

**Supplementary Table A: ICD-9-CM and CPT codes used to identify pregnant women**

<b>Description of Pregnancy Claim:</b>	<b>ICD-9-CM/CPT Codes Used</b>
Normal Pregnancy	V22.x
High-Risk Pregnancy	V23.xx
Obstetric Panel	80055
Maternal Serum Screen Test	84163
Maternal Serum Screen Test	81511
Missed Abortion	632
Spontaneous abortion	634.xx
Unspecified abortion	637.xx
Suspected fetal and placental problems; intrauterine death	656.4

**Supplementary Table B: ICD-9-CM codes used for exclusions**

<b>Codes indicating Multiple Gestation</b>	<b>ICD-9-CM Excluded</b>
Twin Birth All Live born	V31.xx
Twin Birth All Stillborn	V32.xx
Twin Birth Unspecified Live born or Stillborn	V33.xx
Other Multiple Birth (Three or More) All Live born	V34.xx
Other Multiple Birth (Three or More) All Stillborn	V35.xx
Other Multiple Birth (Three or More) Live born and Stillborn	V36.xx
Other Multiple Birth (Three or More) Unspecified Live born or Stillborn	V37.xx
Live born unspecified single, twin or multiple	V39.xx
Multiple Pregnancy	651.xx
<b>Codes indicating Other</b>	
Abnormal uterine contractions affecting fetus or newborn	763.7
Complications of labor and delivery affecting fetus or newborn	763.8x

**Supplementary Table C: ICD-9-CM and CPT codes used to identify end of pregnancy**

<b>Description of End of Pregnancy:</b>	<b>ICD-9-CM/CPT Codes Used</b>
Outcome of Delivery	V27.0
Single live born	V30.xx
Normal Delivery	650.xx
Delivery	763.xx
Forceps or vacuum extractor delivery	669.5x
Breech extraction	669.6x
Malposition and malpresentation of fetus; breech presentation	652.2x
Forceps/vacuum/breech delivery	72.x
Assisted/Induced delivery	73.x
Vaginal delivery only, after previous cesarean delivery	59612
Vaginal delivery only, after previous cesarean delivery	59610
Vaginal delivery only, after previous cesarean delivery	59614
Routine obstetric care including antepartum care, vaginal delivery	59400
Vaginal delivery only	59409
Vaginal delivery only	59410
Classical cesarean section	74.0
Low cervical cesarean section	74.1
Extra peritoneal cesarean section	74.2
Cesarean section of other specified type	74.4
Cesarean section of unspecified type	74.9
Other cesarean section of unspecified type	74.99
obstetric care including antepartum care, cesarean delivery	59510
Cesarean delivery only;	59514
Cesarean delivery only; including postpartum care	59515
Cesarean delivery	59525
Cesarean delivery	59618
Cesarean delivery	59620
Cesarean delivery	59622
Cesarean delivery, without mention of indication	669.7x
Early onset of delivery	644.2x
Missed Abortion	632
Spontaneous abortion	634.xx
Unspecified abortion	637.xx
Suspected fetal and placental problems; intrauterine death	656.4
Outcome of delivery, single stillborn	V27.1
Treatment of incomplete abortion	59812
Surgical treatment of missed abortion; first trimester	59820
Surgical treatment of missed abortion; second trimester	59821
Treatment of septic abortion, completed surgically	59830
Induced abortion, by dilation and curettage	59840
Induced abortion, by dilation and evacuation	59841
Induced abortion	59850
Induced abortion	59851
Induced abortion	59852
Induced abortion	59855
Induced abortion	59856

**Supplemental Table C: ICD-9-CM and CPT codes used to indicate end of pregnancy (continued)**

Induced abortion	59857
Legally induced abortion	635.xx
Illegally induced abortion	636.xx
Failed attempt abortion	638.xx

**Supplementary Table D: ICD-9-CM codes used to identify baseline comorbidities**

<b>Description of Baseline Comorbidities</b>	<b>ICD-9-CM Used</b>
Obesity	278.0, 278.00, 278.01, 278.02, 278.03
History of thyroid disease (Nontoxic uninodular/multinodular goiter, Unspecified nontoxic nodular goiter, Goiter specified as simple, Goiter unspecified, Hashimoto's disease, Other and unspecified chronic thyroiditis, Thyroiditis unspecified)	241.0, 241.1, 241.9, 240.0, 240.9, 245.2, 245.8, 245.9
Diabetes Mellitus	Charlson Index
Hypertension	401.xx, 405.xx, 642.0x, 642.1x, 642.2x
History of recurrent pregnancy loss	629.81, 646.3

