Supplementary Table A. Study period, number of possible eligible women, number of eligible women and number of included women at the participating centres

	Study period*	Number of possible eligible women** during study period	Number of eligible women during study period	Number of included women	Included women/number of possible eligible women	Included women/number of eligible women
Sahlgrenska University Hospital	May 20, 2016 to October 15 2018	4657	3020	776	16.7%	25.7%
Uppsala University Hospital	February 2, 2017 to October 15, 2018	1531	1025	351	22.9%	34.2%
Falun Hospital	January 23, 2017 to October 15, 2018	874	565	119	13.6%	21.1%
South Älvsborg Hospital	April 6, 2017 to October 15, 2018	1038	665	158	15.2%	23.8%
Stockholm (Södertälje, Karolinska Solna, Karolinska Huddinge, Danderyd, South BB, South Hospital)	March 28, 2017 to October 15, 2018	8934	5960	1122	12.6%	18.8%
Örebro University Hospital	September 9, 2017 to October 15, 2018	650	416	65	10.0%	15.6%
Halland Hospital, Varberg	September 29, 2017 to October 15, 2018	585	372	78	13.3%	21.0%
Halland Hospital, Halmstad	September 25, 2017 to October 15, 2018	470	305	53	11.3%	17.4%
Visby Hospital	March 2, 2018 to October 15, 2018	61	39	30	49.2%	76.9%
North Älvsborg Hospital	June 13, 2018 to October 15, 2018	279	187	10	3.6%	5.3%
Total	May 20, 2016 to October 15, 2018	19 079	12 554	2760	14.5%	22.0%

*Most centres stopped recruitment for a period during June, July and August
**Deliveries ≥41 weeks+0 days, only one delivery per woman, first delivery during the study period, singleton, women ≥18 years, cephalic presentation. Women with previous caesarean delivery were excluded.

Supplementary Table B Baseline characteristics of Swedish background population

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Variable	Swedish background population (n=49 779)
Age at delivery (years)	
Mean (SD)	30.8 (4.9)
Median (IQR)	30.6 (27.3; 34.1)
Age at delivery >=35 years	10 149 (20.4%)
Parity (includes stillborn and live births)	
Nulliparous	25 607 (51.4%)
Smoking at first antenatal visit	
No	42 689 (85.8%)
Missing	5496 (11.0%)
BMI at first antenatal visit	
Mean (SD)	25.1 (4.8)
Median (IQR)	24.1 (21.8; 27.4)
BMI>=30 at first antenatal visit	6562 (13.2%)
BMI missing	4300 (8.6%)
Region of birth	
Sweden	33 384 (67.1%)
Other Nordic countries	424 (0.9%)
Europe outside Nordic countries	3542 (7.1%)
Outside Europe	8338 (16.8%)
Missing	4091 (8.2%)
Highest level of education	
Less than 9 years compulsory school	1276 (2.6%)
9 years compulsory school	2352 (4.7%)
High school 10 to 12 years	15 512 (31.2%)
University or corresponding	23 256 (46.7%)
Missing	7383 (14.8%)
Mode of conception	
Assisted conception (IVF/ICSI)	1825 (3.7%)
Gestational age (days)	
Mean (SD)	291 (3)
Median (IQR)	290 (288; 293)
Gestational age >/=42+0 weeks	12 129 (24.4%)
Birth weight, g	
Mean (SD)	3815 (452)
Median (IQR)	3800 (3500; 4110)
Missing	194 (0.4%)
SGA	899 (1.8%)
LGA	971 (2.0%)
Stillbirth	60 (0.12%)
Perinatal mortality (stillbirth and early neonatal death [<7 days])	70 (0.14%)

Apgar score < 4 at 5 min	172 (0.3%)
Apgar score < 7 at 5 min	706 (1.4%)
Missing Apgar score	156 (0.3%)
Cesarean section	4162 (8.4%)

BMI= body mass index, SGA=small for gestational age (≤-2 SD according to the sex specific Swedish reference[12]; LGA=large for gestational age (≥2 SD according to the sex specific Swedish reference[12], IVF= in vitro fertilization, ICSI= intracytoplasmic sperm injection

For categorical variables n/N (%) is presented

For continuous variables Mean (standard deviation [SD])/ Median, (interquartile range [IQR] Q1; Q3) is presented

*From the Swedish Pregnancy Register: Deliveries ≥ 41 weeks+0 days in Sweden during the study period between May 15, 2016 and October 15, 2018 (only one delivery per woman, first delivery during the study period), singleton, women ≥18 years, cephalic presentation. Women with previous caesarean delivery were excluded.

