

Table 1. Demographic and Obstetric Characteristics of PRAMS Cohort (2008-2016), Stratified by Need for Hospital-Based Intervention (Operative Vaginal or Cesarean Delivery or NICU Admission).

Characteristic, n (%)	Total 63,234 (100)	No intervention 39,257 (62.08)	Intervention 23,977 (37.92)	p
Age (years)				<0.001
≤ 17	1,404 (2.2)	861 (2.2)	543 (2.3)	
18-19	3,643 (5.8)	2,253 (5.7)	1,390 (5.8)	
20-24	14,447 (22.8)	9,086 (23.1)	5,361 (22.4)	
25-29	18,966 (30.0)	12,151 (31.0)	6,815 (28.4)	
30-34	16,173 (25.6)	10,007 (25.5)	6,166 (25.7)	
35-39	6,951 (11.0)	4,057 (10.3)	2,894 (12.1)	
≥ 40	1,650 (2.6)	842 (2.1)	808 (3.4)	
BMI category, before pregnancy				<0.001
Normal (18.5-25)	30,376 (48.0)	19,907 (50.7)	10,469 (43.7)	
Underweight (<18.5)	2,757 (4.4)	1,798 (4.6)	959 (4.0)	
Overweight (25-30)	14,449 (22.9)	8,891 (22.6)	5,558 (23.2)	
Obese (30-40)	10,637 (16.8)	5,874 (15.0)	4,763 (19.9)	
Morbidly obese (≥40)	5,015 (7.9)	2,787 (7.1)	2,228 (9.3)	
Gestation time (weeks)				<0.001
<35	8,655 (13.7)	1,130 (2.9)	7,525 (31.4)	
35 ^{0/7} -35 ^{6/7}	2,642 (4.2)	918 (2.3)	1,724 (7.2)	
36 ^{0/7} -36 ^{6/7}	3,480 (5.5)	1,814 (4.6)	1,666 (6.9)	
37 ^{0/7} -37 ^{6/7}	5,835 (9.2)	3,828 (9.8)	2,007 (8.4)	
38 ^{0/7} -38 ^{6/7}	9,218 (14.6)	6,692 (17.0)	2,526 (10.5)	
39 ^{0/7} -39 ^{6/7}	14,422 (22.8)	10,705 (27.3)	3,717 (15.5)	
40 ^{0/7} -40 ^{6/7}	11,144 (17.6)	8,479 (21.6)	2,665 (11.1)	
41 ^{0/7} -41 ^{6/7}	5,325 (8.4)	3,878 (9.9)	1,447 (6.0)	
42 ^{0/7} -42 ^{6/7}	1,706 (2.7)	1,227 (3.1)	479 (2.0)	
43 ^{0/7} -44	807 (1.3)	586 (1.5)	221 (0.9)	
Diabetes	3,610 (5.7)	1,996 (5.1)	1,614 (6.7)	<0.001
Hypertension	6,023 (9.5)	2,621 (6.7)	3,402 (14.2)	<0.001
Previous live births				<0.001
None	30,644 (48.5)	16,318 (41.6)	14,326 (59.7)	
1	17,392 (27.5)	12,168 (31.0)	5,224 (21.8)	
2	8,728 (13.8)	6,217 (15.8)	2,511 (10.5)	
≥3	6,470 (10.2)	4,554 (11.6)	1,916 (8.0)	
Exercise during pregnancy?	30,470 (48.2)	18,850 (48.0)	11,620 (48.5)	0.28

Abbreviations: PRAMS, Pregnancy Risk Assessment Monitoring System; BMI, body mass index; NICU, neonatal intensive care unit.

