

## WEB MATERIAL

### Postpartum Readmissions With and Without Severe Maternal Morbidity Within 1 Year of Birth, Oregon, 2012–2017

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**Web Table 1.** ICD-9/-10 and CPT Codes Used to Capture Postpartum Visit Attendance and Covariates in Medical Claims Data

Category	ICD-9	ICD-10
Substance Use Disorder (excluding cannabis use)	291.0-291.5, 291.81, 291.82, 291.89, 291.9, 292.0, 292.11, 292.12, 292.2, 292.81-292.85, 292.89, 292.9, 303.00-303.03, 303.90-303.93, 304.00-304.03, 304.10-304.13, 304.11, 304.12, 304.20-304.23, 304.21, 304.22, 304.30-304.33, 304.31, 304.32, 304.40-304.43, 304.41, 304.42, 304.50-304.53, 304.60-304.63, 304.70-304.73, 304.80-304.83, 304.90-304.93, 305.00-305.03, 305.1, 305.20-305.23, 305.30-305.33, 305.40-305.43, 305.41, 305.42, 305.50-305.53, 305.60-305.63, 305.70-305.73, 305.80-305.83, 305.90-305.93	F10.10, F10.120, F10.121, F10.129, F10.14, F10.150, F10.151, F10.159, F10.180, F10.181, F10.182, F10.188, F10.19, F10.20, F10.21, F10.220, F10.221, F10.229, F10.230-F10.232, F10.239, F10.24, F10.250, F10.251, F10.259, F10.26, F10.27, F10.280-F10.282, F10.288, F10.29, F10.920, F10.921, F10.929, F10.94, F10.950, F10.951, F10.959, F10.96, F10.97, F10.980-F10.982, F10.988, F10.99, F11.10, F11.120-F11.122, F11.129, F11.14, F11.150, F11.151, F11.159, F11.181, F11.182, F11.188, F11.19-F11.21, F11.220-F11.222, F11.229, F11.23, F11.24, F11.250, F11.251, F11.259, F11.281, F11.282, F11.288, F11.29, F11.90, F11.920-F11.922, F11.929, F11.93, F11.94, F11.950, F11.951, F11.959, F11.981, F11.982, F11.988, F11.99, F13.10, F13.120, F13.121, F13.129, F13.14, F13.150, F13.151, F13.159, F13.180-F13.182, F13.188, F13.19-F13.21, F13.220, F13.221, F13.229, F13.230-F13.232, F13.239, F13.24, F13.250, F13.251, F13.259, F13.26, F13.27, F13.280-F13.282, F13.288, F13.29, F13.90, F13.920, F13.921, F13.929, F13.930-F13.932, F13.939, F13.94, F13.950, F13.951, F13.959, F13.96, F13.97, F13.980-F13.982, F13.988, F13.99, F14.10, F14.120-F14.122, F14.129, F14.14, F14.150, F14.151, F14.159, F14.180-F14.182, F14.188, F14.19-F14.21, F14.220-F14.222, F14.229, F14.23, F14.24, F14.250, F14.251, F14.259, F14.280-F14.282, F14.288, F14.29, F14.90, F14.920-F14.922, F14.929, F14.94, F14.950, F14.951, F14.959, F14.980-F14.982, F14.988, F14.99, F15.10, F15.120-F15.122, F15.129, F15.14, F15.150, F15.151, F15.159, F15.180-F15.182, F15.188, F15.19-F15.21, F15.220-F15.222,

F15.229, F15.23, F15.24, F15.250, F15.251, F15.259, F15.280-F15.282, F15.288, F15.29, F15.90, F15.920-F15.922, F15.929, F15.93, F15.94, F15.950, F15.951, F15.959, F15.980-F15.982, F15.988, F15.99, F16.10, F16.120-F16.122, F16.129, F16.14, F16.150, F16.151, F16.159, F16.180, F16.183, F16.188, F16.19-F16.21, F16.220, F16.221, F16.229, F16.24, F16.250, F16.251, F16.259, F16.280, F16.283, F16.288, F16.29, F16.90, F16.920, F16.921, F16.929, F16.94, F16.950, F16.951, F16.959, F16.980, F16.983, F16.988, F16.99, F17.200, F17.201, F17.203, F17.208-F17.211, F17.213, F17.218-F17.221, F17.223, F17.228, F17.229, F17.290-F17.293, F17.298, F17.299, F18.10, F18.120, F18.121, F18.129, F18.14, F18.150, F18.151, F18.159, F18.17, F18.180, F18.188, F18.19-F18.21, F18.220, F18.221, F18.229, F18.24, F18.250, F18.251, F18.259, F18.27, F18.280, F18.288, F18.29, F18.90, F18.920, F18.921, F18.929, F18.94, F18.950, F18.951, F18.959, F18.97, F18.980, F18.988, F18.99, F19.10, F19.120-F19.122, F19.129, F19.14, F19.150, F19.151, F19.159, F19.16, F19.17, F19.180-F19.182, F19.188, F19.19-F19.21, F19.220-F19.222, F19.229, F19.230-F19.232, F19.239, F19.24, F19.250, F19.251, F19.259, F19.26, F19.27, F19.280-F19.282, F19.288, F19.29, F19.90, F19.920-F19.922, F19.929, F19.930-F19.932, F19.939, F19.94, F19.950, F19.951, F19.959, F19.96, F19.97, F19.980-F19.982, F19.988, F19.99, F55.0-F55.4, F55.8