Supplementary Table C Baseline characteristics of per protocol population

Variable	Induction group (n=1333)	Expectant management group (n=1351)
Age at randomisation, years	31.3 (4.7) 31.1 (28.; 34.6) n=1333	31.0 (4.5) 30.9 (27.9; 34.2) n=1351
Age at randomisation		
Age at randomisation <35 years	1039/1333 (77.9%)	1079/1351 (79.9%)
Age at randomisation >=35 years	294/1333 (22.1%)	272/1351 (20.1%)
Parity (includes stillborn and live births)		
Nulliparous	729/1333 (54.7%)	742/1351 (54.9%)
Parous	604/1333 (45.3%)	609/1351 (45.1%)
Smoking at first antenatal visit		
No	1199/1231 (97.4%)	1201/1239 (96.9%)
1-9 cig/day	25/1231 (2.0%)	29/1239 (2.3%)
10 or more cig/day	7/1231 (0.6%)	9/1239 (0.7%)
Alcohol screening (AUDIT) at first antenatal visit*		
0-5 points (low risk)	1068/1157 (92.3%)	1084/1164 (93.1%)
> = 6 (risk behavior)	89/1157 (7.7%)	80/1164 (6.9%)
Medical history		
Psychiatric disease	89/957 (9.3%)	106/974 (10.9%)
Prepregnancy diabetes mellitus type 1 or 2	1/1317 (0.1%)	0/1327 (0.0%)
Endocrine disease	77/1314 (5.9%)	94/1327 (7.1%)
Chronic hypertension	1/1314 (0.1%)	1/1325 (0.1%)
Height (cm) at first antenatal visit	167.4 (6.2) 167 (163; 172) n=1236	167.6 (5.9) 168 (163; 172) n=1246
Weight (kg) at first antenatal visit	69.9 (14.3) 67 (60.; 76) n=1211	70.7 (14.4) 68 (60.; 77) n=1216
BMI at first antenatal visit	24.9 (4.7) 23.8 (21.6; 27.1) n=1234	25.1 (4.9) 24 (21.7; 27.3) n=1239
BMI at first antenatal visit <30	1084/1234 (87.8%)	1059/1239 (85.5%)
BMI at first antenatal visit >=30	150/1234 (12.2%)	180/1239 (14.5%)
Last recorded weight during pregnancy, kg	83.5 (14.4) 82 (74.; 91) n=1298	84.0 (14.6) 82 (74.; 92) n=1308
Region of birth		
Sweden	1035/1246 (83.1%)	1047/1272 (82.3%)
Other Nordic countries	71/1246 (5.7%)	82/1272 (6.4%)
Europe outside Nordic countries	20/1246 (1.6%)	18/1272 (1.4%)
Outside Europe	120/1246 (9.6%)	125/1272 (9.8%)
Highest education		
Less than 9 years compulsory school	7/1177 (0.6%)	10/1217 (0.8%)
9 years compulsory school	46/1177 (3.9%)	45/1217 (3.7%)

Variable	Induction group (n=1333)	Expectant management group (n=1351)
High school 9 to 12 years	365/1177 (31.0%)	395/1217 (32.5%)
University or corresponding	759/1177 (64.5%)	767/1217 (63.0%)
Employment status		
Employed	1063/1251 (85.0%)	1082/1276 (84.8%)
Student	97/1251 (7.8%)	99/1276 (7.8%)
Maternity leave	45/1251 (3.6%)	52/1276 (4.1%)
Unemployed	16/1251 (1.3%)	18/1276 (1.4%)
Sick leave	15/1251 (1.2%)	9/1276 (0.7%)
Other	15/1251 (1.2%)	16/1276 (1.3%)
Cohabitation with partner	1174/1312 (89.5%)	1184/1325 (89.4%)
Living alone	19/1312 (1.4%)	21/1325 (1.6%)
Mode of conception		
Assisted conception (IVF/ICSI)	62/1333 (4.7%)	53/1351 (3.9%)
Subfertility	151/1207 (12.5%)	143/1173 (12.2%)

BMI=body mass index, IVF= in vitro fertilization, ICSI=intracytoplasmic sperm injection

For categorical variables n/N (%) is presented.
For continuous variables Mean (standard deviation [SD]) / Median (interquartile range [IQR] Q1; Q3) / n= is presented.
*alcohol screening by AUDIT tool according to antenatal care routines[20]

