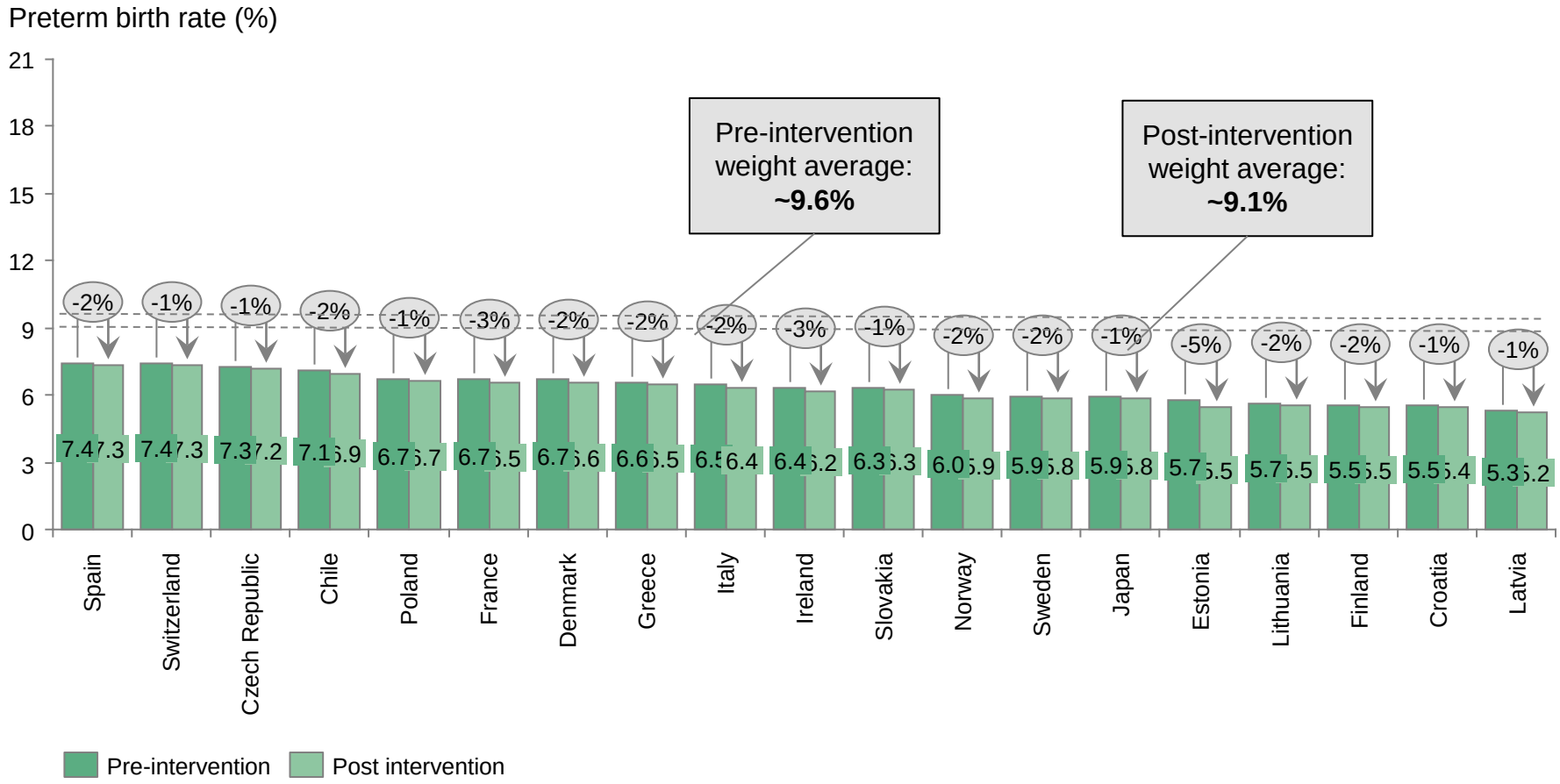


1. Weighted by total preterm births for 2010

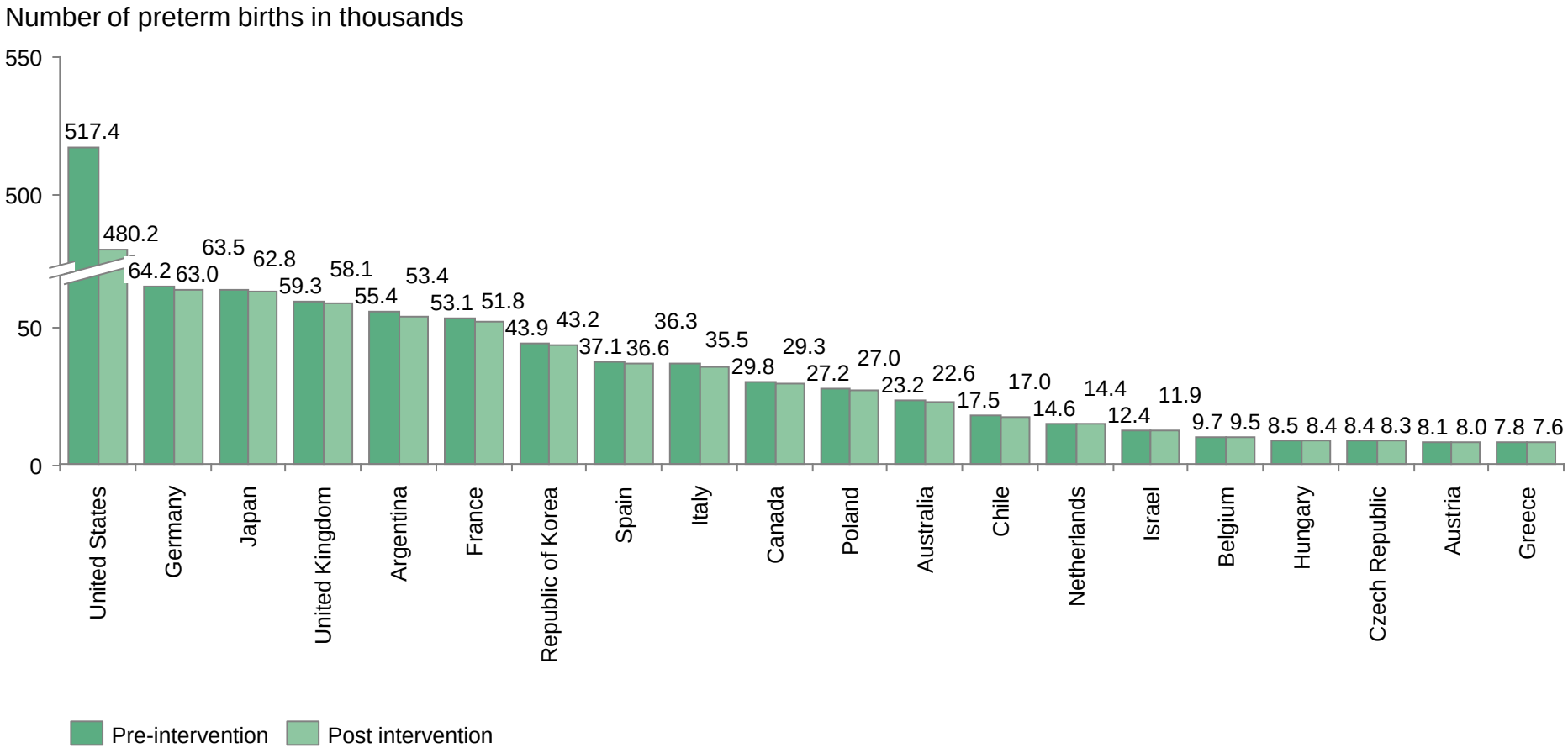
Webtable 25. Estimated preterm birth rates before and after applying the 5 selected interventions for 39 VHHDI countries



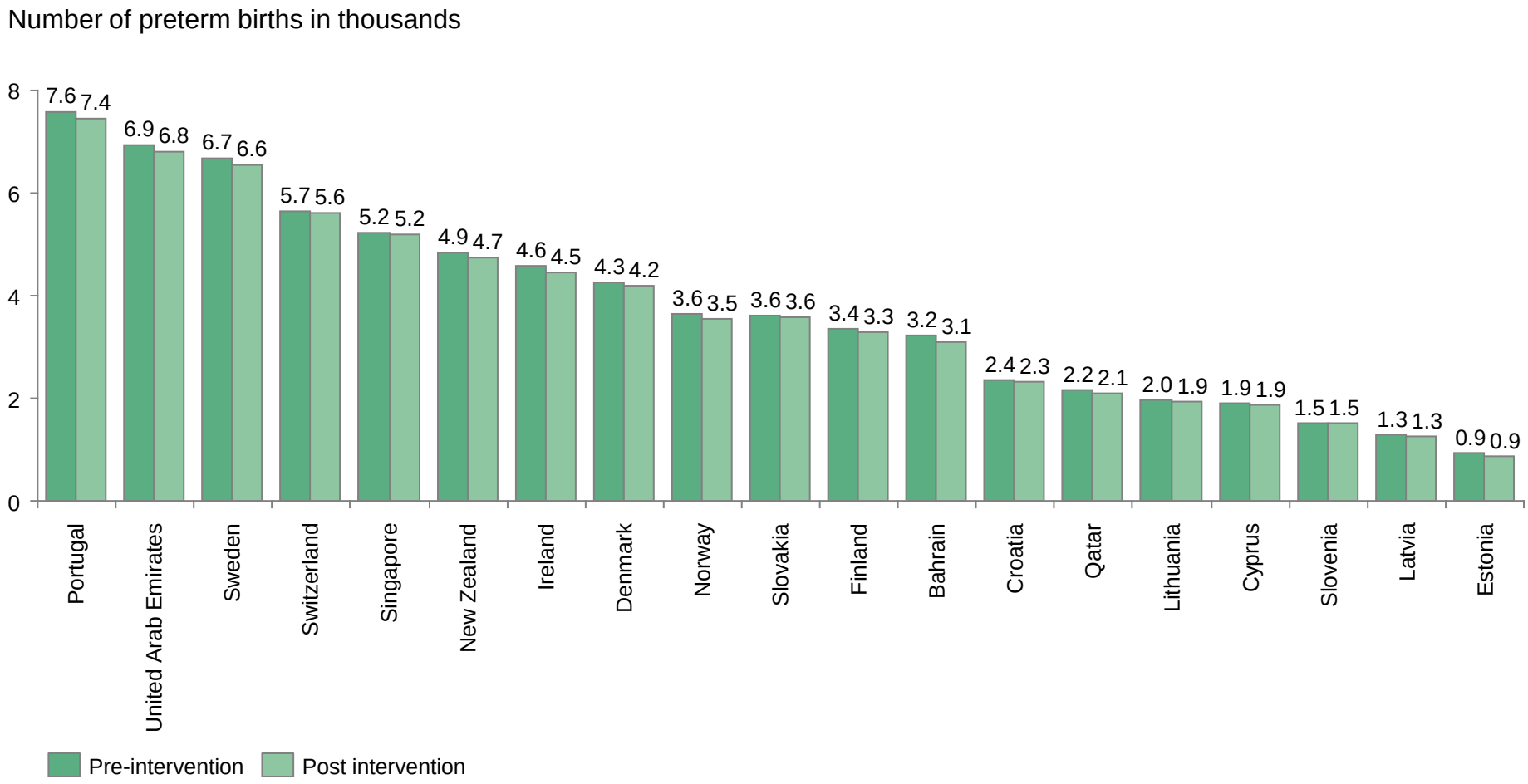
Webtable 25. Estimated preterm birth rates before and after applying the 5 selected interventions for 39 VHHDI countries (continued)



Webtable 26. Estimated number of preterm births before and after applying interventions for 39 VHHDI countries

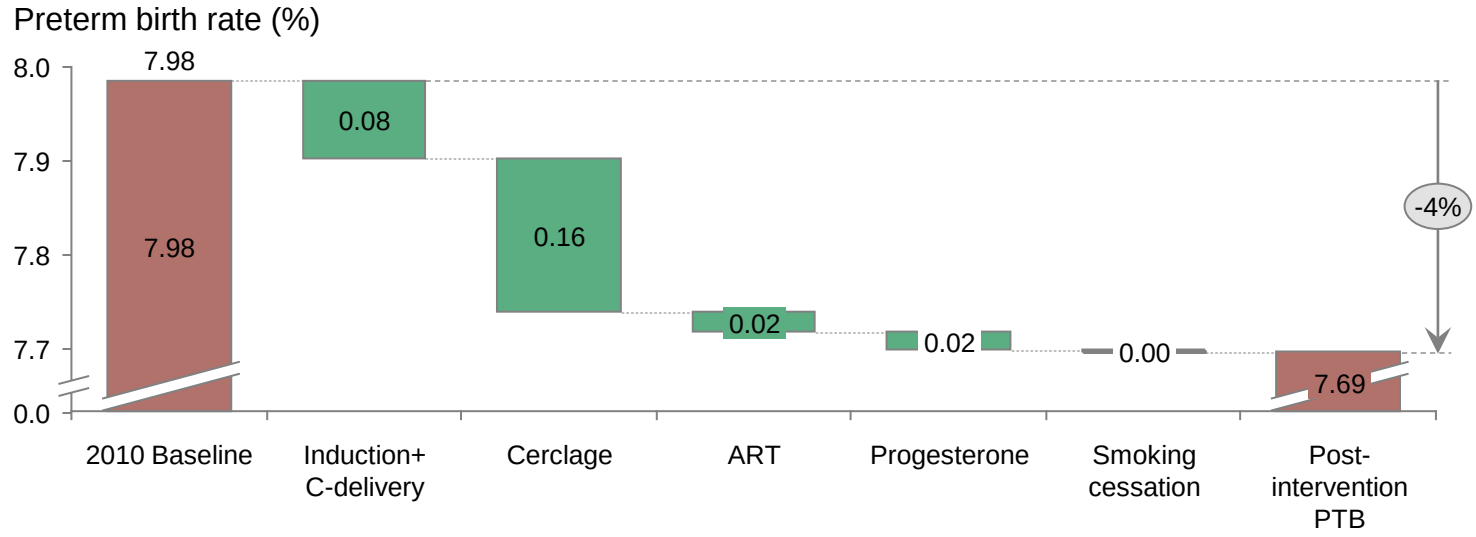


Webtable 26. Estimated number of preterm births before and after applying interventions for 39 VHHDI countries (continued)

