**Supplementary Table 1. ICD codes used to define variables in the full and simplified modelsa,b**

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| **Variable** | **ICD-9 and/or ICD-10 Codes** |
| 1. Sex | Use demographic data |
| 1. Race | Use demographic data |
| 1. Age | Use demographic data (age on the date of the index visit) |
| 1. Body Mass Index (BMI) | Use available BMI data on date closest to the index date |
| 1. Type II diabetes mellitus (T2DM) | At least 2 of any of the followingc:  250.x0, 250.x2, E11 |
| 1. Acne | 706.0, 706.1, L70.0, L70.1, L70.2, L70.3, L70.5, L70.8, L70.9 |
| 1. Substance Use Disorder (SUD) | At least 2 counts of any of the following:  292.x, 304.x, 305.2-305.9, F11.x-F16.x, F18.x, F19.x  **Except**: 304.x3, 305.x3, F1x.11, F1x.21 |
| 1. Down syndrome (DS) | 758.0, Q90.0, Q90.1, Q90.2, Q90.9 |
| 1. Smoker | V15.82, 305.1, Z87.891, Z72.0, F17.2 |
| 1. Number of opioid prescriptions in the 1 year prior to index date (0, 1-6, 7 or more) | Refer to description on page 1 |
| 1. Polycystic ovarian syndrome (PCOS) | 256.4, E28.2 |
| 1. Depression | 296.20-296.25, 296.30-296.35, 300.4, 311, F32.0-F32.9, F33.0-F33.3, F33.8, F33.9, F41.2 |
| 1. Obstructive Sleep Apnea (OSA) | At least 2 of any of the following:  327.20, 327.23, 327.29, 780.51, 780.53, 780.57, G47.30, G47.33, G47.39 |
| 1. Myocardial infarction (MI) | 410.x, 412, I21, I22, I25.2x |
| 1. Ulcerative colitis (UC) | At least 2 of any of the following:  556.x, K51.x |
| 1. Spondyloarthritis | 720.0, 720.1, 720.2, 720.81, 720.89, 720.9, M45.x, M46.0x, M46.1x, M46.5x, M46.8x, M46.9x, M49.8x, M02.38, M02.88, M07.68, L40.53 |
| 1. Liver disease | 070.22, 070.23, 070.32, 070.33, 070.44, 070.54, 070.6, 070.9, 570.x, 571.x, 573.3, 573.4, 573.8, 573.9, V42.7, 456.0-456.2, 572.2-572.8, B18.x, K70.0-K70.3, K70.9, K71.3-K71.5, K71.7, K73.x, K74.x, K76.0, K76.2-K76.4, K76.8, K76.9, Z94.4, I85.0, I85.9, I86.4, I98.2, K70.4, K71.1, K72.1, K72.9, K76.5, K76.6, K76.7 |

a – Comorbiditieswere identified using at least 1 occurrence of any of the corresponding ICD-9/ICD-10 codes unless otherwise specified.

b –“x” represents wildcard, or any digit from 0 to 9.

c – At least 2 occurrences based on any combination of the corresponding diagnostic codes