Supplemental Table 1: Exclusion Codes

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| **Category** | **ICD 9** | **ICD 10**  |
| Renal Disease | 584.X, 585.X,586.X, 753.1X, V45.74, 996.68, V45.1, 996.81,V42.0 | N17.X, N18.X, N19.X, Q60.1, Q60.4, Q60.6, Q61.19, N18, T86.10-T86.12, Z94.0 |
| GI/IBD | 555.XX, 556.XX, 558.XX, 570.X, 571.X, 572.X, 275.03, 070.XX, V49.83, V42.X, 750.3, 751.1-751.9, 571.4-571.9, 453.0, 557.1, 560.2, 564.7, V45.3, V45.72, V45.75, V44.2-V44.4, V53.51, V53.59, V55.2-V55.4, 996.82, 996.86, 996.87, V42.XX | K50.XXX, K51.XXX, K52.XXX, K70.XX K71.XX, K72.XX, K773.XX, K 74.XX, K75.XX, K 76.XX, K73.XX, E83.1X, B15.XX B16.XX, B17.XX, B18.XX, B19.XX, K760-K763, K765, K768, I82.0, K55.1, K56.2, K59.3, Z98.0, Z90.3, Z90.49, Z93.2-Z93.4, Z43.2-Z43.4, Z46.51, Z46.59, T86.40-T86.42, T86.890, T86.891, T86.899, T86.850, T86.851, T86.859, Z94.4, Z94.82, Z94.83 |
| Lung Disease | 491.XX, 492.XX, 493.XX, 494.XX, 496.XX, 748.6X, 327.25, 416.2, 516.3, 516.31, 518.84, 770.4, 277.0, V46.0, V46.1, 996.84,  | J40.XXX, J41.XXX, J42.XXX, J43.XXX, J44.XXX, J45.XXX, J47.XXX, G47.35, I27.82, I43, J84.112, J96.20, E84, Z99.0, J95.850, Z99.11, Z99.12, T86.810, T86.811, T86.819, Z94.2  |
| Endocrine, Nutritional, Malabsorptive  | 260.X, 261.X, 262.X, 263.X, 264.X, 265.X, 266.X, 267.X, 269.X, 269.X, 270.X, 271.X, 272.X, 273.X, 274.X, 275.X, 276.X, 277.X, 278.X, 279.X, 775.4, 579.0, 783.41, 779.34, 243, 253.2, 253.5, 253.6, 235.9, 255.0, 255.13, 255.2, V45.85, V53.91, 275.4, 579.8 | E40.XX, E41.XX, E42.XX, E43.XX, E44.XX, E45.XX, E46.XX, E50.XX, E51.XX, E52.XX, E53.XX. E54.XX, E55.XX, E56.XX, E57.XX, E58.XX, E59.XX, E60.XX, E61.XX, E62.XX, E63.XX, E64.XX, E70.XX, E71.XX, E72.XX, E73.XX, E74.XX, E75.XX, E76.XX, E77.XX, E78.XX, E79.XX, E80.XX, E81.XX, E82.XX, E83.XX, E84.XX, E85.XX, E86.XX, E87.XX, E88.XX, P71.XX, K90.XX, R62.5X, E70.0, E70.2, E70.3, E70.4, E70.8, E71.0-E71.5, E72.0-E72.4, E72.8, E72.9, E74.0-E74.4, E74.8, E74.9, E75, E77.0, E77.1, E78.0-E78.4, E78.5-E78.9, E88.1, E88.8, E76.0-E76.3, E85, 277.4, E79.1, E79.8, E80.4-E80.7, E83.0, E83.3, E83.4, E90.4, K90.89, D84.1, E88, H49.8, E00.9, E23.0, E23.2, E22.2, E23.3, E23.7, E24.0, E24.2, E24.3, E24.8, E24.9, E26.81, E25.0, E25.8, E25.9 |
| Steroid Use | V58.65, V87.4X | Z79.5X, Z92.241 |
| Neurologic and Neuromuscular (CCC) | 740.0-742.9, 330.0-330.9, 334, 335.0-335.9, 331.1, 331.11, 331.19, 331.4, 331.8, 331.89, 331.9, 333.2, 336.1, 336.8, 337.9, 759.5, 345.01, 345.11, 345.3, 345.41, 345.61, 345.71, 345.81, 345.91, 341.8, 342.90, 344.0, 344.81, 344.9, 348.1, 348.4, 780.03, 434.01, 434.91, 359.0-359.3, 332.0, 332.1, 333.0, 333.2, 333.5, 333.7,333.9 | Q00,Q01, Q02, Q04, Q06, Q07, F84.2, G11.1-G11.4, G11.8, G11.9, G12.0- G12.2, G12.8, G12.9, G31.01, G31.09, G31.8, G31.89, G32.89, G93.8, G93.9, G94, G91.1, G31.9, G25.3, G95.19, G95.89, G90.9, Q85.1, G80, G40.311, G40.301, G40.211, G40.219, G40.411, G40.419, G40.111, G40.119, G40.804, G40.911, G40.919, G37.1, G37.2, G37.8, G81.90, G82.90, G82.50-G82.54, G83.5, G83.9, G93.1, G93.5, R40.3, I63.30, I63.50, G71, G72, G10, G20, G21.0, G21.11, G21.19, G21.8, G23.0-G23.2, G23.8, G24.02, G24.8, G25.3-G25.5, G25.89, G25.9, G80.3 |
| Cardiovascular (CCC) | 425.0-425.4, 425.8, 429.1, 416.1, 416.8, 416.9, 428.0433.11, 996.83, V43.2 | I42, I43, I51.5, I27.0, I27.1, I27.2, I27.81, I50.9, I51.81, T86.20-T86.22, Z94.1 |
| Hematologic /Malignancy (CCC) | 282.0-282.6, 284, 288.1, 288.2, 446.1, 286.0, 286.3, 287.32, 287.33, 287.39, 288.01, 288.02, 288.4, 135, 042-044, 446.0, 446.21, 446.4-446.7, 710.0, 710.1, 710.3, 140-209, 230-239, 996.85 | DD55-D58, D60-D61, D71, D80-D89, D72.0, M30.3, M35.9, D66, D68.2, D69.41, D69.42, D69.49, D70.0, D70.4, D76.1-D76.3, D86.9, B20-B24, M30.0, M31.0, M31.1, M31.30, M31.4, M31.6, M32.10, M33.90, M34.0, M34.1, M34.9, C00-C96, D01-D09, D3A.0, D37-D49, Q85.0, T86.00-T86.02, T86.09, Z94.81, Z94.84  |
| Other Genetic/Congenital (CCC) | 758.0-758.3, 758.5-758.9, 259.4, 737.3, 756.0-756.5, 553.3, 756.6, 756.7, 759.7-759.9 | Q90.9, Q91.3, Q91.4, Q91.7, Q92.8, Q93, Q96.9, Q97, Q98, Q99.8, Q99.9, E34.3, M41.0, M41.2, M41.30, M41.8, M41.9, M43.30, M96.5, Q72.2, Q75.0, Q75.2, Q75.9, Q76.0-Q76.2, Q76.4-Q76.7, Q77, K44.9, Q79.0-Q79.5, Q79.9, Q79.59, Q81, Q87.1-Q87.3, Q87.40, Q87.81, Q87.89, Q89.7, Q99.2 |
| Premature and Neonatal (CCC) | 764.01, 764.02, 764.11, 764.12, 764.21, 764.22, 764.91, 764.92, 765.01, 765.02, 765.11, 765.12, 765.21-765.23, 767.0, 767.4, 768.5, 768.9, 770.2, 770.7, 768.7, 771.0, 771.1, 772.13, 772.14, 773.3, 773.4, 774.7, 776.5, 777.53, 778.0, 779.7 | P05.01, P05.11, P05.02, P05.12, P05.2, P05.9, P07.01, P07.02, P07.21-P07.25, P10.0, P10.1, P10.4, P52.4, P52.8, P11.5, P21.0, P21.9, P84, P25.0-P25.3, P25.8, P27.0, P27.1, P27.8, P91.6, P35.0, P35.1, P25.21, P25.22, P56.0, P57.0, P57.8, P61.3, P61.4, P77.3, P83.2, P91.2 |
| Misc. Transplantation NOS (CCC)  | 996.80, 6.88, 996.89 | T86.5, T86.90-T86.92, T86.99, T86.890, T86.891, T86.899 |
| Misc. Devices | 996.4, 996.66, 996.67, 996.9, V46.2 | T84.019A, T84.029A, T84.039A, T84.049A, T84.059A, T84.069A, T84.099A, T84.498A, T84.119A, T84.129A, T84.199A, T84.498A, T84.50XA, T84.60XA, , T84.7XXA, T86.90-T86.92, T86.99, T86.10-T86.12, T86.40-T86.42, T86.20-T86.22, T86.810, T86.811, T86.819, T86.00-T86.02, T86.09, T86.890, T86.891, T86.899, T86.850, T86.851, T86.859, T86.5, T86.890, T86.891, T86.899, T87.0X9, T87.1X9, T87.2, Z99.81 |