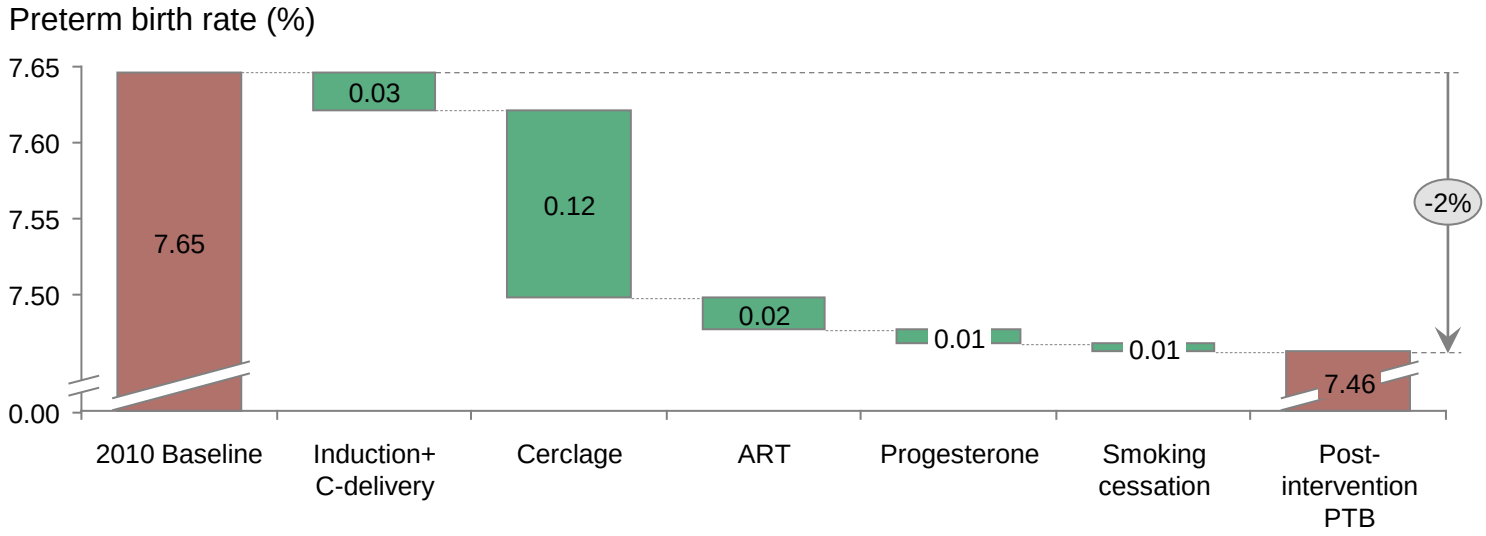


Webtable 27. Estimated reduction in preterm birth for 5 selected preventive interventions for 39 VHHDI countries

Argentina

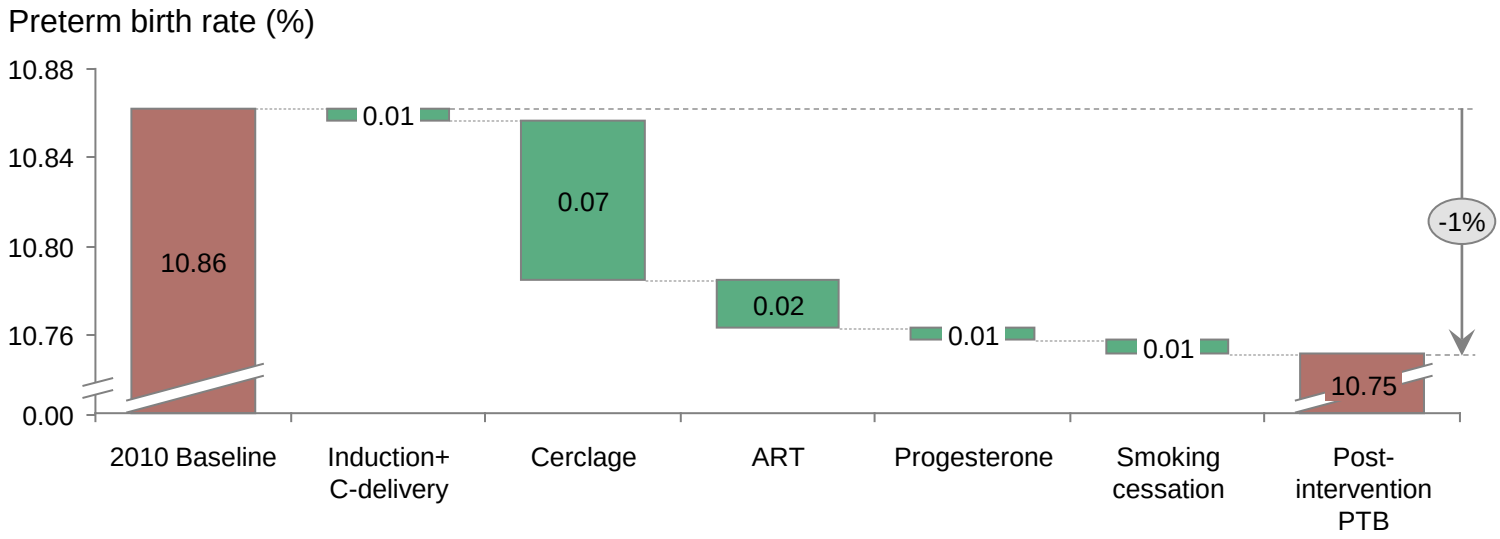


Australia

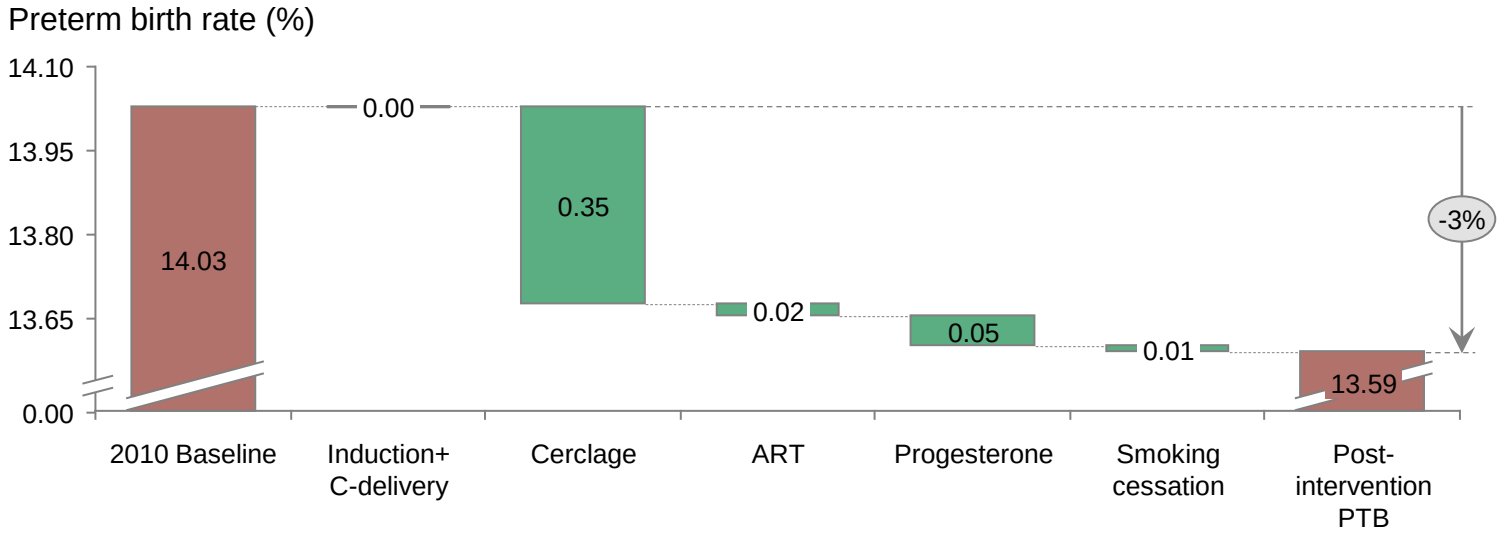


Webtable 27. Estimated reduction in preterm birth for 5 selected preventive interventions for 39 VHHDI countries

Austria

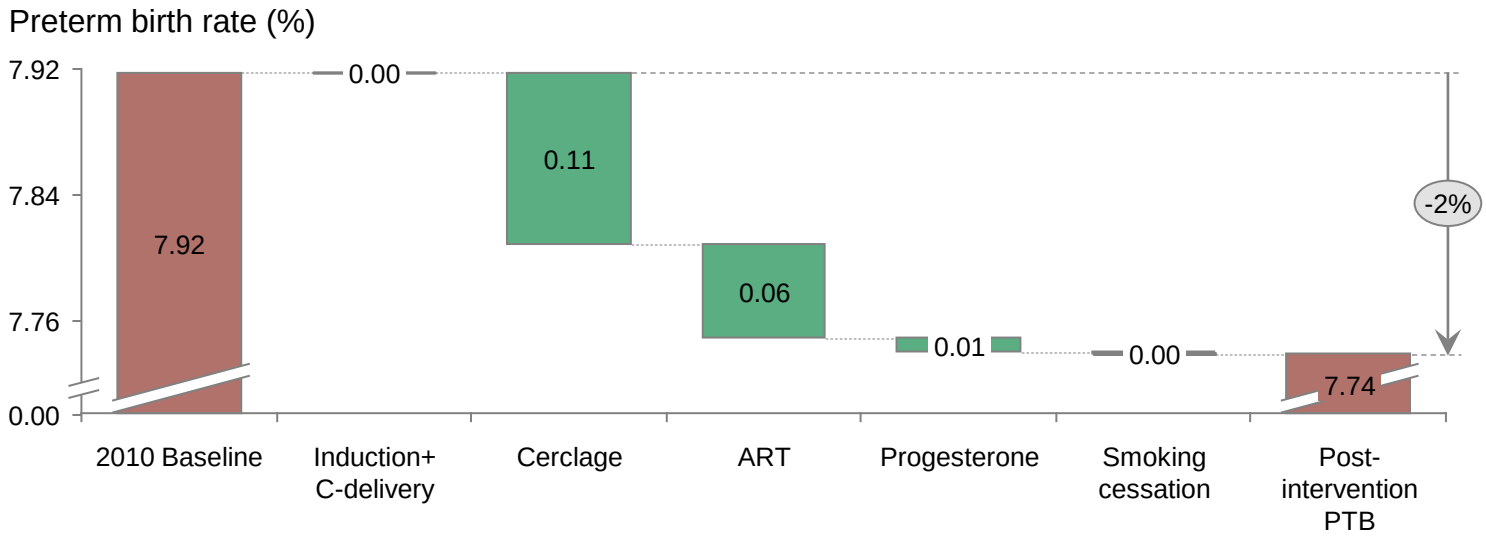


Bahrain

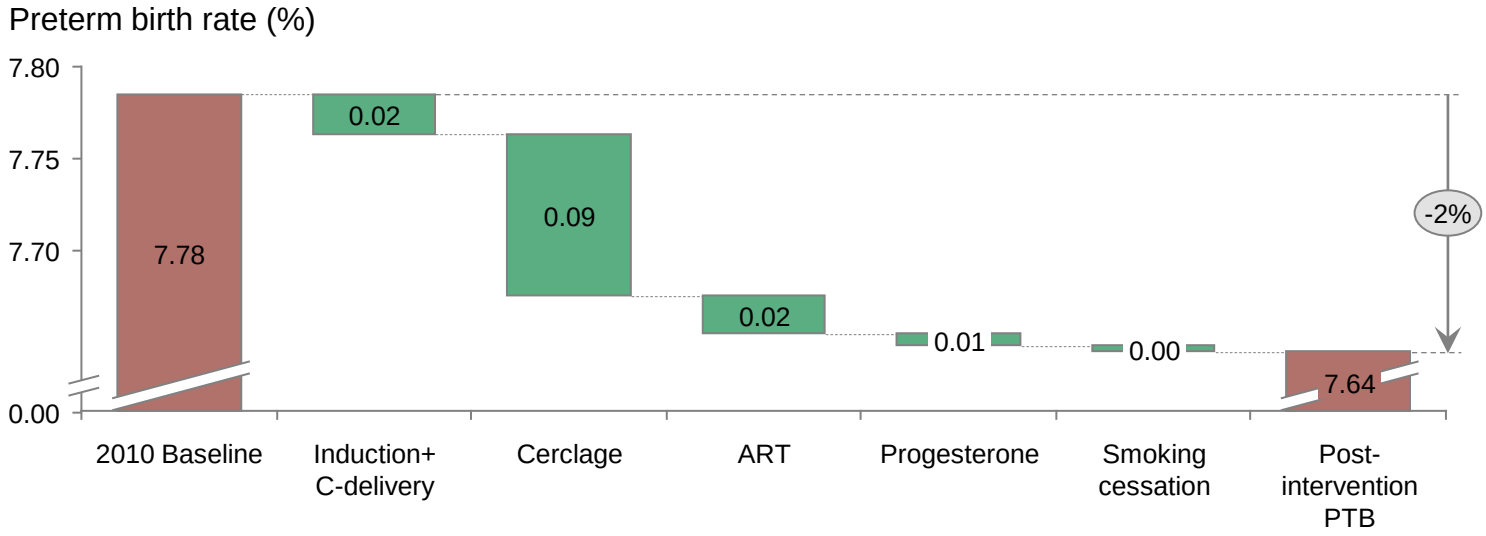


Webtable 27. Estimated reduction in preterm birth for 5 selected preventive interventions for 39 VHHDI countries