Substance Use Disorder: Cannabis Use	304.30-304.33, 305.20-305.23	F12.10, F12.120-F12.122, F12.129, F12.150, F12.151, F12.159, F12.180, F12.188, F12.19, F12.20, F12.21, F12.220-F12.222, F12.229, F12.250, F12.251, F12.259, F12.280, F12.288, F12.29, F12.90, F12.920-F12.922, F12.929, F12.950, F12.951, F12.959, F12.980, F12.988, F12.99
Mental Health: Depressive (Not Major Depression Disorder)*	290.13, 290.21, 296.82, 301.12, 309.1, 311	F25.1, F32.8, F33.8
Mental Health: Anxiety	293.84, 300.00-300.02, 300.09, 300.10, 300.20-300.23, 300.29, 300.3	F40.00-F40.02, F40.10, F40.11, F40.210, F40.218, F40.220, F40.228, F40.230-F40.233, F40.240-F40.243, F40.248, F40.290, F40.291, F40.298, F40.8, F40.9, F41.0, F41.1, F41.3, F41.8, F41.9, F42, F45.20, F45.21, F45.29, F40.00, F40.01, F40.02, F40.10, F40.11, F40.210, F40.218, F40.220, F40.228, F40.230-F40.233, F40.240-F40.243, F40.248, F40.290, F40.291, F40.298, F40.8, F40.9, F41.0, F41.1, F41.3, F41.8, F41.9, F42
Mental Health: Serious Mental Illness (includes bipolar conditions, major depressive disorders, schizophrenia, and psychoses)	293.0, 293.1, 293.81, 293.82, 295.00-295.05, 295.10-295.15, 295.20-295.25, 295.30-295.35, 295.40-295.45, 295.50-295.55, 295.60-295.65, 295.70-295.75, 295.80-295.85, 295.90-295.95, 296.00-296.06, 296.10-296.16, 296.20-296.26, 296.30-296.36, 296.40-296.46, 296.50-296.56, 296.60-296.66, 296.7, 296.80, 296.81, 296.89, 296.90, 296.99, 297.3, 298.0, 298.1, 298.4, 298.8, 298.9, 301.13	F20.0-F20.3, F20.5, F20.81, F20.89, F20.9, F21, F22, F23, F24, F25.0, F25.1, F25.8, F25.9, F28, F29, F30.10-F30.13, F30.2-F30.4, F30.8, F30.9, F31.0, F31.10-F31.13, F31.2, F31.30-F31.32, F31.4, F31.5, F31.60-F31.64, F31.70-F31.78, F31.81, F31.89, F31.9, F32.0-F32.5, F32.9, F33.0-F33.3, F33.40-F33.42, F33.9, F34.0