Supplemental Table 2: Detailed Distribution of Fractures by Age

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| --- | --- | --- | --- |
| **Age at fracture, in years** | **Total** | **No PPI** | **PPI** |
| <1 | 44 (4.3) | 19 (4.2) | 25 (4.3) |
| 1 | 117 (11.3) | 61 (13.5) | 56 (9.6) |
| 2 | 113 (10.9) | 38 (8.4) | 75 (12.9) |
| 3 | 44 (4.3) | 15 (3.3) | 29 (5.0) |
| 4 | 33 (3.2) | 12 (2.6) | 21 (3.6) |
| 5 | 30 (2.9) | 12 (2.6) | 18 (3.1) |
| 6 | 50 (4.8) | 16 (3.5) | 34 (5.9) |
| 7 | 49 (4.7) | 16 (3.5) | 33 (5.7) |
| 8 | 35 (3.4) | 17 (3.8) | 18 (3.1) |
| 9 | 37 (3.6) | 14 (3.1) | 23 (4.0) |
| 10 | 63 (6.1) | 17 (3.8) | 46 (7.9) |
| 11 | 82 (7.9) | 37 (8.2) | 45 (7.7) |
| 12 | 88 (8.5) | 47 (10.4) | 41 (7.1) |
| 13 | 88 (8.5) | 50 (11.0) | 38 (6.5) |
| 14 | 68 (6.6) | 39 (8.6) | 29 (5.0) |
| 15 | 65 (6.3) | 32 (7.1) | 33 (5.7) |
| 16 | 24 (2.3) | 9 (2.0) | 15 (2.6) |
| 17 | 4 (0.4) | 2 (0.4) | 2 (0.3) |
| **Total** | **1034** | **453** | **581** |

Hospitalizations with fractures recorded by detailed age and cohort