**Supplementary Table E: ICD-9-CM and CPT codes used to identify adverse outcomes**

<b>Description of Adverse Outcomes</b>	<b>ICD-9-CM/CPT Codes Used</b>
Pregnancy Loss	632, 634.xx, 637.xx, 656.4, V27.1, 59812, 59820, 59821
Preterm delivery	644.2x
Preterm labor	644.0x, 640.0x
Premature rupture of membranes	658.1x
Placental abruption	641.2x
Gestational diabetes	648.8x
Gestational hypertension	642.3x
Preeclampsia	642.4x, 642.5x
Poor fetal growth	656.5x
Tachycardia	427.xx, 785.0, 785.1

**Supplementary Table F: Clinical Outcomes Associated with Levothyroxine Treatment (excluding other thyroid hormone preparations)**

Adverse Outcomes <sup>1</sup>	Event n (%)		Adjusted OR, 95% CI	P-Value <sup>4</sup>
	Yes-Group A (N=832)	No-Group B (N=4562)		
Pregnancy Loss <sup>2</sup>	85 (10.2%)	614 (13.5%)	0.59 (0.45, 0.78)	<0.01
Preterm delivery	59 (7.1%)	236 (5.2%)	1.61 (1.15, 2.26)	0.01
Preterm labor	110 (13.2%)	569 (12.5%)	1.14 (0.89, 1.46)	0.30
Premature rupture of membranes	40 (4.8%)	220 (4.8%)	0.97 (0.66, 1.42)	0.78
Placental abruption	7 (0.8%)	36 (0.8%)	1.62 (0.66, 3.96)	0.29
Gestational diabetes	100 (12.0%)	401 (8.8%)	1.39 (1.07, 1.82)	0.02
Gestational hypertension <sup>3</sup>	50 (6.0%)	221 (4.8%)	1.29 (0.89, 1.85)	0.18
Preeclampsia <sup>3</sup>	46 (5.5%)	177 (3.9%)	1.64 (1.12, 2.41)	0.01
Poor fetal growth	78 (9.4%)	397 (8.7%)	1.13 (0.85, 1.52)	0.40
Tachycardia	17 (2.0%)	90 (2.0%)	1.69 (0.95, 3.02)	0.07

<sup>1</sup>Adjusted for age and TSH as continuous variables, race, income, Charlson Index, hypertension, obesity and history of thyroid disease

<sup>2</sup>Adjusted for history of pregnancy loss in addition to other covariates

<sup>3</sup>Adjusted for age and TSH as continuous variables, race, income, Charlson Index, obesity and history of thyroid disease

<sup>4</sup>P-Value used is for adjusted outcomes

**Supplementary Table G: Clinical Outcomes Associated with Levothyroxine Treatment (excluding other thyroid hormone preparations), Stratified by TSH Level**

Adverse Outcomes <sup>1</sup>	TSH Level 2.5 - 4.0 (OR, 95% CI) <sup>4</sup>	TSH Level 4.1 - 10.0 (OR, 95% CI) <sup>4</sup>	P-Value for Interaction
Pregnancy Loss <sup>2</sup>	0.87 (0.62, 1.22)	0.43 (0.29, 0.63)	<0.01
Preterm delivery	1.94 (1.29, 2.92)	1.35 (0.81, 2.27)	0.28
Preterm labor	1.27 (0.92, 1.75)	1.01 (0.71, 1.43)	0.33
Premature rupture of membranes	1.04 (0.61, 1.77)	0.82 (0.49, 1.38)	0.52
Placental abruption	1.43 (0.50, 4.12)	2.18 (0.36, 13.17)	0.69
Gestational diabetes	1.42 (1.00, 2.02)	1.47 (0.99, 2.17)	0.91
Gestational hypertension <sup>3</sup>	1.79 (1.15, 2.79)	0.92 (0.55, 1.54)	0.05
Preeclampsia <sup>3</sup>	1.79 (1.10, 2.89)	1.64 (0.92, 2.93)	0.83
Poor fetal growth	0.97 (0.64, 1.47)	1.11 (0.75, 1.65)	0.65
Tachycardia	1.63 (0.85, 3.12)	1.27 (0.42, 3.81)	0.70