Belgium

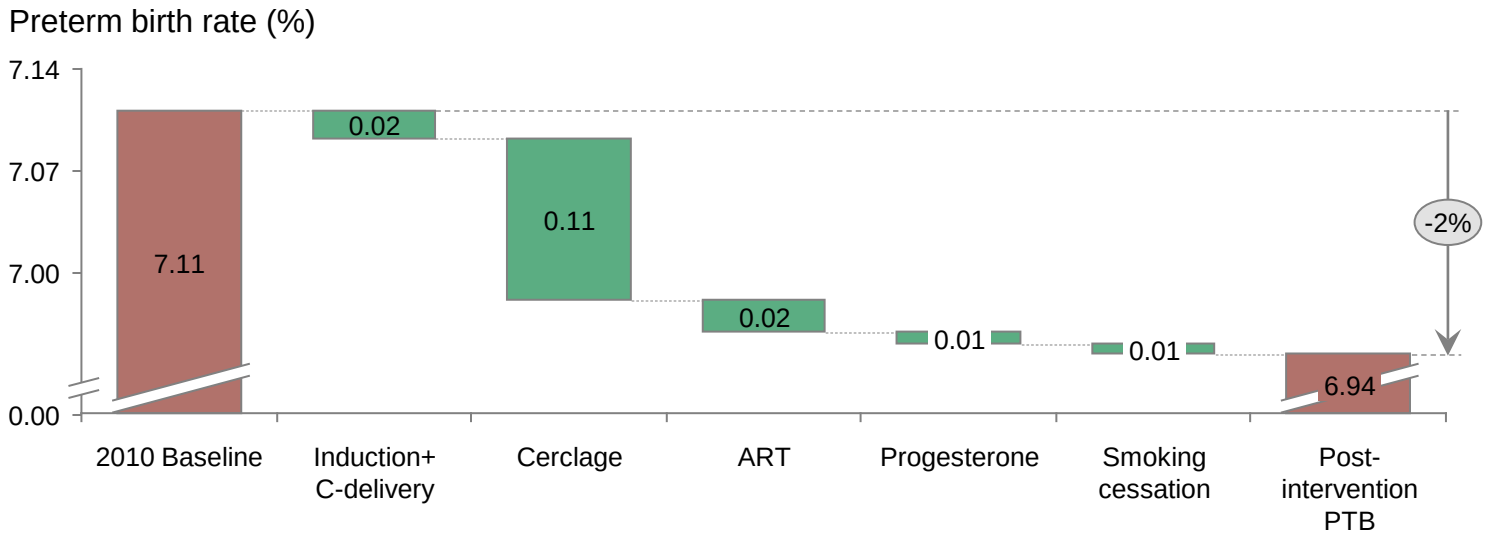


Canada

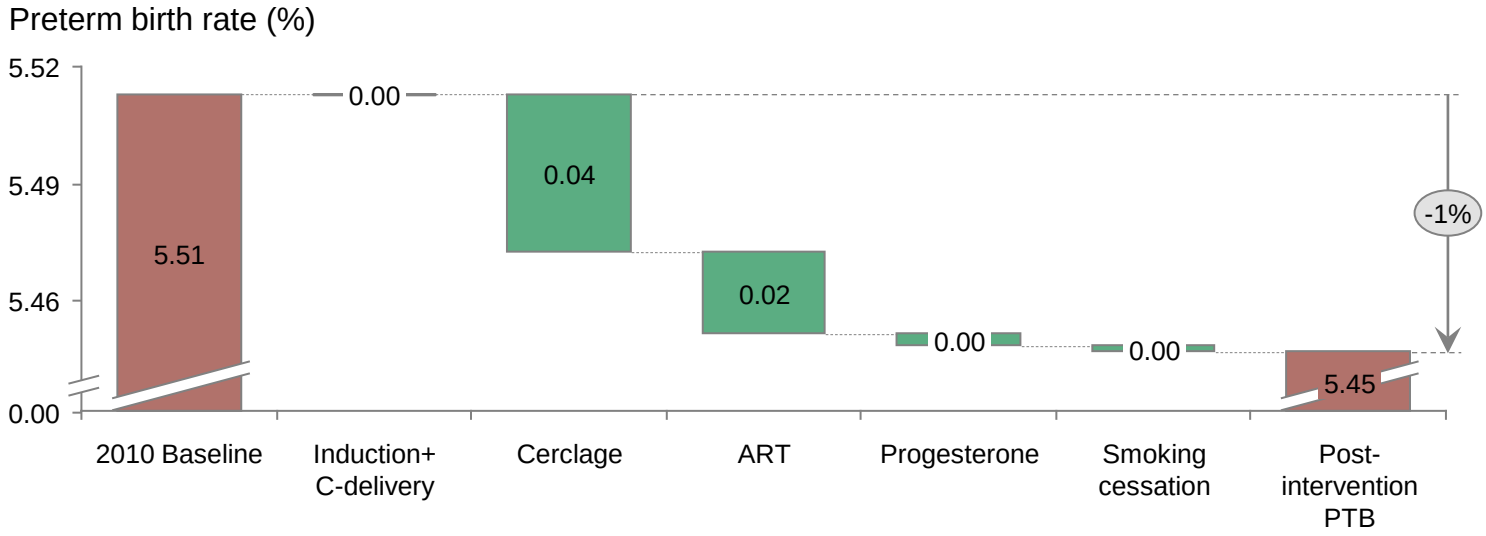


Webtable 27. Estimated reduction in preterm birth for 5 selected preventive interventions for 39 VHHDI countries

Chile

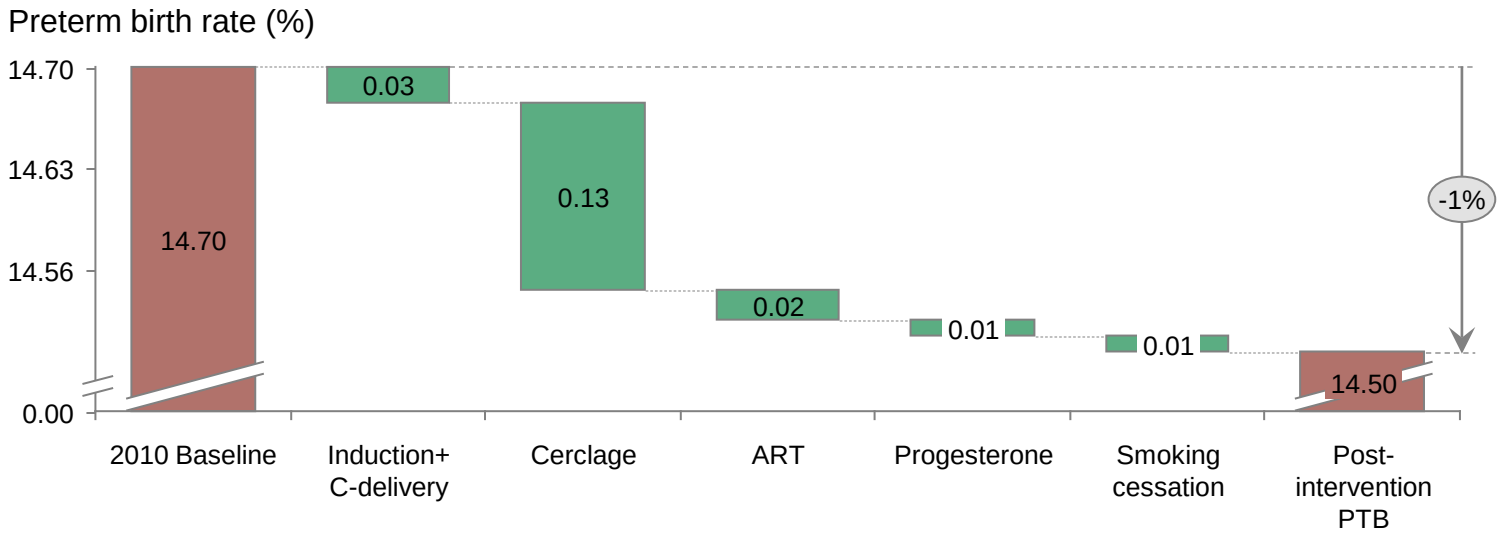


Croatia

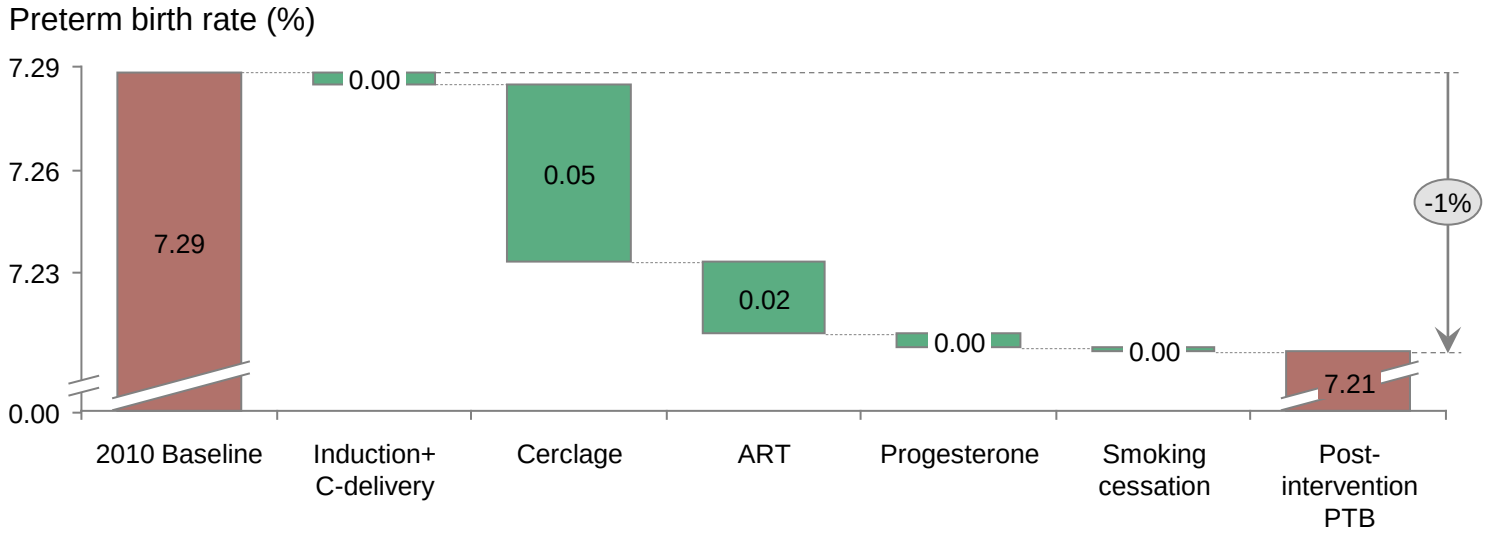


Webtable 27. Estimated reduction in preterm birth for 5 selected preventive interventions for 39 VHHDI countries

Cyprus

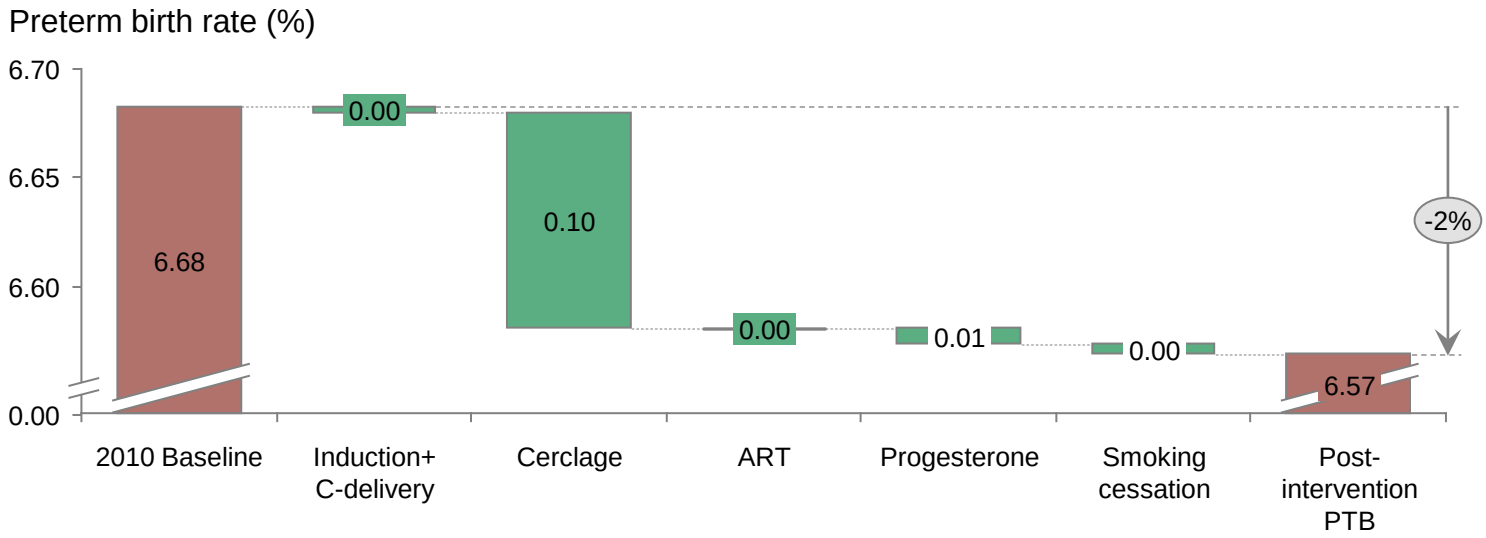


Czech Republic

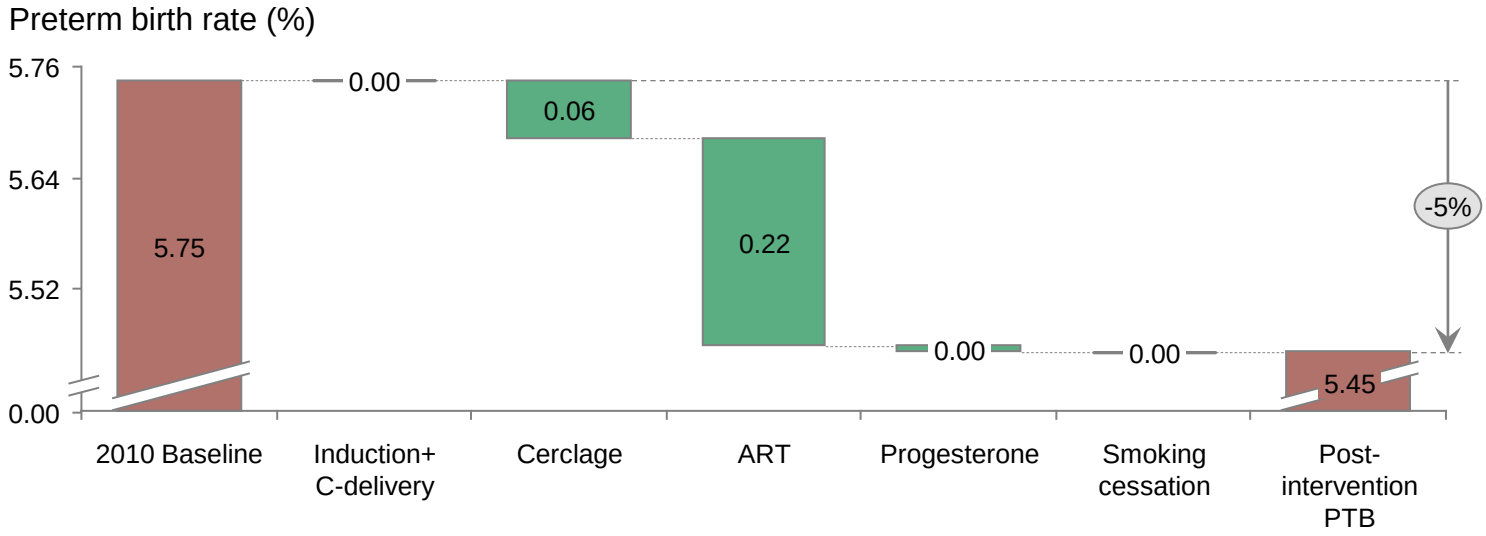


Webtable 27. Estimated reduction in preterm birth for 5 selected preventive interventions for 39 VHHDI countries