Characteristic	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Age (years)		
≤ 17	1.12 (1.01-1.26, p=0.039)	0.61 (0.54-0.70, p<0.001)
18-19	1.10 (1.02-1.18, p=0.011)	0.74 (0.68-0.80, p<0.001)
20-24	1.05 (1.01-1.10, p=0.027)	0.87 (0.83-0.92, p<0.001)
25-29	-	-
30-34	1.10 (1.05-1.15, p<0.001)	1.22 (1.16-1.28, p<0.001)
35-39	1.71 (1.55-1.89, p<0.001)	1.84 (1.63-2.07, p<0.001)
≥ 40	1.52 (1.43-1.61, p<0.001)	1.63 (1.52-1.75, p<0.001)
BMI category, before pregnancy		
Normal (18.5-25)	-	-
Underweight (<18.5)	1.01 (0.93-1.10, p=0.735)	0.93 (0.85-1.03, p=0.150)
Overweight (25-30)	1.19 (1.14-1.24, p<0.001)	1.27 (1.21-1.33, p<0.001)
Obese (30-40)	1.54 (1.47-1.61, p<0.001)	1.64 (1.56-1.73, p<0.001)
Morbidly obese (≥40)	1.52 (1.43-1.61, p<0.001)	1.63 (1.52-1.75, p<0.001)
Gestation time (weeks)		
<35	21.19 (19.64-22.87, p<0.001)	23.75 (21.95-25.71, p<0.001)
35 ^{0/7} -35 ^{6/7}	5.98 (5.46-6.55, p<0.001)	6.62 (6.02-7.28, p<0.001)
36 ^{0/7} -36 ^{6/7}	2.92 (2.70-3.16, p<0.001)	3.14 (2.89-3.41, p<0.001)
37 ^{0/7} -37 ^{6/7}	1.67 (1.56-1.79, p<0.001)	1.74 (1.62-1.87, p<0.001)
38 ^{0/7} -38 ^{6/7}	1.20 (1.13-1.28, p<0.001)	1.28 (1.20-1.37, p<0.001)
39 ^{0/7} -39 ^{6/7}	1.10 (1.04-1.17, p=0.001)	1.17 (1.10-1.24, p<0.001)
40 ^{0/7} -40 ^{6/7}	-	-
41 ^{0/7} -41 ^{6/7}	1.19 (1.10-1.28, p<0.001)	1.14 (1.05-1.23, p=0.001)
42 ^{0/7} -42 ^{6/7}	1.24 (1.11-1.39, p<0.001)	1.24 (1.10-1.40, p<0.001)
43 ^{0/7} -44	1.20 (1.02-1.41, p=0.026)	1.28 (1.08-1.50, p=0.004)
Diabetes	1.35 (1.26-1.44, p<0.001)	1.10 (1.02-1.19, p=0.017)
Hypertension	2.31 (2.19-2.44, p<0.001)	1.34 (1.25-1.42, p<0.001)
Previous live births		
None	-	-
1	0.49 (0.47-0.51, p<0.001)	0.41 (0.39-0.43, p<0.001)
2	0.46 (0.44-0.48, p<0.001)	0.35 (0.33-0.37, p<0.001)
≥3	0.48 (0.45-0.51, p<0.001)	0.29 (0.27-0.31, p<0.001)
Exercise during pregnancy?	1.02 (0.99-1.05, p=0.276)	0.98 (0.94-1.02, p=0.259)

Table 2. Multivariable Adjusted Odds Ratios for Need for Hospital-Based Intervention.

Abbreviations: OR, odds ratio; CI, confidence interval; BMI, body mass index.

Age (years)	Sample Patient			% Likelihood at		
	Prior SVD	Comorbidities	Exercise in Pregnancy	37 weeks	39 weeks	41 weeks
22	0	none	No	37%	28%	28%
27	1	overweight	Yes	25%	18%	18%
30	1	HTN, morbid obesity	No	37%	29%	28%
35	1	HTN, obese	No	49%	39%	39%
38	2	HTN	Yes	31%	23%	22%
40	0	none	No	55%	45%	44%

Table 3. Sample Peripartum Intervention Risk Calculator (PIRC) predicted probabilities of needing maternal or neonatal hospital-based interventions^a by completed gestational weeks at term.

Abbreviations: BMI, body mass index; SVD, spontaneous vaginal delivery; HTN, hypertension

^aPercent risk of requiring maternal or neonatal hospital-based interventions defined as: 1) operative vaginal delivery (forceps or vacuum), 2) cesarean delivery, or 3) neonatal intensive care unit (NICU) admission.