<sup>1</sup>Adjusted for age, race, income, Charlson Index, hypertension, obesity and history of thyroid disease

<sup>2</sup>Adjusted for history of pregnancy loss in addition to other covariates

<sup>3</sup>Adjusted for age, race, income, Charlson Index, obesity and history of thyroid disease

<sup>4</sup>Untreated women is the referent group

**Supplementary Table H: Baseline Patient Characteristics Between Adherent and Non-adherent to Thyroid Hormone Treatment (based on proportion of days covered >80%)**

Characteristics	Levothyroxine Adherence		Total (N=843)	P-Value
	Yes (N=673)	No (N=170)		
<b>Age</b>				<0.01
Mean (SD)	32.0 (4.4)	30.6 (5.4)	31.7 (4.7)	
Median	32	31	32	
Q1, Q3	29.0, 35.0	27.0, 34.0	29.0, 35.0	
<b>TSH Value</b>				0.87
Mean (SD)	4.8 (1.7)	4.8 (1.6)	4.8 (1.7)	
Median	4.6	4.4	4.6	
Q1, Q3	3.4, 5.7	3.4, 5.5	3.4, 5.7	
<b>TSH Level Group</b>				0.53
2.5 - 4.0	267 (39.7%)	63 (37.1%)	330 (39.1%)	
4.1 - 10.0	406 (60.3%)	107 (62.9%)	513 (60.9%)	
<b>Age Group</b>				<0.01
18 - 24	24 (3.6%)	25 (14.7%)	49 (5.8%)	
25 - 34	460 (68.4%)	111 (65.3%)	571 (67.7%)	
35 - 44	188 (27.9%)	32 (18.8%)	220 (26.1%)	
45 - 54	1 (0.1%)	2 (1.2%)	3 (0.4%)	
<b>Race</b>				0.87
White	370 (55.0%)	95 (55.9%)	465 (55.2%)	
Black	41 (6.1%)	8 (4.7%)	49 (5.8%)	
Hispanic	77 (11.4%)	23 (13.5%)	100 (11.9%)	
Asia	151 (22.4%)	37 (21.8%)	188 (22.3%)	
Unknown	34 (5.1%)	7 (4.1%)	41 (4.9%)	
<b>Charlson Index</b>				0.27
0	596 (88.6%)	148 (87.1%)	744 (88.3%)	
1	59 (8.8%)	20 (11.8%)	79 (9.4%)	
2+	18 (2.7%)	2 (1.2%)	20 (2.4%)	
<b>Household Income</b>				0.03
< \$40,000	66 (9.8%)	24 (14.1%)	90 (10.7%)	
\$40,000 – \$49,999	31 (4.6%)	10 (5.9%)	41 (4.9%)	
\$50,000 – \$59,999	55 (8.2%)	8 (4.7%)	63 (7.5%)	
\$60,000 – \$74,999	64 (9.5%)	13 (7.6%)	77 (9.1%)	
\$75,000 – \$99,999	105 (15.6%)	34 (20.0%)	139 (16.5%)	
≥ \$100,000	261 (38.8%)	48 (28.2%)	309 (36.7%)	
Unknown	91 (13.5%)	33 (19.4%)	124 (14.7%)	
<b>Patients Region</b>				0.10
Midwest	47 (7.0%)	17 (10.0%)	64 (7.6%)	
Northeast	183 (27.2%)	32 (18.8%)	215 (25.5%)	
South	287 (42.6%)	82 (48.2%)	369 (43.8%)	
West	156 (23.2%)	39 (22.9%)	195 (23.1%)	
<b>Obesity</b>	39 (5.8%)	13 (7.6%)	52 (6.2%)	0.37
<b>Diabetes Mellitus</b>	17 (2.5%)	7 (4.1%)	24 (2.8%)	0.26
<b>Hypertension</b>	17 (2.5%)	5 (2.9%)	22 (2.6%)	0.76
<b>History of recurrent pregnancy loss</b>	18 (2.7%)	5 (2.9%)	23 (2.7%)	0.85
<b>History of Thyroid Disease</b>	40 (5.9%)	12 (7.1%)	52 (6.2%)	0.59