Denmark

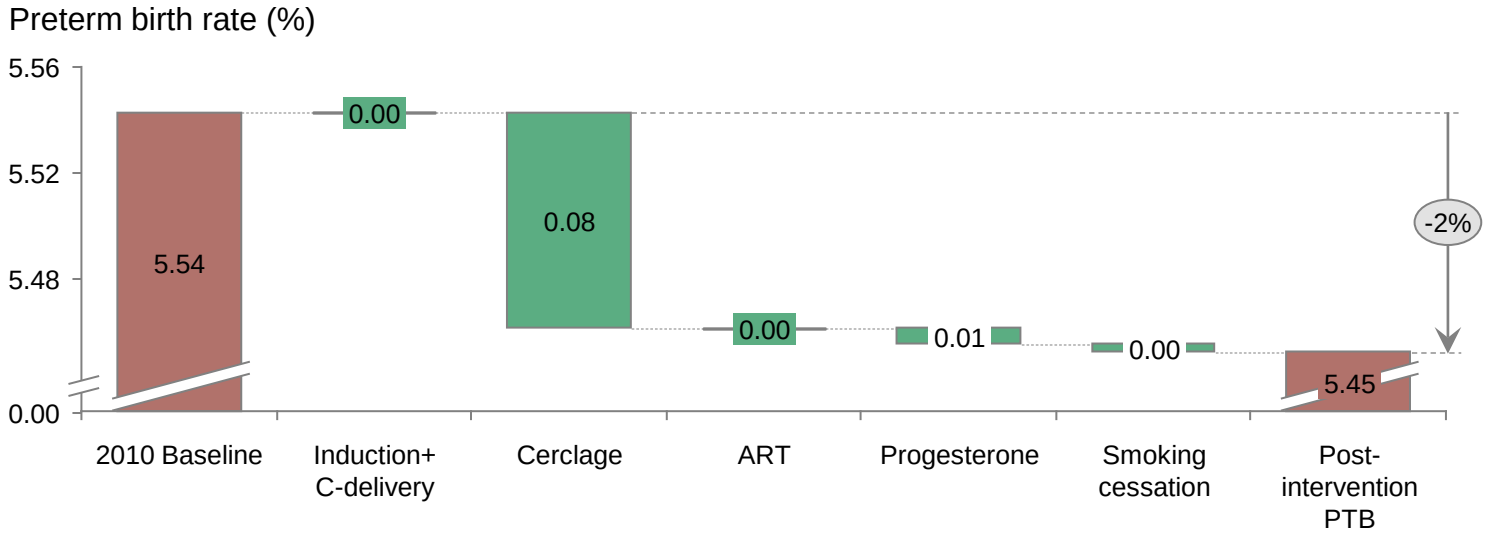


Estonia

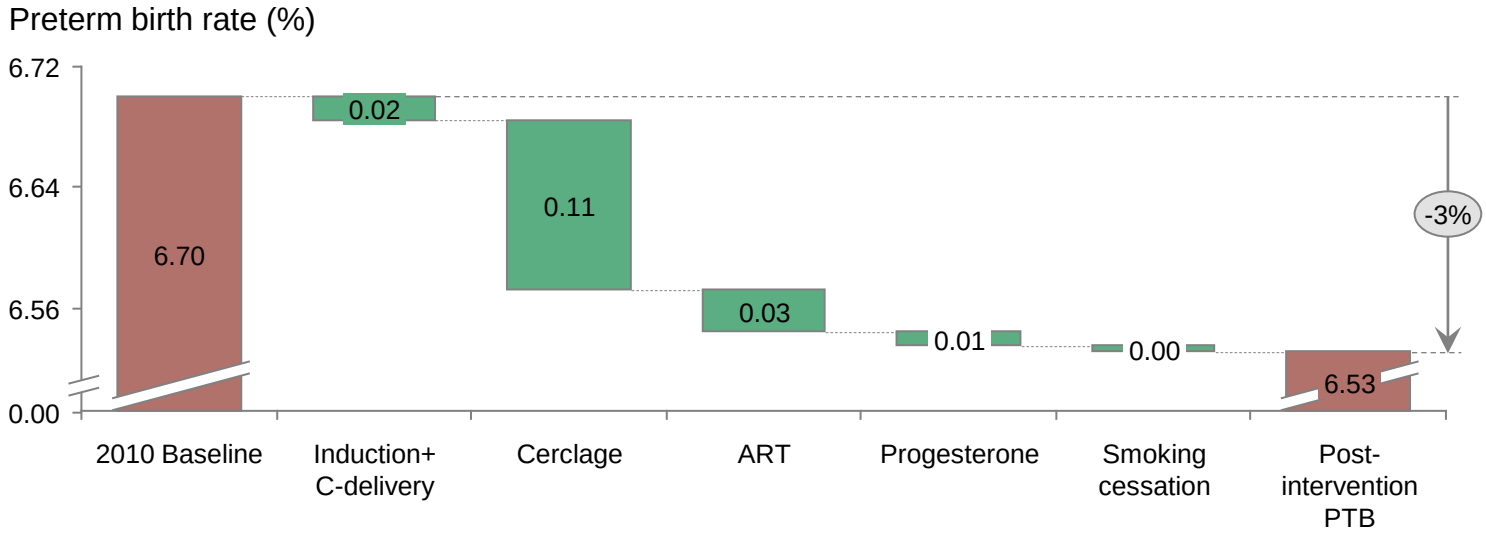


Webtable 27. Estimated reduction in preterm birth for 5 selected preventive interventions for 39 VHHDI countries

Finland

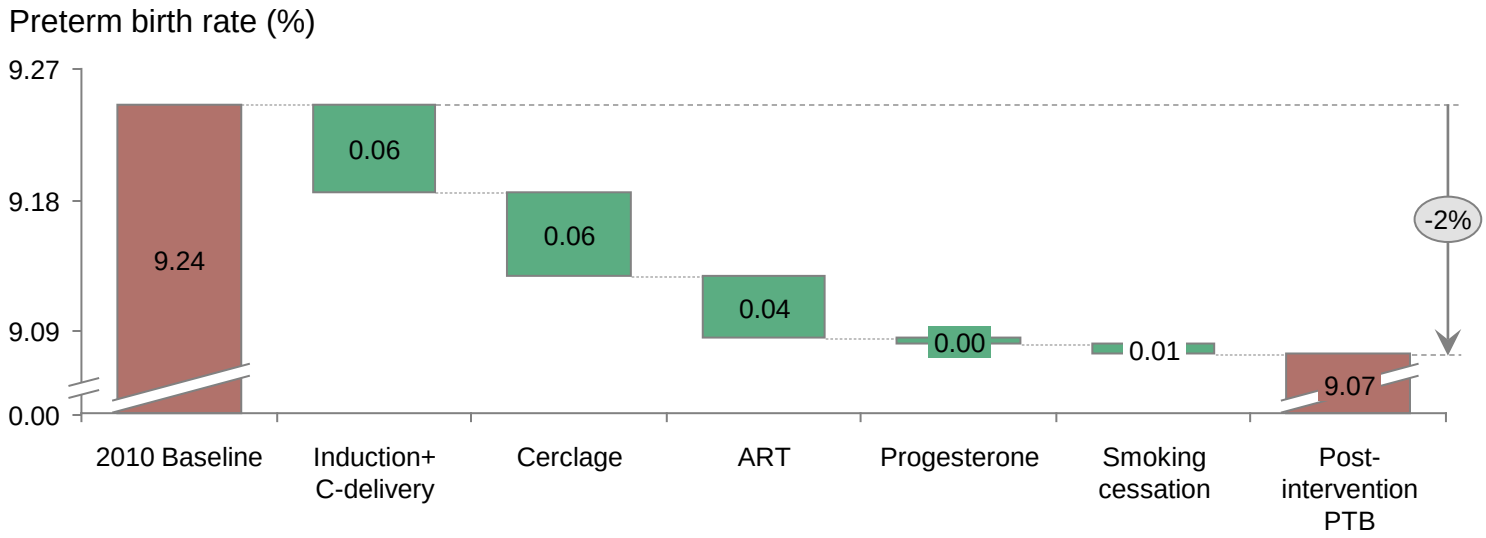


France

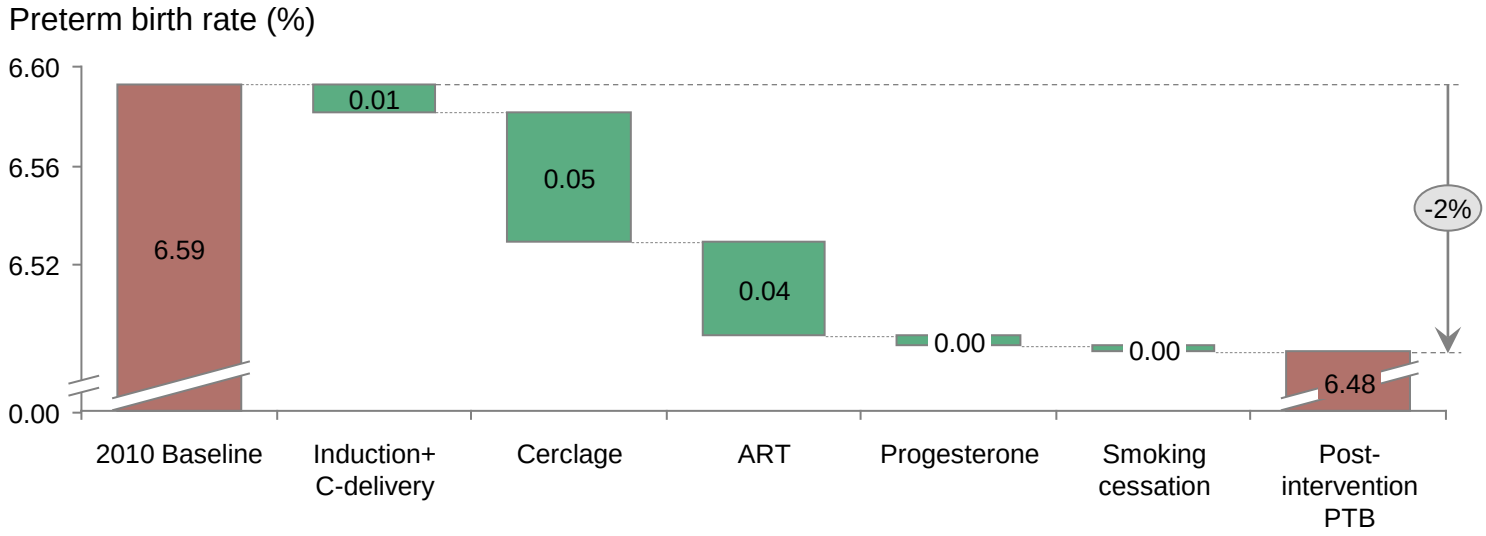


Webtable 27. Estimated reduction in preterm birth for 5 selected preventive interventions for 39 VHHDI countries

Germany

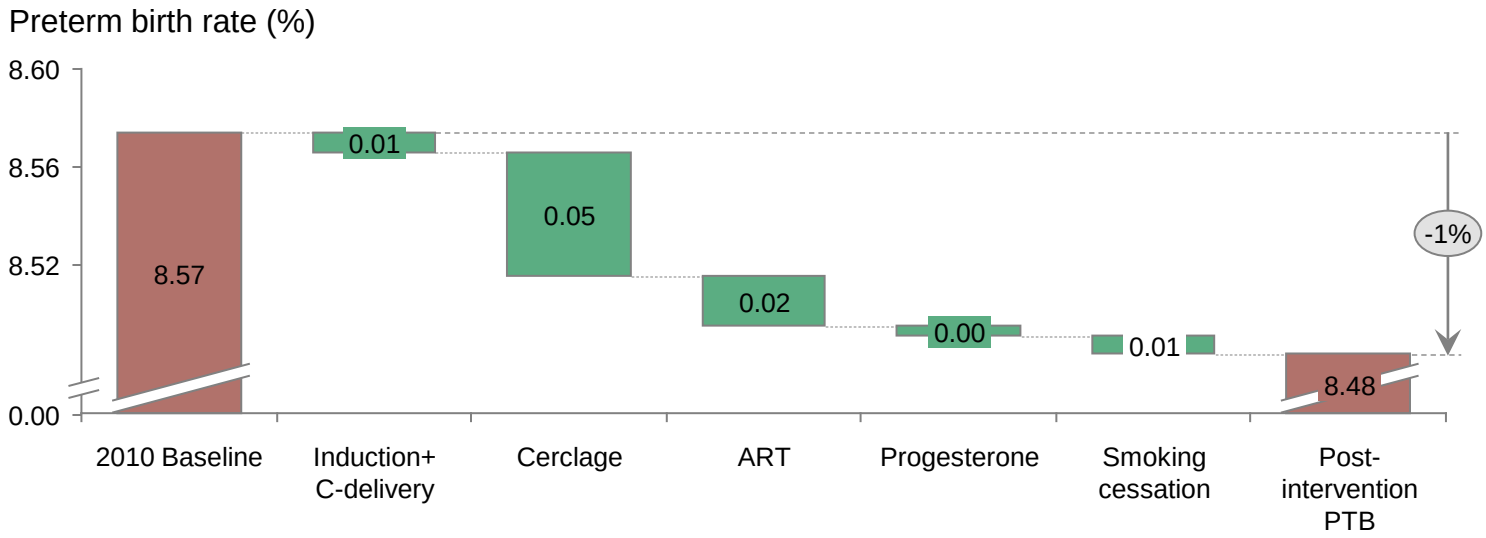


Greece

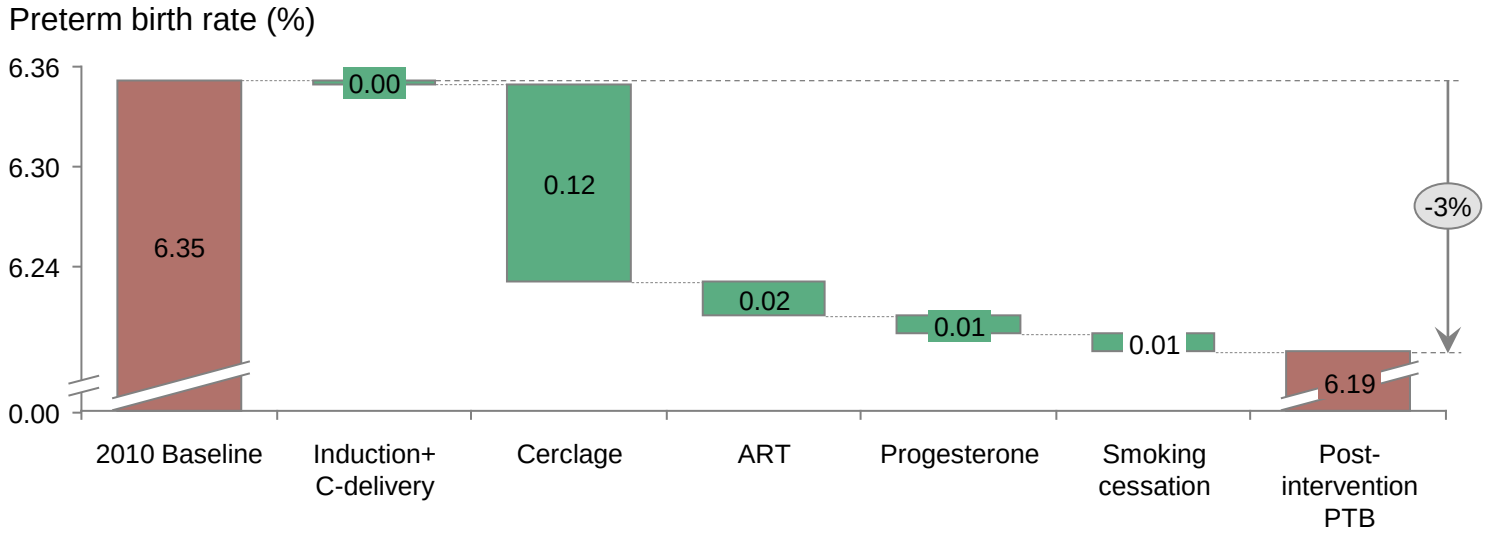


Webtable 27. Estimated reduction in preterm birth for 5 selected preventive interventions for 39 VHHDI countries