Supplementary Table D Delivery outcomes in per protocol population

Variable	Induction group (n=1333)	Expectant management group (n=1351)	Relative Risk (95% CI)	P value	Difference between groups Mean (95% CI)
Gestational age at delivery (days)	288.7 (1.1) 289 (288; 289) n=1333	291.7 (2.7) 292 (289; 294) n=1351			-3.03 (-3.19 to -2.88)
Time from randomisation to delivery (days)	1.63 (1.03) 2 (1; 2) n=1333	4.67 (2.65) 4 (2; 7) n=1351			-3.04 (-3.19 to -2.89)
Time from admittance to labour ward to delivery (hours)	20.1 (14.9) 16.1 (9.2; 27.8) n=1332	13.6 (12.2) 10.4 (4.6; 18.9) n=1350		<0.001	6.57 (5.53 to 7.59)
Onset of birth process					
Spontaneous	182/1333 (13.7%)	917/1351 (67.9%)			
Scheduled caesarean delivery	5/1333 (0.4%)	2/1351 (0.1%)			
Induction	1146/1333 (86.0%)	432/1351 (32.0%)			
Mode of induction					
Cervical ripening	878/1146 (76.6%)	325/432 (75.2%)			
Amniotomy without oxytocin	129/1146 (11.3%)	42/432 (9.7%)			
Amniotomy with oxytocin	139/1146 (12.1%)	65/432 (15.0%)		0.24	
Cervical ripening					
First method mechanical	334/878 (38.0%)	118/325 (36.3%)			
First method pharmacological	544/878 (62.0%)	207/325 (63.7%)	0.97 (0.88 to 1.07)	0.63	
Indication for induction					
Randomisation to 41 weeks and induction according to protocol	1145/1146 (99.9%)	0/432 (0.0%)			
Randomisation to 42 weeks and induction according to protocol	0/1146 (0.0%)	373/432 (86.3%)			
Maternal condition	1/1146 (0.1%)	41/432 (9.5%)			
Fetal condition	0/1146 (0.0%)	18/432 (4.2%)			
Labour					
Duration of labour	7.07 (5.42) 5.64 (2.83; 10.24) n=692	8.37 (5.96) 6.9 (3.78; 11.53) n=867		<0.001	-1.30 (-1.87 to -0.74)
Use of epidural anaesthesia	704/1333 (52.8%)	658/1351 (48.7%)	1.08 (1.01 to 1.17)	0.04	
Meconium stained amniotic fluid	225/1192 (18.9%)	317/1101 (28.8%)	0.66 (0.56 to 0.76)	<0.001	
Mode of delivery					
Non-instrumental vaginal delivery	1112/1333 (83.4%)	1118/1351 (82.8%)	1.01 (0.97 to 1.04)	0.68	
Caesarean delivery	134/1333 (10.1%)	144/1351 (10.7%)	0.94 (0.75 to 1.18)	0.65	

Variable	Induction group (n=1333)	Expectant management group (n=1351)	Relative Risk (95% CI)	P value	Difference between groups Mean (95% CI)
Assisted vaginal delivery	87/1333 (6.5%)	89/1351 (6.6%)	0.99 (0.74 to 1.32)	1.00	
Emergency caesarean delivery	129/134 (96.3%)	142/144 (98.6%)	0.98 (0.94 to 1.01)	0.39	
Indication emergency caesarean delivery					
Failed induction*	8/129 (6.2%)	7/142 (4.9%)			
Failure to progress at first stage	55/129 (42.6%)	52/142 (36.6%)			
Fetal distress at first stage	32/129 (24.8%)	27/142 (19.0%)			
Failure to progress and fetal distress at first stage	6/129 (4.7%)	7/142 (4.9%)			
Other indication at first stage	5/129 (3.9%)	3/142 (2.1%)			
Failure to progress at second stage	11/129 (8.5%)	23/142 (16.2%)			
Fetal distress at second stage	6/129 (4.7%)	8/142 (5.6%)			
Failure to progress and fetal distress at second stage	0/129 (0.0%)	3/142 (2.1%)			
Failure operative vaginal delivery	6/129 (4.7%)	12/142 (8.5%)		0.26	
Indication assisted vaginal delivery					
Failure to progress	36/87 (41.4%)	28/89 (31.5%)			
Fetal distress	33/87 (37.9%)	34/89 (38.2%)			
Failure to progress and fetal distress	5/87 (5.7%)	6/89 (6.7%)			
Maternal distress	13/87 (14.9%)	20/89 (22.5%)			
Other	0/87 (0.0%)	1/89 (1.1%)		0.47	
Duration of hospital stay from delivery to discharge (hours)	46.3 (27.1) 43.6 (25.3; 61.6) n=1286	47.3 (29.7) 45 (26.5; 61.2) n=1305		0.36	-1.03 (-3.20 to 1.17)
Breast feeding at discharge from delivery hospital	949/979 (96.9%)	961/992 (96.9%)	1.00 (0.98 to 1.02)	1.00	
Breast feeding 4 weeks after delivery	806/893 (90.3%)	814/927 (87.8%)	1.03 (1.00 to 1.06)	0.11	

