

Healthcare resource utilization and costs for newly diagnosed dementia-related psychosis

Supplement

Table S1. ICD (9th and 10th Revisions) Clinical Modification Codes for Dementia.

| Dementia Type | Dementia Diagnosis Codes |
|---|--|
| Alzheimer's disease and senile dementia | ICD 9: 331.0, 290.0, 290.10, 290.13, 290.21, 797, 331.2 ICD 10: G30.0, G30.1, G30.8, G30.9, G31.1 |
| Parkinson's disease dementia | ICD 9: 332 ICD 10: G20 |
| Lewy body dementia | ICD 9: 331.82 ICD 10: G31.83 |
| Frontotemporal dementia | ICD 9: 331.19, 331.11 ICD 10: G31.09, G31.01 |
| Vascular dementia | ICD 9: 290.40, 290.43, 438.0 ICD 10: F01.50 |
| Other/unspecified dementia | ICD 9: 294.10, 294.20 ICD 10: F03.90, F02.80 |

Abbreviation: ICD=International Classification of Diseases.

Table S2. ICD (9th and 10th Revisions) Clinical Modification Codes Used to Define Exclusions for Conditions Potentially Associated with Psychosis.

| Exclusions | Diagnosis Codes |
|--|--|
| Chronic psychiatric disease | ICD 9: 295, 296, 297, 298.3, 293.83, 293.84, 301.20, 301.22, 291.1, 291.2, 291.3, 291.5, 292.11, 292.12, 292.82, 293.81, 293.82 |
| | ICD 10: F20, F21, F24, F25, F30, F31, F32.3, F33.3, V11.0, F1015, F10232, F10250, F10251, F10259, F10950, F10951, F10959, F11122, F11150, F11151, F11159, F11222, F11250, F11251, F11259, F11922, F11950, F11951, F11959, F12122, F12150, F12151, F12159, F12222, F12250, F12251, F12259, F12922, F12950, F12951, F12959, F13150, F13151, F13159, F13232, F13250, F13251, F13259, F13932, F13950, F13951, F13959, F14122, F14150, F14151, F14159, F14222, F14250, F14251, F14259, F14922, F14950, F14951, F14959, F15122, F15150, F15151, F15159, F15222, F15250, F15251, F15259, F15922, F15950, F15951, F15959, F16122, F16150, F16151, F16159, F16183, F16250, F16251, F16259, F16283, F16950, F16951, F16959, F16983, F18150, F18151, F18159, F18250, F18251, F18259, F18950, F18951, F18959, F19122, F19150, F19151, F19159, F19222, F19232, F19250, F19251, F19259, F19922, F19932, F19950, F19951, F19959 |
| Seizures | ICD 9: 345, 310, 333.2, 649.4, 780.33, 300.11, 780.39, 341.81, 333.2 |
| | ICD 10: F482, G25.3, R56.1, G40, F44.5, R56.9, G93.81, G83.84, G25.3 |
| Chronic alcohol-induced dementia | ICD 9: 291.2 ICD 10: F10.27, G312 |
| Drug-induced persisting dementia | ICD 9: 292.82 ICD 10: F19.97 |
| Ischemic, hemorrhagic, other stroke | ICD 9: 430, 431, 432.0, .1, .9 433.x1, 434.x1 ICD 10: I60.X, I61.X, I62.X, I63.X, I64, I67.X, I69.X except I69.310 |
| Cerebral amyloid angiopathy | ICD 10: I68.0 |
| Central nervous system neoplasm malignancy | ICD 9: 191.X, 192.1, 239.6, 198.3, 225.0, 225.2 ICD 10: C70.0, .9, C71.X, C72.9, C721, C7931, C7932, D33.0,.1, 2, .7, .9 D32.0, .9, D49.6 |
| Huntington disease | ICD 10: G10 |
| Vascular malformation | ICD 9: 747.81 ICD 10: Q28.2, 28.3 |
| Other | ICD 9: 331.7, 331.81, 331.89, 437.1, 198.3, 192.8, 192.9 ICD 10: G13.2, G13.8, G93.7, G31.89, G31.9, G46 |

Abbreviation: ICD=International Classification of Diseases.

Table S3. ICD (9th and 10th Revisions) Clinical Modification Codes for Manifestations of Psychosis Used to Establish the Presence of Dementia-Related Psychosis.

| Disease Manifestation | Psychosis Diagnosis Codes |
|-----------------------|--|
| Psychosis | ICD 9: 293.81, 293.82, 290.8, 290.9, 297.1, 298.0, 298.1, 298.4, 298.8, 298.9, 368.16, 780.1, 290.12, 290.20, 290.42 |
| | ICD 10: F06.2, F06.0, F22, F23, F28, F29, H53.16, R44.0, R44.1, R44.2, R44.3 |

Abbreviation: ICD=International Classification of Diseases.