Hungary

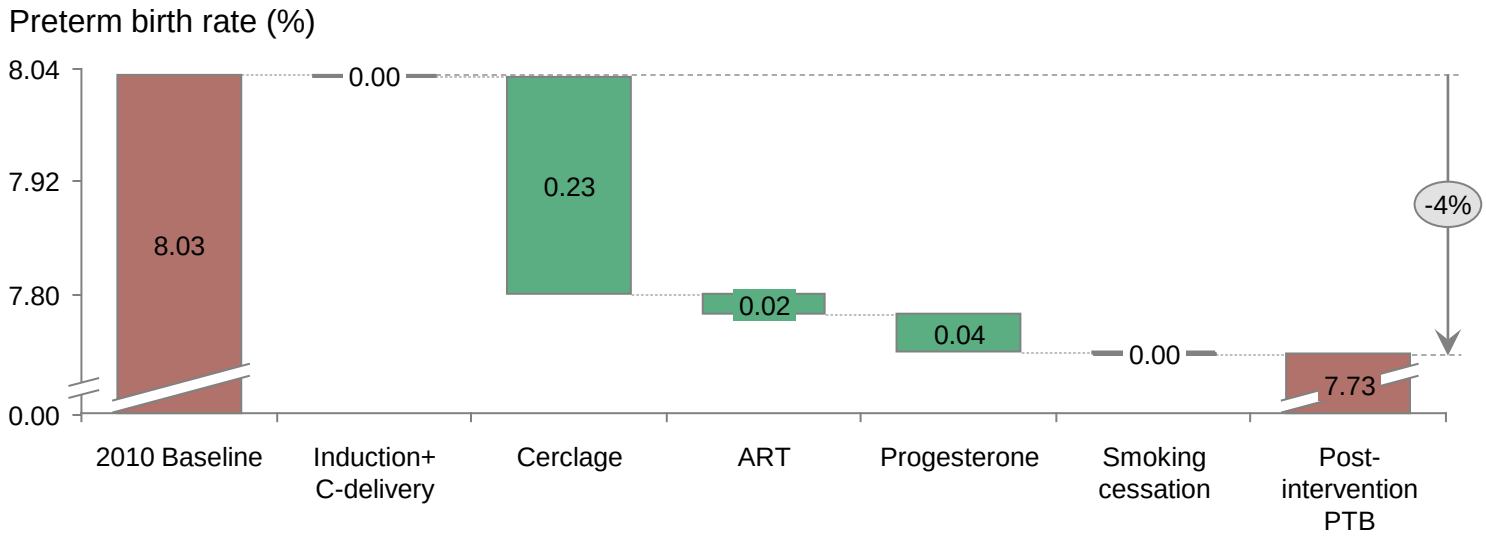


Ireland

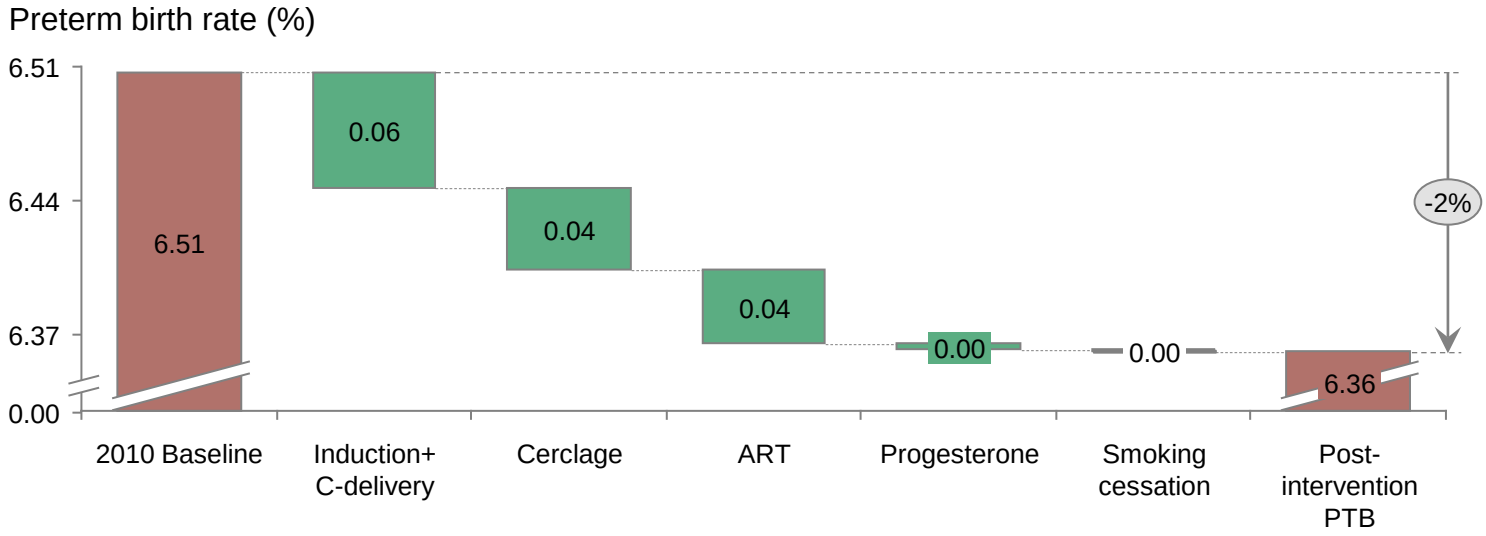


Webtable 27. Estimated reduction in preterm birth for 5 selected preventive interventions for 39 VHHDI countries

Israel

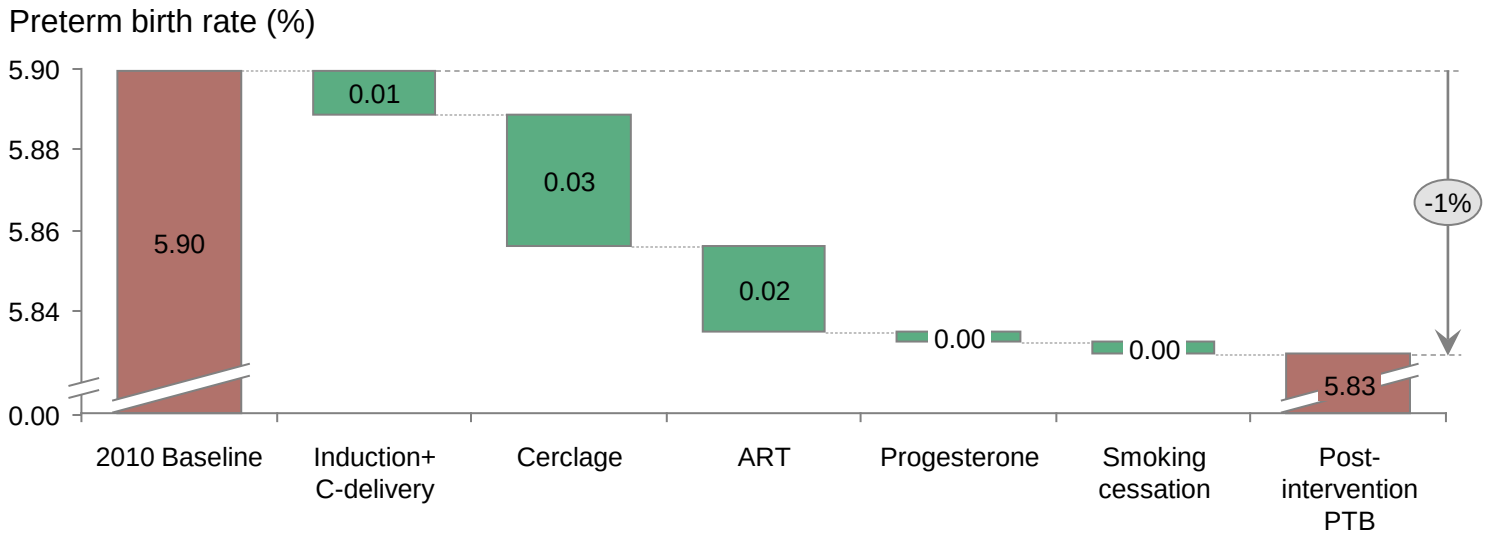


Italy

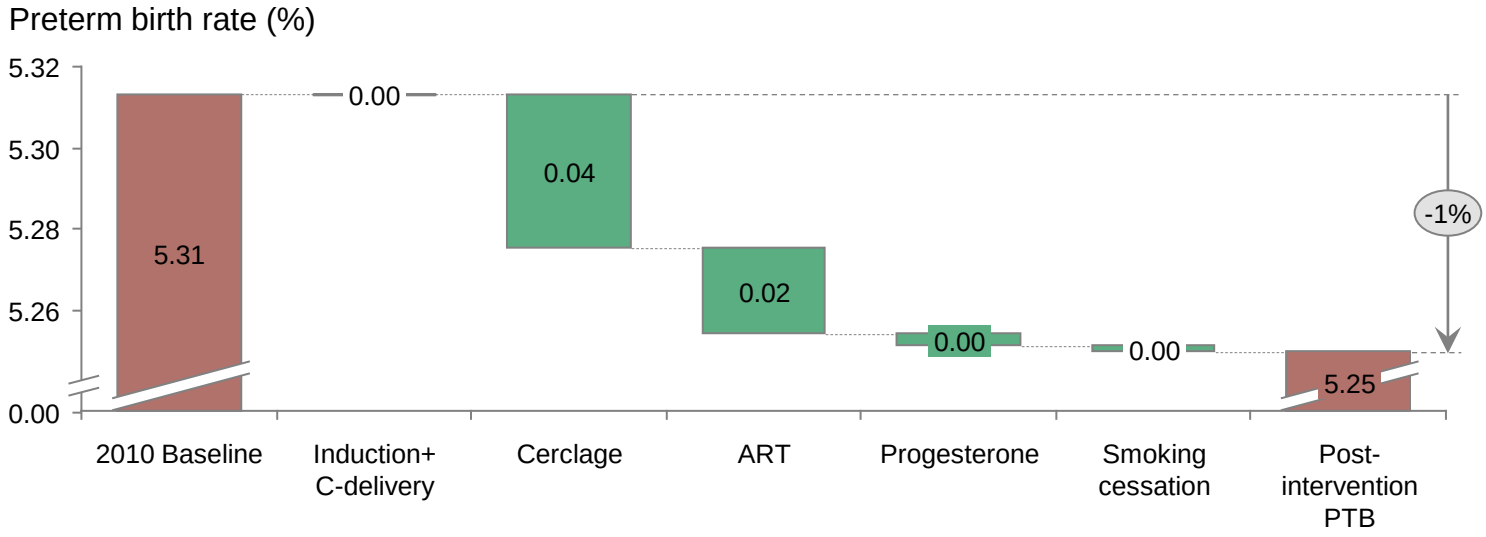


Webtable 27. Estimated reduction in preterm birth for 5 selected preventive interventions for 39 VHHDI countries