Mental Health: Other

290.0, 290.10-290.12, 290.20, 290.3, 290.40-290.43, 290.8, 290.9, 293.0, 293.1, 293.81-293.83, 293.89, 293.9, 294.0, 294.10, 294.11, 294.20, 294.21, 294.8, 294.9, 297.0-297.3, 297.8, 297.9, 298.2, 298.3, 299.00, 299.01, 299.10, 299.11, 299.80, 299.81, 299.90, 299.91, 300.11-300.16, 300.19, 300.5-300.7, 300.81, 300.82, 300.89, 300.9, 301.0, 301.10, 301.11, 301.20-301.22, 301.3, 301.4, 301.50, 301.51, 301.59, 301.6, 301.7, 301.81-301.84, 301.89, 301.9, 302.0-302.4, 302.50-302.53, 302.6, 302.70-302.76, 302.79, 302.81-302.85, 302.89, 302.9, 306.0-306.4, 306.50-306.53, 306.59, 306.6-306.9, 307.0, 307.1, 307.20, 307.21, 307.22, 307.23, 307.3, 307.4-307.54, 307.59, 307.6, 307.7, 307.80, 307.81, 307.89, 307.9, 308.0-308.4, 308.9, 309.0, 309.21-309.24, 309.28, 309.29, 309.3, 309.4, 309.81-309.83, 309.89, 309.9, 310.0-310.2, 310.81, 310.89, 310.9, 312.00-312.03, 312.10-312.13, 312.20-312.23, 312.30-312.35, 312.39, 312.4, 312.81, 312.82, 312.89, 312.9, 313.0, 313.1, 313.21-313.23, 313.3, 313.81-313.83, 313.89, 313.9, 314.00, 314.01, 314.1, 314.2, 314.8, 314.9, 315.00-315.02, 315.09, 315.1, 315.2, 315.31-315.35, 315.39, 315.4, 315.5, 315.8, 315.9, 316

F03.90, F03.91, F34.8, F34.9, F39, F42, F43.0, F43.10-F43.12, F43.20-F43.25, F43.29, F43.8, F43.9, F44.0-F44.2, F44.4-F44.7, F44.81, F44.89, F44.9, F45.0, F45.1, F45.20-F45.22, F45.29, F45.41, F45.42, F45.8, F45.9, F48.1, F48.2, F48.8, F48.9, F50.00-F50.02, F50.2, F50.8, F50.9, F51.01-F51.05, F51.09, F51.11-F51.13, F51.19, F51.3-F51.5, F51.8, F51.9, F52.0, F52.1, F52.21, F52.22, F52.31, F52.32, F52.4-F52.6, F52.8, F52.9, F53, F59, F60.0-F60.7, F60.81, F60.89, F60.9, F63.0-F63.3, F63.81, F63.89, F63.9, F64.1, F64.2, F64.8, F64.9, F65.0-F65.4, F65.50-F65.52, F65.81, F65.89, F65.9, F66, F68.10, F68.11, F68.12, F68.13, F68.8, F69, F80.0-F80.2, F80.4, F80.81, F80.89, F80.9, F81.0, F81.2, F81.81, F81.89, F81.9, F82, F84.0, F84.2, F84.3, F84.5, F84.8, F84.9, F88, F89, F90.0-F90.2, F90.8, F90.9, F91.0-F91.3, F91.8, F91.9, F93.0, F93.8, F93.9, F94.0-F94.2, F94.8, F94.9, F95.0-F95.2, F95.8, F95.9, F98.0, F98.1, F98.21, F98.29, F98.3-F98.5, F98.8, F98.9, F99

Prepregnancy Diabetes

250.00-250.03, 250.10-250.13, 250.20-250.23,  
250.30-250.33, 250.40-250.43,250.50-250.53,  
250.60-250.63, 250.70-250.73, 250.80-250.81,  
250.82, 250.83, 250.90-250.93, 357.2, 362.01-  
362.04, 362.05-362.07, 366.41, 648.00-648.04