CI= confidence interval

For categorical variables n/N (%) is presented.

For continuous variables Mean (standard deviation [SD]) / Median interquartile range [IQR] Q1; Q3) / n= is presented.

*Caesarean section performed when active labour was not reached despite different methods for induction of labour being used, usually for at least 48 hours.

Supplementary Table E Perinatal outcome in per protocol groups

Variable	Induction group (n=1333)	Expectant management group (n=1351)	Relative Risk (95% CI)	P value	Difference between groups Mean (95% CI)
Primary composite outcome	31/1333 (2.3%)	31/1351 (2.3%)	1.01 (0.62 to 1.66)	1.00	
Sub-components of the primary composite perinatal outcome					
Perinatal/neonatal mortality (stillbirth + neonatal mortality)	0/1333 (0.0%)	6/1351 (0.4%)		0.03	
Stillbirth	0/1333 (0.0%)	5/1351 (0.4%)		0.06	
Neonatal mortality (Live births with death day 0-27)	0/1333 (0.0%)	1/1346 (0.1%)		1.00	
Neonatal morbidity	31/1333 (2.3%)	26/1346 (1.9%)	1.21 (0.72 to 2.02)	0.56	
Sub-components of neonatal morbidity					
Apgar score <7 at 5 minutes*	17/1333 (1.3%)	16/1346 (1.2%)	1.07 (0.54 to 2.11)	0.98	
Metabolic acidosis (denominator based on validated umbilical cord blood samples at birth)†	13/645 (2.0%)	10/633 (1.6%)	1.28 (0.56 to 2.89)	0.71	
Hypoxic ischaemic encephalopathy (HIE) I-III	2/1333 (0.2%)	3/1346 (0.2%)	0.67 (0.11 to 4.02)	1.00	
Intracranial haemorrhage	1/1333 (0.1%)	2/1346 (0.1%)	0.50 (0.05 to 5.56)	1.00	
Neonatal convulsions	1/1333 (0.1%)	3/1346 (0.2%)	0.34 (0.04 to 3.23)	0.63	
Meconium aspiration syndrome (MAS)	2/1333 (0.2%)	3/1346 (0.2%)	0.67 (0.11 to 4.02)	1.00	
Mechanical ventilation within first 72 hours	3/1333 (0.2%)	5/1346 (0.4%)	0.61 (0.15 to 2.53)	0.74	
Obstetric brachial plexus injury	4/1333 (0.3%)	1/1346 (0.1%)	4.04 (0.45 to 36.09)	0.37	
Additional secondary neonatal outcomes variables					
Admittance to neonatal intensive care units (NICU)	55/1333 (4.1%)	82/1346 (6.1%)	0.68 (0.49 to 0.94)	0.03	
Apgar score <4 at 5 minutes*	3/1333 (0.2%)	1/1346 (0.1%)	3.04 (0.32 to 29.19)	0.61	
Therapeutic hypothermia	1/1333 (0.1%)	2/1346 (0.1%)	0.51 (0.05 to 5.58)	1.00	
Birthweight (g)	3814 (409) 3804 (3530; 4090) n=1333	3874 (435) 3860 (3570; 4155) n=1351		<0.001	-60.1 (-92.0 to -28.5)
Macrosomia (>= 4500 g)	64/1333 (4.8%)	112/1351 (8.3%)	0.58 (0.43 to 0.78)	<0.001	
Neonatal jaundice requiring phototherapy or exchange transfusion	16/1333 (1.2%)	32/1346 (2.4%)	0.51 (0.28 to 0.92)	0.03	
Pneumonia	8/1333 (0.6%)	13/1346 (1.0%)	0.62 (0.26 to 1.50)	0.40	