Japan

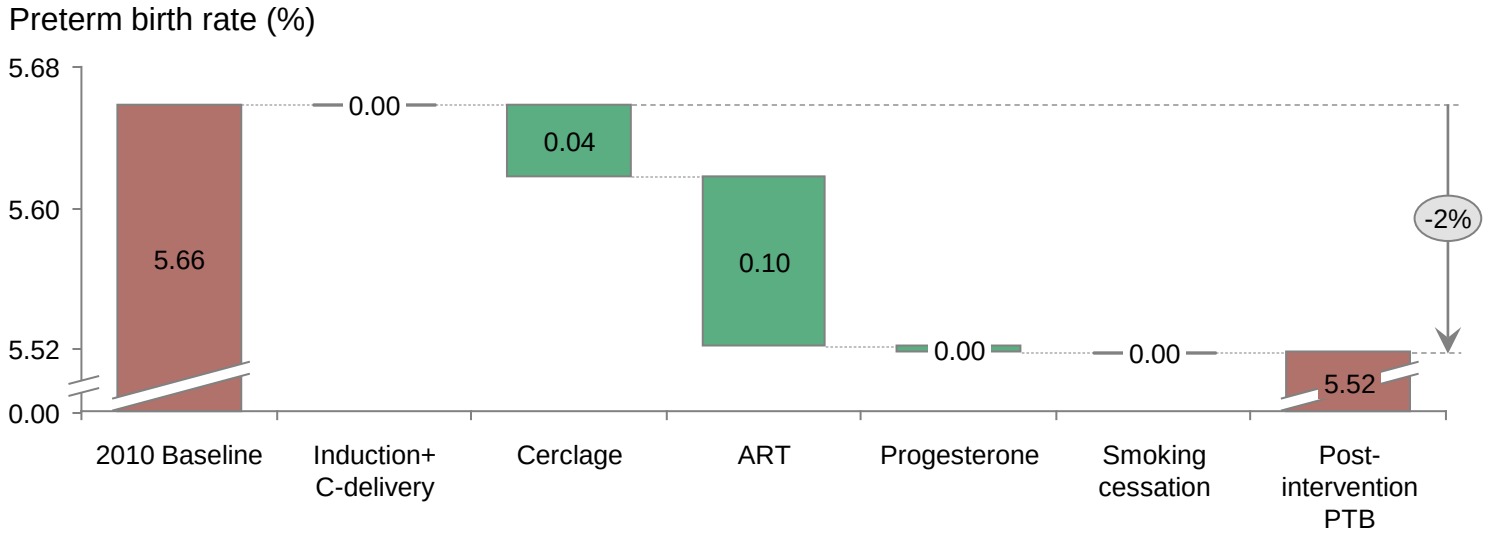


Latvia

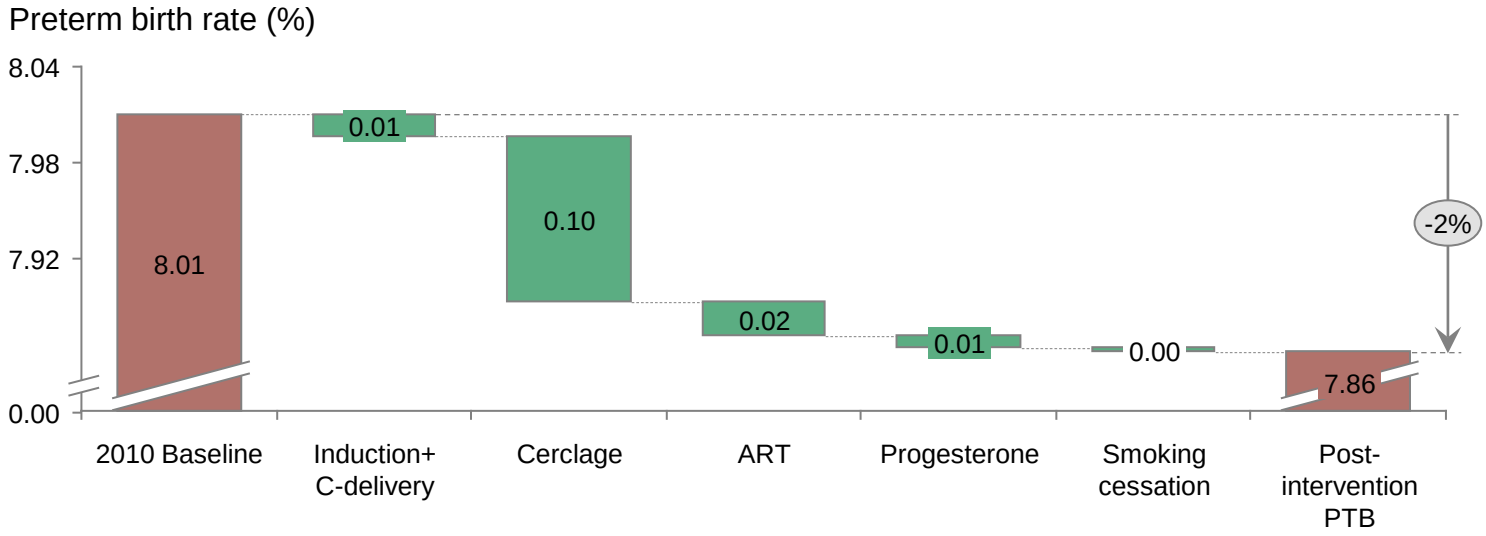


Webtable 27. Estimated reduction in preterm birth for 5 selected preventive interventions for 39 VHHDI countries

Lithuania

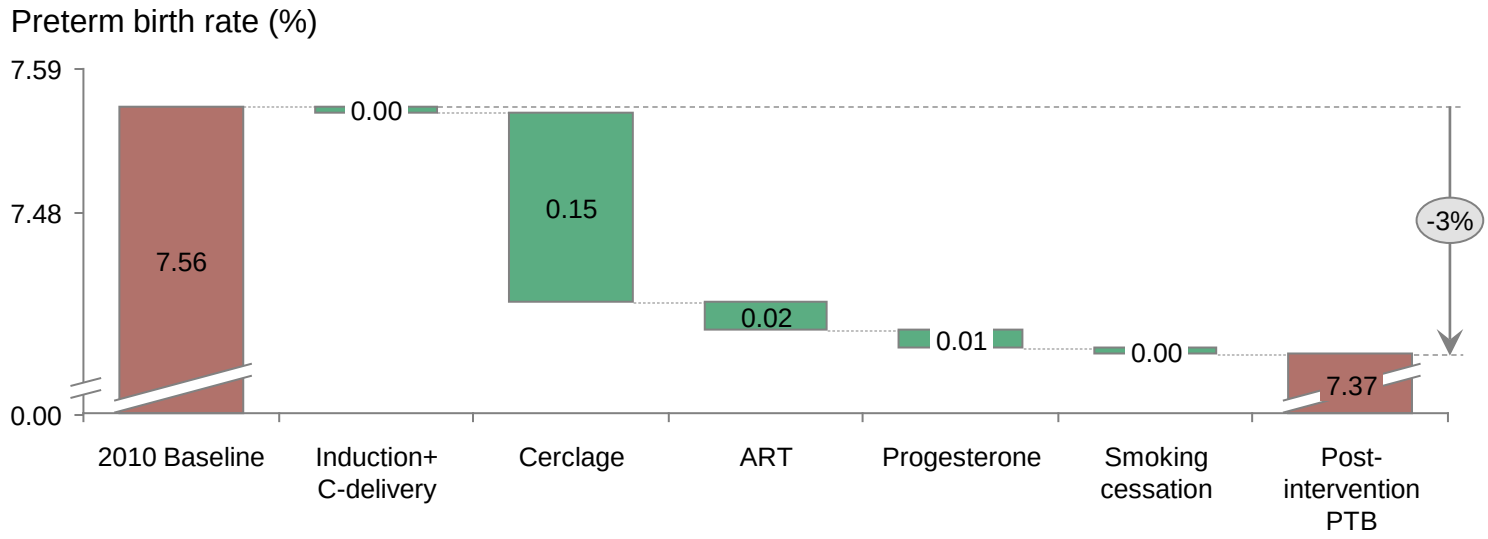


Netherlands

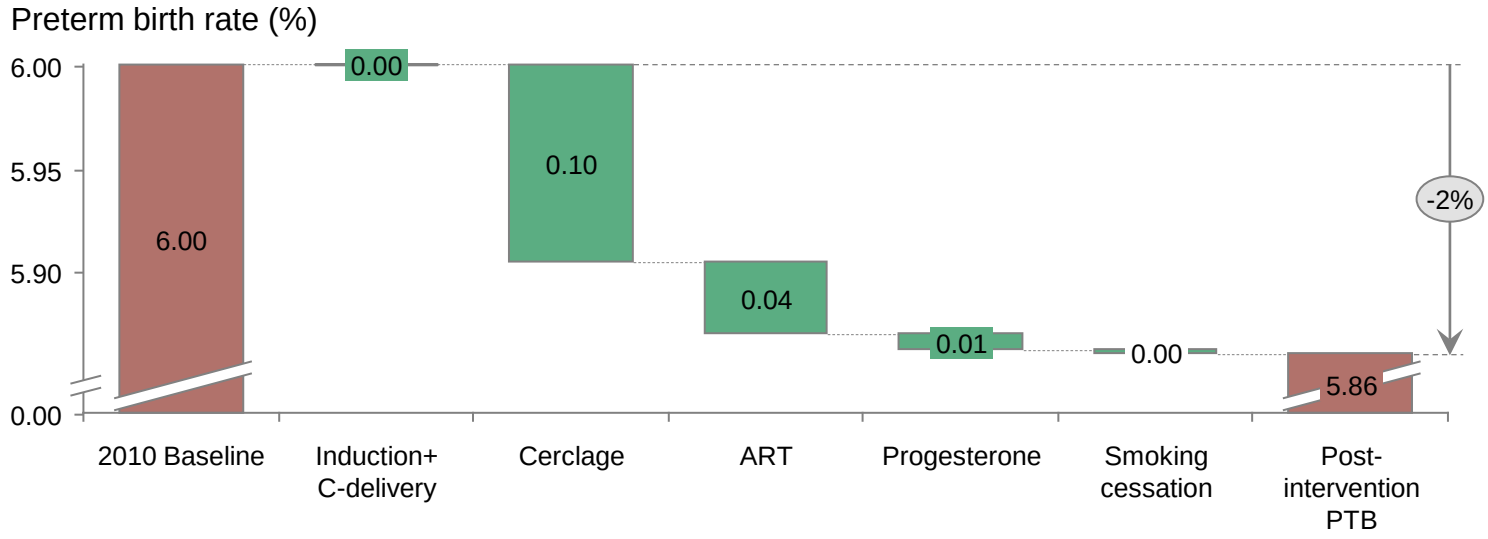


Webtable 27. Estimated reduction in preterm birth for 5 selected preventive interventions for 39 VHHDI countries

New Zealand

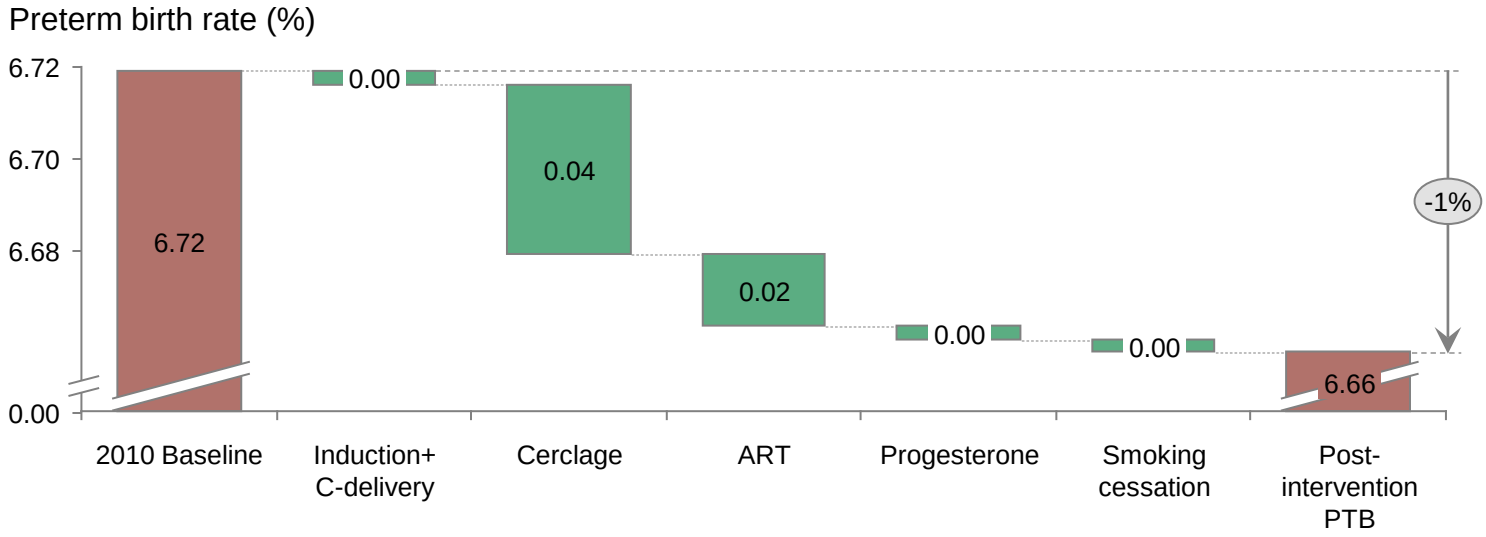


Norway

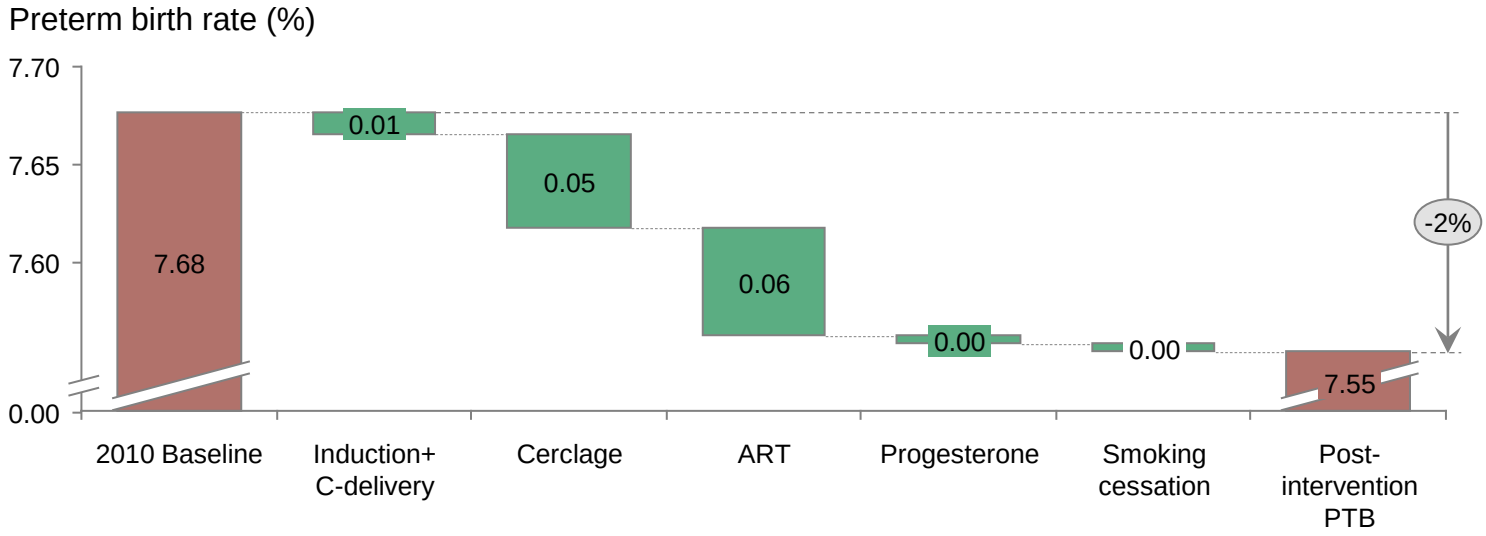


Webtable 27. Estimated reduction in preterm birth for 5 selected preventive interventions for 39 VHHDI countries