E10.10, E10.11, E10.21,E10.22, E10.29, E10.311, E10.319,  
E10.321, E10.3211-E10.3213, E10.3219, E10.329,  
E10.3291-E10.3293, E10.3299, E10.331, E10.3311-  
E10.3313, E10.3319, E10.339, E10.3391-E10.3393,  
E10.3399, E10.341, E10.3411-E10.3413, E10.3419,  
E10.349, E10.3491-E10.3493, E10.3499, E10.351,  
E10.3511-E10.3513, E10.3519, E10.3521-E10.3523,  
E10.3529, E10.3531-E10.3533, E10.3539,  
E10.3541-E10.3543, E10.3549, E10.3551-E10.3553,  
E10.3559, E10.359, E10.3591-E10.3593, E10.3599, E10.36,  
E10.37X1-E10.37X3, E10.37X9, E10.39, E10.40-E10.44,  
E10.49, E10.51, E10.52, E10.59, E10.610, E10.618,  
E10.620-E10.622, E10.628, E10.630, E10.638, E10.641,  
E10.649, E10.65, E10.69, E10.8, E10.9, E11.00, E11.01,  
E11.10, E11.11, E11.21, E11.22, E11.29, E11.311, E11.319,  
E11.321, E11.3211-E11.3213, E11.3219, E11.329,  
E11.3291-E11.3293, E11.3299, E11.331, E11.3311-  
E11.3313, E11.3319, E11.339, E11.3391-E11.3393,  
E11.3399, E11.341, E11.3411-E11.3413, E11.3419,  
E11.349, E11.3491-E11.3493, E11.3499, E11.351,  
E11.3511-E11.3513, E11.3519, E11.3521-E11.3523,  
E11.3529, E11.3531-E11.3533, E11.3539, E11.3541-  
E11.3543, E11.3549, E11.3551-E11.3553, E11.3559,  
E11.359, E11.3591-E11.3593, E11.3599, E11.36,  
E11.37X1-E11.37X3, E11.37X9, E11.39, E11.40-E11.44,  
E11.49, E11.51, E11.52, E11.59, E11.610, E11.618,  
E11.620-E11.622, E11.628, E11.630, E11.638, E11.641,  
E11.649, E11.65, E11.69, E11.8, E11.9, E13.00E13.01,  
E13.10, E13.11, E13.21, E13.22, E13.29, E13.311, E13.319,  
E13.321, E13.3211-E13.3213, E13.3219, E13.329,  
E13.3291-E13.3293, E13.3299, E13.331, E13.3311-  
E13.3313, E13.3319, E13.339, E13.3391-E13.3393,  
E13.3399, E13.341, E13.3411-E13.3413, E13.3419,

		E13.349, E13.3491-E13.3493, E13.3499, E13.351, E13.3511-E13.3513, E13.3519, E13.3521-E13.3523, E13.3529, E13.3531-E13.3533, E13.3539, E13.3541-E13.3543, E13.3549, E13.3551-E13.3553, E13.3559, E13.359, E13.3591-E13.3593, E13.3599, E13.36, E13.37X1-E13.37X3, E13.37X9, E13.39-E13.44, E13.49, E13.51, E13.52, E13.59, E13.610, E13.618, E13.620E13.621, E13.622, E13.628, E13.630, E13.638, E13.641, E13.649, E13.65, E13.69, E13.8, E13.9, O24.011-O24.013, O24.019,O24.02,O24.03, O24.111-O24.113, O24.119, O24.12, O24.13, O24.311-O24.313, O24.319, O24.32, O24.33, O24.811-O24.813, O24.819, O24.82, O24.83
Gestational Diabetes	648.8, 648.80-648.84	O24.4, O24.41, O24.410, O24.414, O24.415, O24.419, O24.42, O24.420, O24.424, O24.425, O24.429, O24.43, O24.430, O24.434, O24.435, O24.439
Chronic Hypertension	642.00-642.04, 642.10-642.14, 642.20-642.24	O10.011-O10.013, O10.019, O10.02, O10.03, O10.111-O10.113, O10.119, O10.12, O10.13, O10.211-O10.213, O10.219, O10.22, O10.23, O10.311-O10.313, O10.319, O10.32, O10.33, O10.411-O10.413, O10.419, O10.42, O10.43, O10.911-O10.913, O10.919, O10.92, O10.93
Gestational Hypertension	642.30-642.34	O13.1-O13.3, O13.9, O16.1-O16.3, O16.9
Eclampsia/Pre-eclampsia	642.40-642.44, 642.50-642.54, 642.60-642.64	O14.00-O14.03,O14.10-O14.13, O14.20-O14.23,O14.90-O14.93,O15.00,O15.03, O15.1, O15.2, O15.9
Superimposed	642.71-642.74	O11.1-O11.3, O11.9

**Web Table 2.** Unadjusted and Adjusted Cumulative Incidence Ratios for Any Postpartum Readmissions Within 12 Months of Delivery With and Without Evidence of Severe Maternal Morbidity (SMM), Oregon Hospital Births ( $n = 158,653$ ), 2012–2017