Variable	Induction group (n=1333)	Expectant management group (n=1351)	Relative Risk (95% CI)	P value	Difference between groups Mean (95% CI)
Sepsis	9/1333 (0.7%)	20/1346 (1.5%)	0.46 (0.21 to 1.00)	0.07	
Exploratory neonatal outcome variables					
Days at neonatal intensive care units (NICU)	3.38 (2.97) 2 (1; 6) n=55	4.59 (5.64) 3 (1; 6) n=81‡		0.15	-1.21 (-2.75 to 0.19)
Admittance to neonatal intensive care units (NICU) >4 days	34/55 (61.8%)	45/81 (55.6%)	1.11 (0.84 to 1.48)	0.58	
Hypoglycaemia§	22/1333 (1.7%)	20/1346 (1.5%)	1.11 (0.61 to 2.03)	0.84	
Birth trauma¶	0/1333 (0.0%)	1/1346 (0.1%)		1.00	
Small for gestational age (SGA)**	9/1333 (0.7%)	21/1351 (1.6%)	0.43 (0.20 to 0.94)	0.045	
Large for gestational age (LGA)**	20/1333 (1.5%)	24/1351 (1.8%)	0.84 (0.47 to 1.52)	0.68	
Any major birth defect††	14/1333 (1.1%)	17/1351 (1.3%)	0.83 (0.41 to 1.69)	0.75	
Female	576/1333 (43.2%)	612/1351 (45.3%)	0.95 (0.88 to 1.04)	0.29	

CI=confidence interval

For categorical variables n/N (%) is presented.

For continuous variables Mean (standard deviation [SD]) / Median interquartile range [IQR] Q1; Q3) / n= is presented.

*Apgar score of live births

†validated umbilical cord samples defined as values of arterial pH < venous pH and values of arterial pCO2 >venous pCO2

‡one infant with only home based neonatal care

§hypoglycaemia defined as P-glucose concentration < 2,6 mmol/L after 3 hours

¶defined as any of long bone fracture, clavicular fracture, skull fracture, other neurological injury, retinal haemorrhage, facial nerve palsy

**SGA and LGA defined as -≤2 SD and ≥2 SD, respectively, according to the Swedish sex specific reference[17]

††minor birth defects according to EUROCAT definition excluded[21]

Supplementary Table F Maternal adverse outcomes in per protocol population

Variable	Induction group (n=1333)	Expectant management group (n=1351)	Relative Risk (95% CI)	P value
Secondary maternal outcomes				
Chorioamnionitis	2/1333 (0.2%)	6/1351 (0.4%)	0.34 (0.07 to 1.67)	0.30
Shoulder dystocia	6/1333 (0.5%)	4/1351 (0.3%)	1.52 (0.43 to 5.38)	0.74
Perineal lacerations III-IV	35/1333 (2.6%)	50/1351 (3.7%)	0.71 (0.46 to 1.09)	0.14
Postpartum haemorrhage (>1000 ml)	134/1333 (10.1%)	143/1351 (10.6%)	0.95 (0.76 to 1.19)	0.70
Wound infection	4/1333 (0.3%)	3/1351 (0.2%)	1.35 (0.30 to 6.03)	0.99
Urinary tract infection incl. pyelonephritis	5/1333 (0.4%)	7/1351 (0.5%)	0.72 (0.23 to 2.28)	0.79
Endometritis	17/1333 (1.3%)	5/1351 (0.4%)	3.45 (1.27 to 9.31)	0.02
Sepsis	0/1333 (0.0%)	0/1351 (0.0%)		1.00
Exploratory maternal outcomes				
Preeclampsia/gestational hypertension/eclampsia	17/1333 (1.3%)	41/1351 (3.0%)	0.42 (0.24 to 0.74)	0.002
Uterine rupture	0/1333 (0.0%)	0/1351 (0.0%)		1.00
Cervical laceration	5/1333 (0.4%)	8/1351 (0.6%)	0.63 (0.21 to 1.93)	0.60
Venous thromboembolism	0/1333 (0.0%)	1/1351 (0.1%)		1.00
Maternal admission to intensive care unit	2/1333 (0.2%)	0/1351 (0.0%)		0.49
Maternal death	0/1333 (0.0%)	0/1351 (0.0%)		1.00

CI= confidence interval

For categorical variables n/N (%) is presented.

For continuous variables Mean (standard deviation [SD]) / Median interquartile range [IQR] Q1; Q3) / n= is presented.