\*Chi-Square Test, T-Test for continuous variable (Age, TSH value)

**Supplementary Table I: Clinical Outcomes Associated with Levothyroxine Treatment Adherence**

<b>Adverse Outcomes<sup>1</sup></b>	<b>Adhered to Levothyroxine (N=673)</b>	<b>Not Treated (N=4562)</b>	<b>OR, 95% CI</b>	<b>P-Value<sup>4</sup></b>
<b>Pregnancy Loss<sup>2</sup></b>	78 (11.6%)	614 (13.5%)	0.69 (0.52,0.91)	0.01
<b>Preterm delivery</b>	48 (7.1%)	236 (5.2%)	1.61 (1.12,2.32)	0.01
<b>Preterm labor</b>	91 (13.5%)	569 (12.5%)	1.17 (0.89,1.52)	0.26
<b>Premature rupture of membranes</b>	37 (5.5%)	220 (4.8%)	1.10 (0.73,1.65)	0.65
<b>Placental abruption</b>	5 (0.7%)	36 (0.8%)	1.49 (0.54,4.12)	0.45
<b>Gestational diabetes</b>	70 (10.4%)	401 (8.8%)	1.14 (0.84,1.54)	0.41
<b>Gestational hypertension<sup>3</sup></b>	40 (5.9%)	221 (4.8%)	1.24 (0.83,1.84)	0.29
<b>Preeclampsia<sup>3</sup></b>	35 (5.2%)	177 (3.9%)	1.54 (1.01,2.35)	0.05
<b>Poor fetal growth</b>	61 (9.1%)	397 (8.7%)	1.09 (0.79,1.5)	0.60
<b>Tachycardia</b>	12 (1.8%)	90 (2.0%)	1.41 (0.73,2.73)	0.31

<sup>1</sup>Adjusted for Age and TSH Value continuous variables, Race, Income, Charlson Index, hypertension, obesity and history of thyroid disease

<sup>2</sup>Adjusted for History of Pregnancy Loss in addition to other covariates

<sup>3</sup> Adjusted for Age and TSH Value continuous variables, Race, Income, Charlson Index, obesity and history of thyroid disease

<sup>4</sup>P-Value used is for adjusted outcomes

**Supplementary Table J: Clinical Outcomes Associated with Levothyroxine Treatment Adherence, Stratified by TSH Level**

<b>Adverse Outcomes<sup>1</sup></b>	<b>TSH Level 2.5 - 4.0 (OR, 95% CI)<sup>4</sup></b>	<b>TSH Level 4.1 - 10.0 (OR, 95% CI)<sup>4</sup></b>	<b>P-Value for Interaction</b>
<b>Pregnancy Loss<sup>2</sup></b>	1.01 (0.70, 1.44)	0.48 (0.32, 0.72)	0.01
<b>Preterm delivery</b>	1.89 (1.20, 2.96)	1.42 (0.82, 2.44)	0.42
<b>Preterm labor</b>	1.30 (0.92, 1.84)	1.02 (0.70, 1.48)	0.34
<b>Premature rupture of membranes</b>	1.29 (0.76, 2.19)	0.90 (0.52, 1.56)	0.36
<b>Placental abruption</b>	1.73 (0.60, 4.99)	0.89 (0.08, 9.87)	0.62
<b>Gestational diabetes</b>	1.23 (0.82, 1.84)	1.21 (0.79, 1.87)	0.97
<b>Gestational hypertension<sup>3</sup></b>	1.76 (1.08, 2.86)	0.92 (0.53, 1.61)	0.09
<b>Preeclampsia<sup>3</sup></b>	1.78 (1.05, 3.02)	1.47 (0.78, 2.75)	0.64
<b>Poor fetal growth</b>	0.98 (0.62, 1.55)	1.07 (0.70, 1.64)	0.80
<b>Tachycardia</b>	1.27 (0.58, 2.80)	1.31 (0.41, 4.19)	0.96

<sup>1</sup>Adjusted for age, race, income, Charlson Index, hypertension, obesity and history of thyroid disease

<sup>2</sup>Adjusted for history of pregnancy loss in addition to other covariates

<sup>3</sup> Adjusted for age, race, income, Charlson Index, obesity and history of thyroid disease

<sup>4</sup>Untreated women is the referent group