Characteristic	Postpartum Readmission <i>With Evidence of SMM</i>				Postpartum Readmission <i>Without Evidence of SMM</i>			
	RR	95% CI	Adj. RR	95% CI	RR	95% CI	Adj. RR	95% CI
<b>Maternal Age</b>								
15-19	1.27	0.96, 1.68	1.27	0.97, 1.68	1.58	1.40, 1.79	1.58	1.40, 1.79
20-24	0.93	0.76, 1.13	0.93	0.76, 1.14	1.15	1.05, 1.26	1.15	1.05, 1.26
25-29	1.00	Referent	1.00	Referent	1.00	Referent	1.00	Referent
30-34	0.85	0.70, 1.03	0.85	0.70, 1.03	0.86	0.79, 0.95	0.86	0.79, 0.95
35-39	1.11	0.89, 1.38	1.11	0.89, 1.38	0.91	0.81, 1.02	0.91	0.81, 1.02
≥40	1.33	0.93, 1.91	1.33	0.93, 1.92	1.00	0.82, 1.23	1.00	0.82, 1.23
<b>Maternal Residential Location<sup>a</sup></b>								
Urban	1.00	Referent	1.00	Referent	1.00	Referent	1.00	Referent
Rural	1.14	0.99, 1.32	1.15	0.99, 1.32	1.09	1.01, 1.16	1.05	0.97, 1.12
<b>Insurance Type at Delivery<sup>b</sup></b>								
Commercial	1.00	Referent	1.00	Referent	1.00	Referent	1.00	Referent
Medicaid	2.12	1.80, 2.48	2.06	1.73, 2.45	1.79	1.66, 1.93	1.56	1.43, 1.69
<b>Mode of Delivery<sup>c</sup></b>								
Vaginal	1.00	Referent	1.00	Referent	1.00	Referent	1.00	Referent
Cesarean	1.64	1.43, 1.89	1.49	1.29, 1.72	1.43	1.33, 1.53	1.38	1.28, 1.48
<b>Extended Delivery Length of Stay<sup>d</sup></b>	2.33	2.01, 2.70	1.87	1.60, 2.18	1.84	1.70, 1.98	1.45	1.34, 1.57
<b>SMM at Delivery<sup>e</sup></b>	7.49	5.62, 9.97	5.55	4.14, 7.44	2.40	1.89, 3.04	1.89	1.49, 2.40
<b>Prepregnancy Diabetes<sup>f</sup></b>	2.95	2.20, 3.95	2.84	2.12, 3.82	1.22	1.09, 1.36	2.85	2.47, 3.30
<b>Gestational Diabetes<sup>f</sup></b>	1.02	0.80, 1.30	1.03	0.81, 1.31	2.83	2.45, 3.27	1.31	1.17, 1.46
<b>Hypertensive Disorders of Pregnancy<sup>g</sup></b>								
Any	2.31	1.94, 2.74	2.26	1.90, 2.69	1.87	1.71, 2.04	1.83	1.68, 2.01
No evidence	1.00	Referent	1.00	Referent	1.00	Referent	1.00	Referent
<b>Hypertensive Disorders of Pregnancy<sup>g</sup></b>								
Chronic Hypertension	2.82	2.10, 3.80	2.76	2.05, 3.72	2.15	1.83, 2.52	2.17	1.85, 2.55
Gestational Hypertension	1.76	1.32, 2.34	1.72	1.29, 2.30	1.30	1.11, 1.53	1.29	1.10, 1.51
Preeclampsia/Eclampsia	2.97	2.20, 4.00	2.91	2.15, 3.93	2.04	1.72, 2.42	1.97	1.66, 2.34



Superimposed	2.01	1.26, 3.20	1.96	1.23, 3.12	2.80	2.33, 3.37	2.68	2.23, 3.22
No evidence	1.00	Referent	1.00	Referent	1.00	Referent	1.00	Referent
<b>Substance Use Disorder<sup>h</sup></b>								
Any	2.80	2.31, 3.39	2.72	2.23, 3.31	2.22	2.01, 2.46	1.91	1.72, 2.12
Any (excluding cannabis)	3.00	2.46, 3.66	2.90	2.36, 3.56	2.33	2.10, 2.59	2.01	1.80, 2.24
<b>Mental Health Diagnosis<sup>i</sup></b>								
Any MH	1.51	1.21, 1.88	1.50	1.20, 1.87	2.16	1.96, 2.37	2.10	1.91, 2.30
Depressive	2.08	1.39, 3.12	2.06	1.37, 3.09	2.23	1.85, 2.69	2.14	1.78, 2.58
Anxiety	1.49	1.08, 2.05	1.48	1.07, 2.04	2.06	1.80, 2.35	2.02	1.77, 2.31
Serious Mental Illness	1.28	0.89, 1.84	1.27	0.88, 1.83	2.42	2.12, 2.75	2.37	2.08, 2.69
Other	1.71	1.10, 2.66	1.69	1.08, 2.63	2.89	2.45, 3.40	2.74	2.33, 3.23

**Notes:** SMM, severe maternal morbidity.

**a.** Model adjusted for maternal age.

**b.** Model adjusted for maternal age, maternal residential location, any substance use disorder (SUD), and any mental health (MH) diagnosis.