Poland

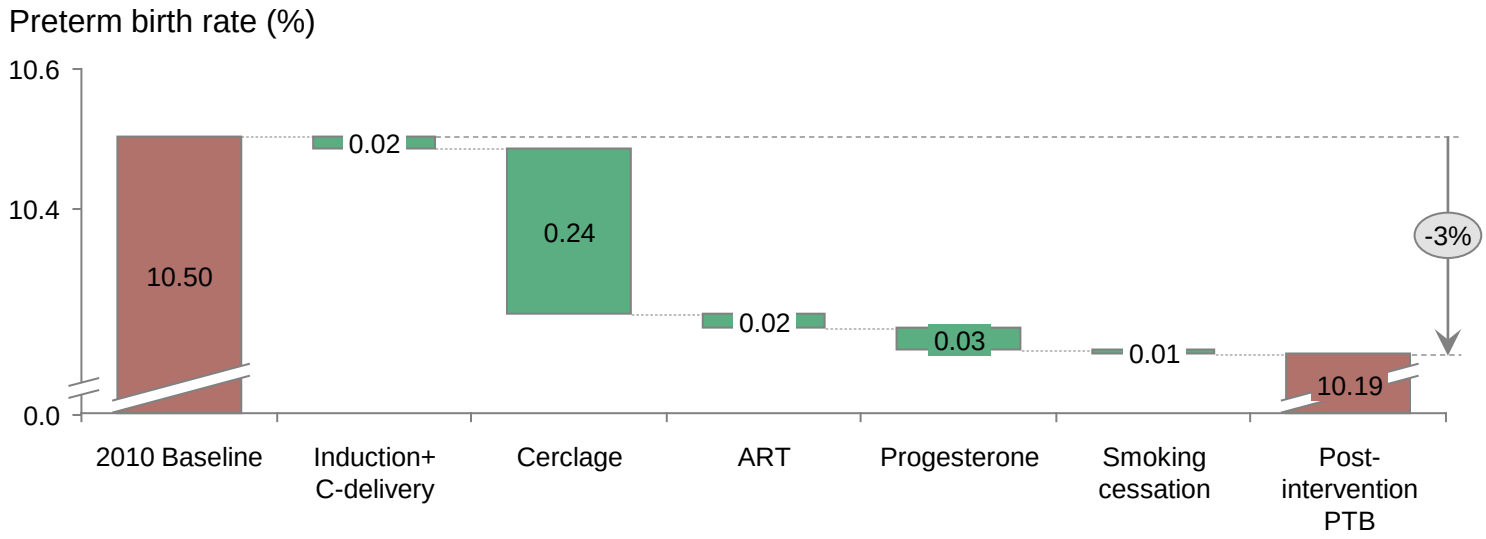


Portugal

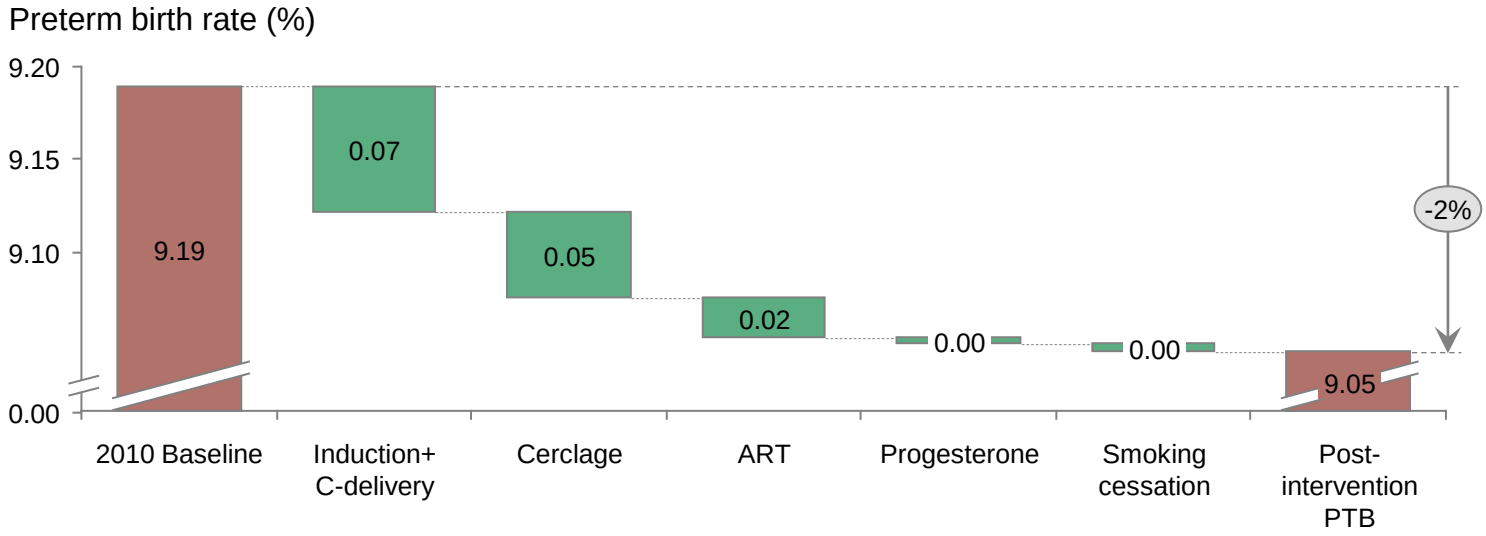


Webtable 27. Estimated reduction in preterm birth for 5 selected preventive interventions for 39 VHHDI countries

Qatar

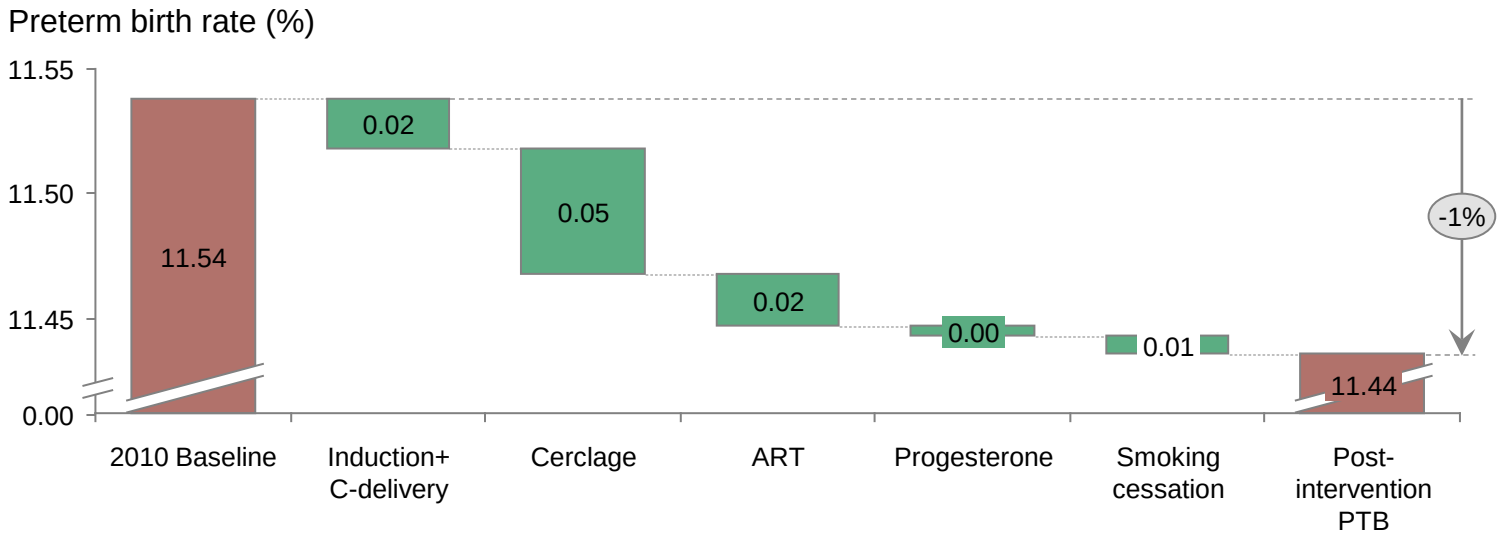


Republic of Korea

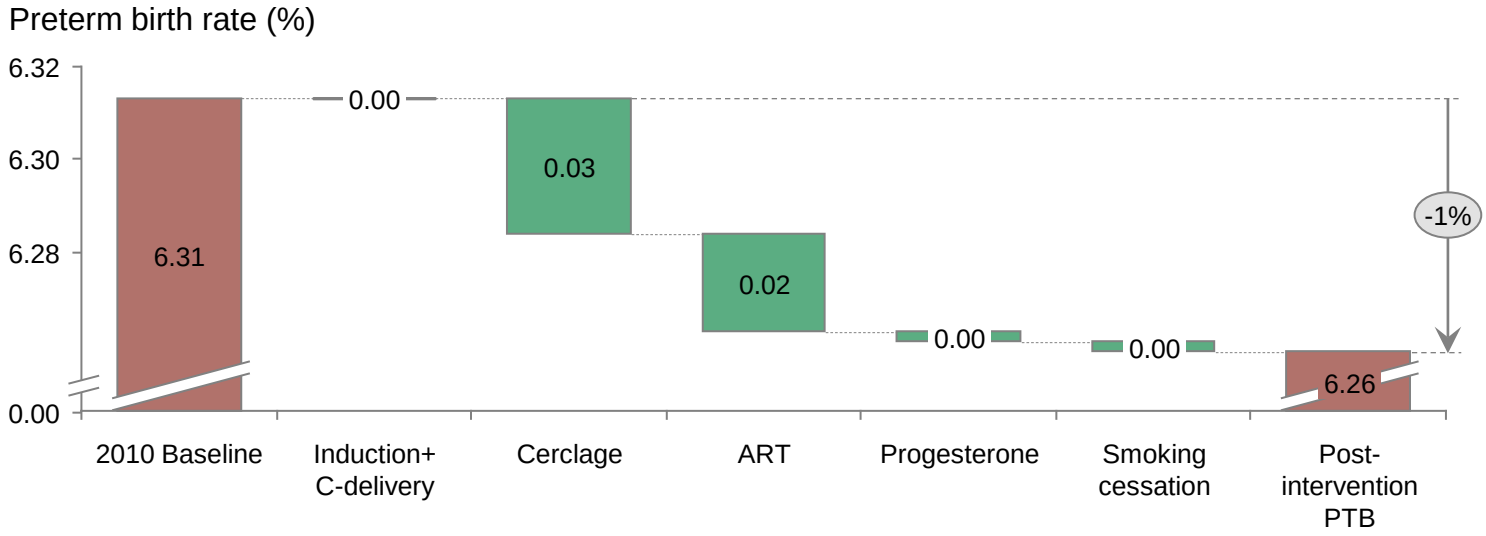


Webtable 27. Estimated reduction in preterm birth for 5 selected preventive interventions for 39 VHHDI countries

Singapore

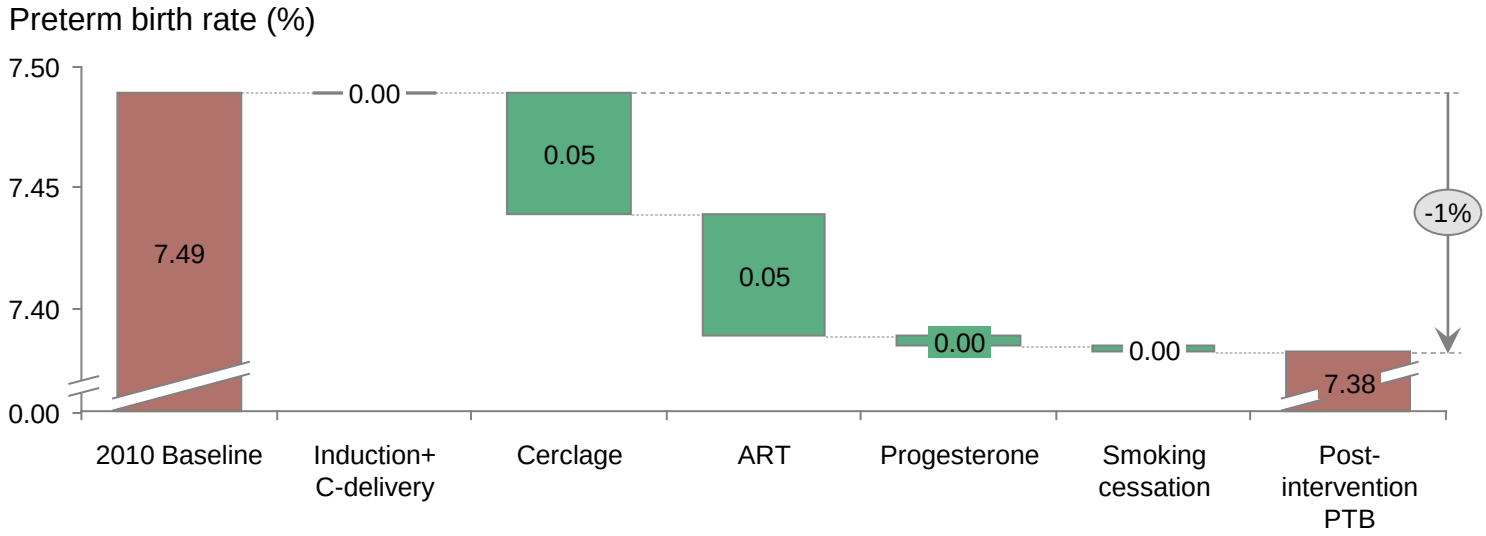


Slovakia

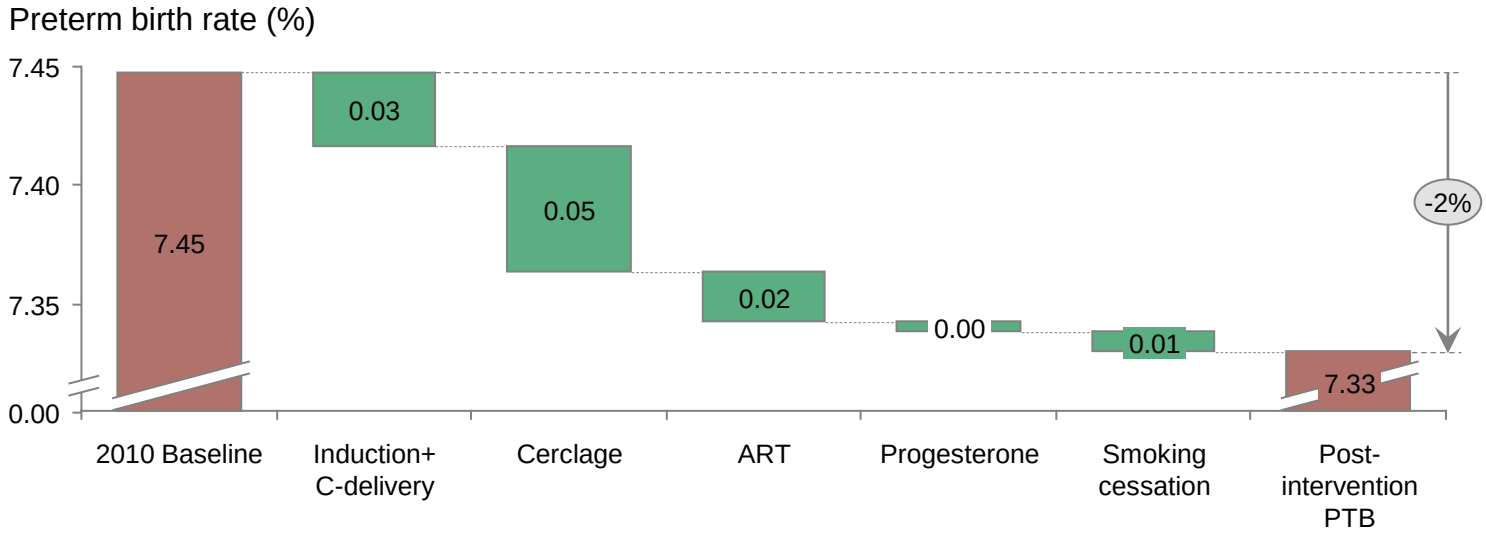


Webtable 27. Estimated reduction in preterm birth for 5 selected preventive interventions for 39 VHHDI countries