**c.** Model adjusted for maternal age, maternal residential location, insurance type at delivery, any SUD, any MH diagnosis, any diabetes, and any hypertensive disorders of pregnancy (HDP).

**d.** Model adjusted for maternal age, maternal residential location, insurance type at delivery, any SUD, any MH diagnosis, any diabetes, HDP, and mode of delivery.

**e.** Model adjusted for maternal age, maternal residential location, insurance type at delivery, any diabetes, and HDP.

**f.** Model adjusted for maternal age, maternal residential location, any SUD, and any MH diagnosis.

**g.** Models adjusted for maternal age, maternal residential location, any SUD, and any MH diagnosis.

**h.** Model adjusted for maternal age, maternal residential location, and any MH diagnosis.

**i.** Model adjusted for maternal age and maternal residential location.

**Web Table 3.** Maternal Demographic, Delivery, and Clinical Characteristics by Inclusion in and Exclusion From the Analytical Sample

<b>Characteristic</b>	<b>Included in Analytical Sample (≥11 months of postpartum insurance enrollment) (n = 158,653) No. (%)</b>	<b>Excluded From Analytical Sample (&lt;11 months of postpartum insurance enrollment) (n = 43,592) No. (%)</b>	<b>P Value</b>
<b>Maternal Age</b>			<0.001
15-19	9,853 (6.2)	2,981 (6.8)	
20-24	34,417 (21.7)	11,114 (25.5)	
25-29	45,085 (28.4)	13,780 (31.6)	
30-34	43,043 (27.1)	10,112 (23.2)	
35-39	21,460 (13.5)	4,542 (10.4)	
≥40	4,795 (3.0)	1,063 (2.4)	
<b>Maternal Residential Location</b>			<0.001
Urban	103,353 (65.1)	27,329 (62.7)	
Rural	55,297 (34.9)	16,263 (37.3)	
Missing	3 (0.0)	0 (0%)	
<b>Insurance Type at Delivery</b>			<0.001
Commercial	64,165 (40.4)	13,982 (32.1)	
Medicaid	94,488 (59.6)	29,610 (67.9)	
<b>Mode of Delivery</b>			0.0144
Vaginal	113,496 (71.5)	31,445 (72.1)	
Cesarean	45,157 (28.5)	12,147 (27.9)	
<b>Extended Delivery Length of Stay</b>	26,344 (16.6)	8,134 (18.7)	<0.001
<b>SMM at Delivery</b>	1,366 (0.9)	381 (0.9)	0.8076
<b>Prepregnancy Diabetes</b>	3,380 (2.1)	778 (1.8)	<0.001
<b>Gestational Diabetes</b>	16,577 (10.4)	4,175 (9.6)	<0.001
<b>Any Hypertensive Disorders of Pregnancy</b>	15,459 (9.7)	4,118 (9.4)	0.0644
<b>Hypertensive Disorders of Pregnancy</b>			<0.001
Chronic	3,676 (2.3)	847 (1.9)	

Gestational Hypertension	6,315 (4.0)	1,718 (3.9)	
Pre-eclampsia/Eclampsia	3,416 (2.2)	967 (2.2)	
Superimposed	2,052 (1.3)	586 (1.3)	
No Evidence	143,194 (90.3)	39,474 (90.6)	
<b>Substance Use Disorder</b>			
Any	9,686 (6.1)	2,322 (5.3)	<0.001
Any (excluding cannabis)	8,200 (5.2)	1,871 (4.3)	<0.001
<b>Mental Health Diagnosis</b>			
Any	11,877 (7.5)	2,544 (5.8)	<0.001
Depressive	2,356 (1.5)	519 (1.2)	<0.001
Anxiety	5,347 (3.4)	1,131 (2.6)	<0.001
Serious Mental Illness	4,786 (3.0)	1,001 (2.3)	<0.001
Other	2,414 (1.5)	468 (1.1)	<0.001

**Note:** SMM, severe maternal morbidity.



Chronic Hypertension	2.99	2.03, 4.42	2.87	1.95, 4.25	2.71	2.20, 3.35	2.70	2.19, 3.34
Gestational Hypertension	1.85	1.27, 2.68	1.82	1.25, 2.64	1.83	1.51, 2.22	1.81	1.49, 2.20
Preeclampsia/Eclampsia	4.21	3.01, 5.90	4.20	3.00, 5.88	2.43	1.94, 3.05	2.35	1.87, 2.95
Superimposed	2.3	1.30, 4.09	2.29	1.29, 4.07	3.52	2.77, 4.47	3.41	2.68, 4.34
No evidence	1.00	Referent	1.00	Referent	1.00	Referent	1.00	Referent
<b>Substance Use Disorder<sup>h</sup></b>								
Any	2.68	2.08, 3.46	2.76	2.12, 3.59	1.72	1.47, 2.02	1.58	1.34, 1.86
Any (excluding cannabis)	3.02	2.32, 3.92	3.09	2.36, 4.05	1.87	1.58, 2.21	1.72	1.45, 2.03
<b>Mental Health Diagnosis<sup>i</sup></b>								
Any	1.35	0.99, 1.84	1.36	1.00, 1.86	1.71	1.48, 1.99	1.68	1.45, 1.95
Depressive	1.68	0.92, 3.05	1.71	0.94, 3.10	1.73	1.27, 2.35	1.69	1.24, 2.30
Anxiety	1.42	0.92, 2.20	1.43	0.92, 2.21	1.76	1.43, 2.17	1.74	1.42, 2.15
Sevrious Mental Illness	1.21	0.74, 1.99	1.22	0.74, 2.00	2.07	1.69, 2.54	2.04	1.67, 2.50
Other	1.39	0.72, 2.68	1.40	0.72, 2.70	2.25	1.72, 2.95	2.16	1.65, 2.84

**Notes:** SMM, severe maternal morbidity.

**a.** Model adjusted for maternal age.

**b.** Model adjusted for maternal age, maternal residential location, any substance use disorder (SUD), and any mental health (MH) diagnosis.

**c.** Model adjusted for maternal age, maternal residential location, insurance type at delivery, any SUD, any MH diagnosis, any diabetes, and any hypertensive disorders of pregnancy (HDP).

**d.** Model adjusted for maternal age, maternal residential location, insurance type at delivery, any SUD, any MH diagnosis, any diabetes, HDP, and mode of delivery.

**e.** model adjusts for maternal age, maternal residential location, insurance type at delivery, any diabetes, and HDP.

**f.** Model adjusted for maternal age, maternal residential location, any SUD, and any MH diagnosis.

**g.** Models adjusted for maternal age, maternal residential location, any SUD, and any MH diagnosis.

**h.** Model adjusted for maternal age, maternal residential location, and any MH diagnosis.

**i.** Model adjusted for maternal age and maternal residential location.

**Web Table 5.** Unadjusted and Adjusted Cumulative Incidence Ratios for Postpartum Readmissions With and Without Evidence of Severe Maternal Morbidity (SMM) Excluding Blood Transfusions From the SMM definition, Oregon Hospital Deliveries ( $n = 158,653$ ), 2012–2017