Slovenia

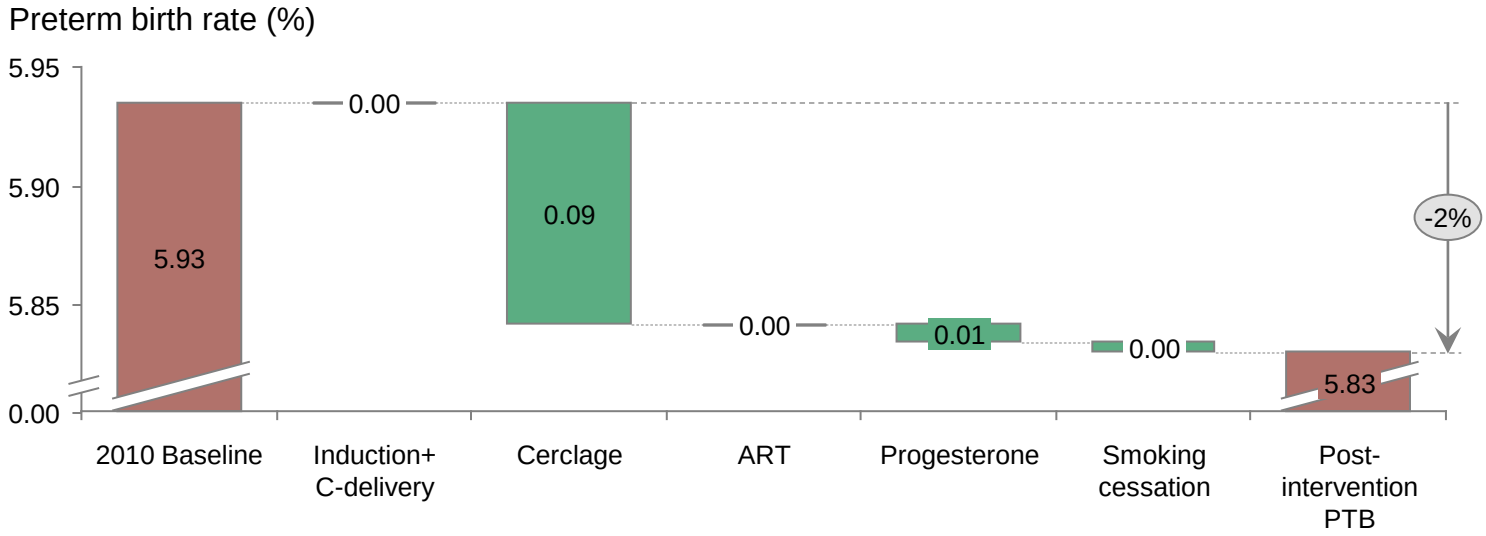


Spain

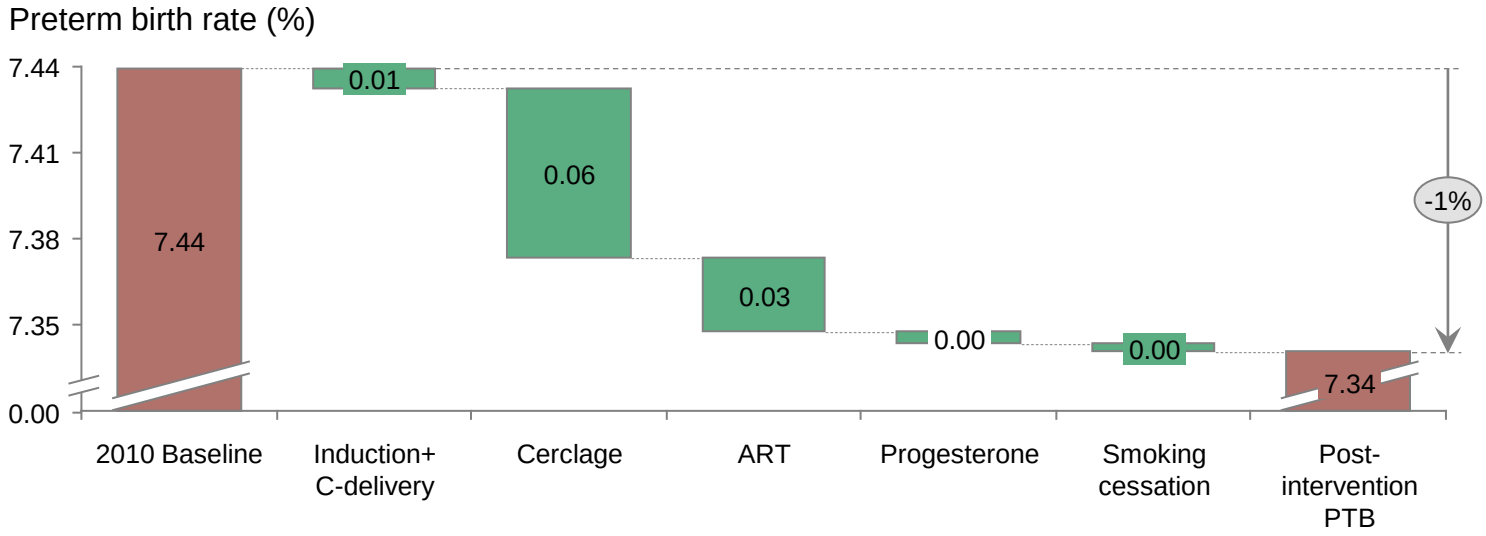


Webtable 27. Estimated reduction in preterm birth for 5 selected preventive interventions for 39 VHHDI countries

Sweden

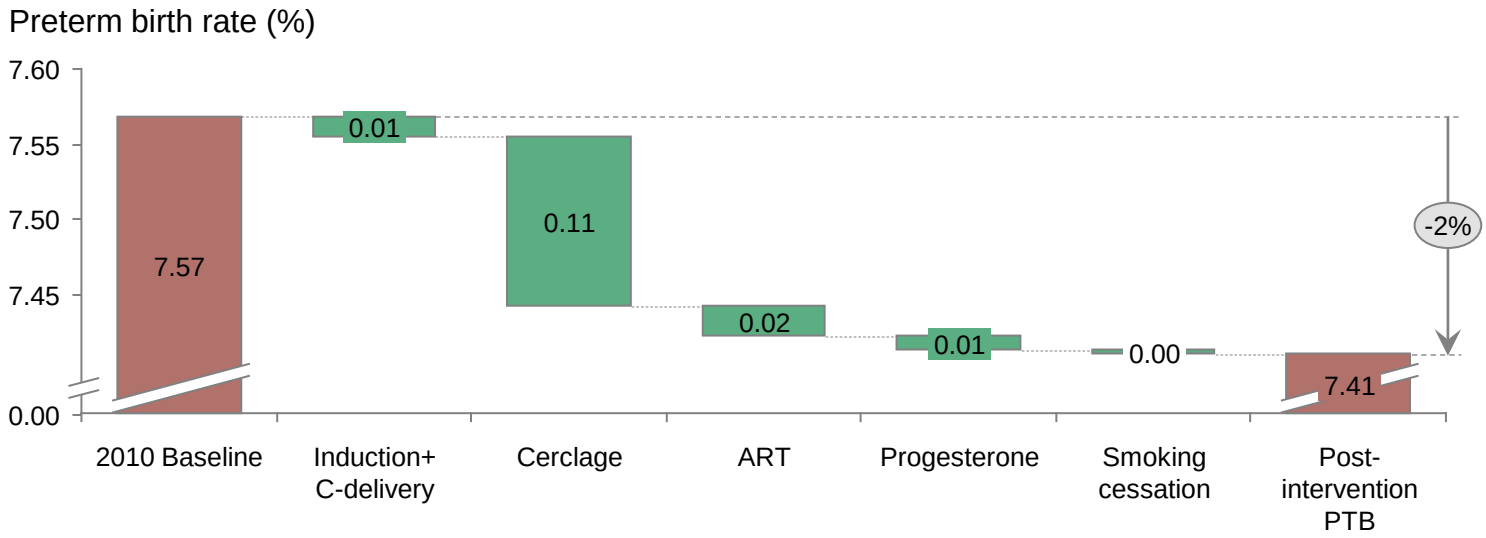


Switzerland

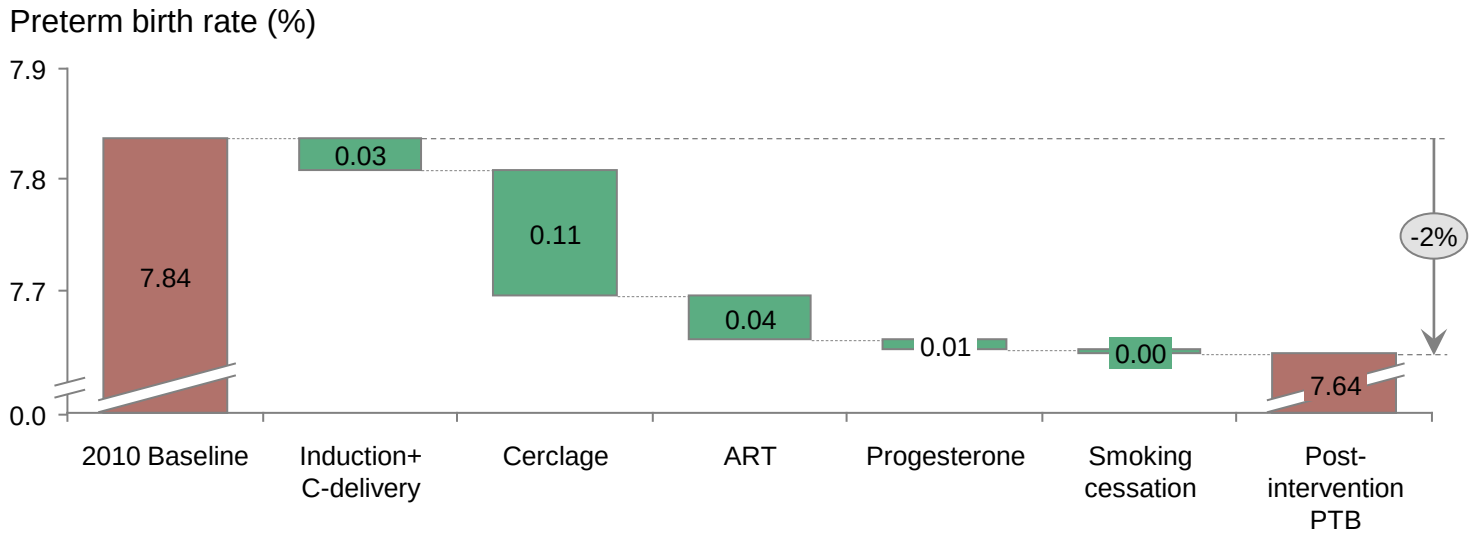


Webtable 27. Estimated reduction in preterm birth for 5 selected preventive interventions for 39 VHHDI countries

United Arab Emirates

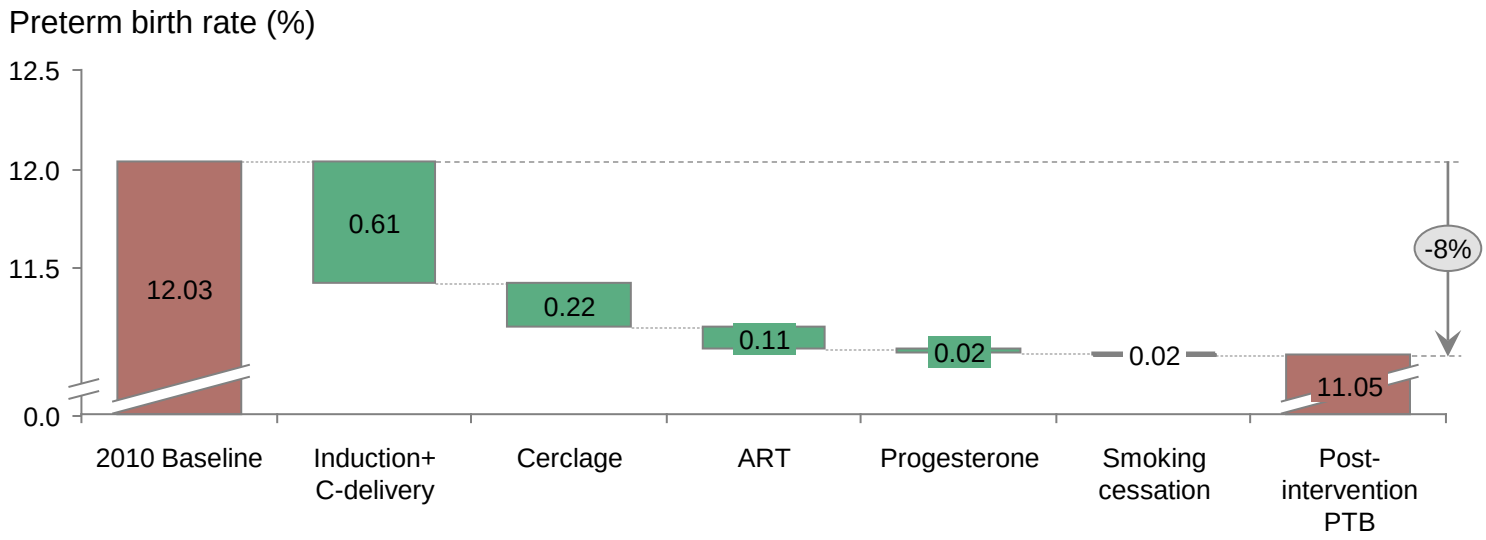


United Kingdom



Webtable 27. Estimated reduction in preterm birth for 5 selected preventive interventions for 39 VHHDI countries

United States



Webtable 28. Country-specific purchasing power parity and exchange rate from 2005 used in economic cost savings analysis

Country	Purchasing power parity (2005)	Exchange rate (2005)
Argentina	1.269395503	2.9036575
Australia	1.388355787	1.309473333
Austria	0.886404376	0.80412
Bahrain	0.248763473	0.376
Belgium	0.899600072	0.80412
Canada	1.213644034	1.211763333
Chile	333.69	559.7675
Croatia	3.915327306	5.949236917
Cyprus	0.727831073	0.464070507
Czech Republic	14.31623626	23.95741667
Denmark	8.590082555	5.99691
Estonia	7.854318853	12.58378659
Finland	0.977232128	0.80412
France	0.923333793	0.80412
Germany	0.866875407	0.80412
Greece	0.714036641	0.80412
Hungary	128.5938234	199.5825
Ireland	1.010233744	0.80412
Israel	3.716937447	4.4877
Italy	0.866646447	0.80412
Japan	129.5519548	110.2182117
Latvia	0.301971371	0.564716667
Lithuania	1.486572911	2.774025
Netherlands	0.896153709	0.80412
New Zealand	1.535000493	1.420273457
Norway	8.896433343	6.4425
Poland	1.869116126	3.235483333
Portugal	0.684330207	0.80412
Qatar	2.745219967	3.64
Republic of Korea	788.9201348	1024.116667
Singapore	1.078562099	1.6643975
Slovakia	0.565959701	1.029618934
Slovenia	0.611602841	0.804143716
Spain	0.764910563	0.80412
Sweden	9.37836727	7.473088333
Switzerland	1.742756069	1.245176667
United Arab Emirates	2.438167	3.6725
United Kingdom	0.636173112	0.549998333
United States	1	1

Source: World Bank and OECD databases.