Characteristic	Postpartum Readmission <i>With</i> Evidence of SMM				Postpartum Readmission <i>Without</i> Evidence of SMM			
	RR	95% CI	Adj. RR	95% CI	RR	95% CI	Adj. RR	95% CI
<b>Maternal Age</b>								
15-19	1.25	0.94, 1.67	1.25	0.94, 1.67	1.58	1.39, 1.79	1.58	1.39, 1.79
20-24	0.91	0.74, 1.12	0.91	0.74, 1.12	1.15	1.05, 1.26	1.15	1.05, 1.26
25-29	1.00	Referent	1.00	Referent	1.00	Referent	1.00	Referent
30-34	0.87	0.72, 1.06	0.87	0.72, 1.06	0.86	0.78, 0.95	0.86	0.78, 0.95
35-39	1.10	0.88, 1.38	1.10	0.88, 1.38	0.91	0.81, 1.02	0.91	0.81, 1.02
≥40	1.37	0.95, 1.99	1.37	0.95, 1.99	1.00	0.81, 1.22	1.00	0.81, 1.22
<b>Maternal Residential Location<sup>a</sup></b>								
Urban	1.00	Referent	1.00	Referent	1.00	Referent	1.00	Referent
Rural	1.12	0.96, 1.29	1.12	0.97, 1.30	1.09	1.02, 1.17	1.05	0.98, 1.13
<b>Insurance Type at Delivery<sup>b</sup></b>								
Commercial	1.00	Referent	1.00	Referent	1.00	Referent	1.00	Referent
Medicaid	2.14	1.81, 2.53	2.11	1.76, 2.52	1.78	1.65, 1.92	1.55	1.42, 1.68
<b>Mode of Delivery<sup>c</sup></b>								
Vaginal	1.00	Referent	1.00	Referent	1.00	Referent	1.00	Referent
Cesarean	1.65	1.43, 1.91	1.48	1.27, 1.72	1.43	1.33, 1.53	1.37	1.28, 1.48
<b>Extended Delivery Length of Stay<sup>d</sup></b>	2.23	1.92, 2.60	1.77	1.51, 2.08	1.84	1.71, 1.99	1.46	1.35, 1.58
<b>SMM at Delivery (no blood transfusion)<sup>e</sup></b>	8.37	5.94, 11.78	5.73	4.04, 8.14	2.54	1.92, 3.37	1.97	1.48, 2.61
<b>Prepregnancy Diabetes<sup>f</sup></b>	3.05	2.27, 4.09	2.92	2.17, 3.93	2.76	2.39, 3.18	2.78	2.41, 3.21
<b>Gestational Diabetes<sup>f</sup></b>	1.07	0.84, 1.37	1.08	0.84, 1.38	1.20	1.08, 1.34	1.29	1.15, 1.44
<b>Hypertensive Disorders of Pregnancy<sup>g</sup></b>								
Any	2.37	1.99, 2.83	2.32	1.95, 2.77	1.84	1.68, 2.01	1.81	1.65, 1.98
No evidence	1.00	Referent	1.00	Referent	1.00	Referent	1.00	Referent
<b>Hypertensive Disorders of Pregnancy<sup>g</sup></b>								
Chronic Hypertension	2.90	2.14, 3.92	2.82	2.08, 3.81	2.11	1.80, 2.48	2.13	1.82, 2.50

Gestational Hypertension	1.80	1.34, 2.41	1.77	1.32, 2.37	1.29	1.11, 1.51	1.28	1.09, 1.50
Preeclampsia/Eclampsia	3.05	2.25, 4.13	2.99	2.21, 4.06	2.01	1.69, 2.38	1.94	1.64, 2.30
Superimposed	2.08	1.30, 3.31	2.02	1.27, 3.23	2.75	2.28, 3.30	2.63	2.19, 3.16
No evidence	1.00	Referent	1.00	Referent	1.00	Referent	1.00	Referent
<b>Substance Use Disorder<sup>h</sup></b>								
Any	2.83	2.33, 3.44	2.76	2.26, 3.38	2.19	1.98, 2.42	1.89	1.70, 2.09
Any (excluding cannabis)	3.01	2.45, 3.68	2.92	2.37, 3.60	2.30	2.07, 2.56	1.98	1.78, 2.21
<b>Mental Health Diagnosis<sup>i</sup></b>								
Any	1.52	1.21, 1.90	1.51	1.20, 1.90	2.13	1.94, 2.34	2.07	1.89, 2.28
Depression	1.98	1.30, 3.02	1.96	1.29, 3.00	2.23	1.85, 2.69	2.14	1.78, 2.58
Anxiety	1.55	1.12, 2.14	1.55	1.12, 2.14	2.02	1.77, 2.31	1.98	1.74, 2.27
Serious Mental Illness	1.32	0.92, 1.90	1.28	0.92, 1.90	2.38	2.09, 2.71	2.33	2.04, 2.65
Other	1.66	1.05, 2.61	1.64	1.04, 2.59	2.86	2.43, 3.36	2.71	2.31, 3.20

**Notes:** SMM, severe maternal morbidity.

**a.** Model adjusted for maternal age.

**b.** Model adjusted for maternal age, maternal residential location, any substance use disorder (SUD), and any mental health (MH) diagnosis.

**c.** Model adjusted for maternal age, maternal residential location, insurance type at delivery, any SUD, any MH diagnosis, any diabetes, and any hypertensive disorders of pregnancy (HDP).

**d.** Model adjusted for maternal age, maternal residential location, insurance type at delivery, any SUD, any MH diagnosis, any diabetes, HDP, and mode of delivery.

**e.** model adjusts for maternal age, maternal residential location, insurance type at delivery, any diabetes, and HDP.

**f.** Model adjusted for maternal age, maternal residential location, any SUD, and any MH diagnosis.

**g.** Models adjusted for maternal age, maternal residential location, any SUD, and any MH diagnosis.

**h.** Model adjusted for maternal age, maternal residential location, and any MH diagnosis.

**i.** Model adjusted for maternal age and maternal residential location.