Table S4. Annualized All-cause Weighted HCRU Claims Per Patient Per Year for Patients With Dementia-related Psychosis.

| | Sample Size, N | Inpatient | Emergency Department/ Observation Stay | Outpatient ¹ | Skilled Nursing Fa- cility | Home Health Care/ Hos- pice | Physician Visits/DME | Prescription Drug Fills |
|-------------------------|-------------------|-----------|---|-------------------------|----------------------------------|-----------------------------------|-------------------------|----------------------------|
| Baseline period | 49,509 | 1.0 | 1.2 | 5.6 | 1.2 | 1.1 | 26.7 | 63.0 |
| 1 year post index | 49,509 | 0.9 | 1.1 | 6.5 | 1.4 | 2.0 | 30.8 | 79.2 |
| 2 years post in- dex | 26,808 | 0.6 | 0.8 | 5.8 | 0.9 | 1.9 | 26.0 | 79.3 |
| 3 years post in- dex | 16,027 | 0.6 | 0.7 | 5.6 | 0.8 | 1.9 | 24.8 | 78.9 |
| 4 years post in- dex | 9277 | 0.5 | 0.6 | 5.4 | 0.7 | 1.8 | 23.8 | 78.5 |

Weighted mean values are shown. ¹ Outpatient setting does not include emergency department or observation hospital stays. Abbreviation: DME=durable medical equipment; LTC=long-term care; SD=standard deviation.

Table S5. All-cause Costs Per patient Per Year by Type of Medicare Setting and Overall in Medicare and LTC.

| | Sample Size, N | Inpatient | Outpa- tient | Skilled Nursing Facility | Home Health Care/ Hos- pice | Physician Vis- its/DME | Prescrip- tion Drug Fills | Total Medicare | LTC | Total |
|-------------------------|-------------------|--------------------|------------------|--------------------------------|--------------------------------------|------------------------------|---------------------------------|---------------------|--------------------|---------------------|
| Baseline period | | | | | | | | | | |
| Mean (SD) | 49,509 | 9989 (18,376) | 2817 (5208) | 7721 (15,845) | 3279 (7638) | 5585 (6615) | 4303 (4893) | 33,693 (36,360) | 15,060 (30,429) | 48,753 (46,068) |
| Adjusted mean | | 9989 | 2817 | 7721 | 3279 | 5585 | 4303 | 33,693 | 15,060 | 48,753 |
| 1 year post in- dex | | | | | | | | | | |
| Mean (SD) | 49,509 | 25,982 (96,608) | 3731 (11,872) | 11,430 (31,105) | 9901 (20,680) | 8588 (18,331) | 5257 (5992) | 64,889 (123,792) | 24,495 (36,918) | 89,384 (125,116) |
| Adjusted mean | | 11,779 | 3179 | 8534 | 6709 | 5908 | 5326 | 41,433 | 26,270 | 67,704 |
| 2 years post in- dex | | | | | | | | | | |
| Mean (SD) | 26,808 | 11,971 (49,692) | 2775 (6228) | 5157 (17,087) | 8875 (18,563) | 5512 (10,773) | 5010 (5751) | 39,300 (67,456) | 29,136 (40,310) | 68,436 (74,816) |
| Adjusted mean | | 7357 | 2590 | 4584 | 6698 | 4605 | 5142 | 30,975 | 30,634 | 61,609 |
| 3 years post in- dex | | | | | | | | | | |
| Mean (SD) | 16,027 | 10,882 (52,390) | 2616 (7040) | 4455 (15,603) | 8786 (18,710) | 5084 (10,103) | 4828 (5940) | 36,651 (69,457) | 32,235 (41,942) | 68,885 (77,064) |
| Adjusted mean | | 6429 | 2425 | 3880 | 6762 | 4225 | 4941 | 28,662 | 33,756 | 62,417 |
| 4 years post in- dex | | | | | | | | | | |
| Mean (SD) | 9277 | 9914 (43,606) | 2402 (5153) | 3746 (14,124) | 8878 (18,992) | 4709 (9359) | 4653 (6199) | 34,302 (60,809) | 34,838 (42,976) | 69,140 (69,635) |
| Adjusted mean | | 6045 | 2273 | 3310 | 6837 | 3931 | 4776 | 27,171 | 36,645 | 63,816 |

All values are 2015 US dollars per patient per year. Abbreviation: DME=durable medical equipment; LTC=long-term care; SD=standard deviation.

Table S6. Psychosis-Related Costs Per Patient Per Year by Setting.

| | Sample Size, N | Inpatient | Outpatient | Skilled Nursing Fa- cility | Home Health Care/Hos- pice | Physician Visits/DME | Prescription Drug Fills | Total |
|--------------------|----------------|------------------|---------------|----------------------------------|-------------------------------------|-------------------------|----------------------------|------------------|
| Baseline period | | | | | | | | |
| Mean (SD) | 49,509 | 458 (2603) | 57 (270) | 150 (1329) | 26 (326) | 128 (224) | 137 (538) | 955 (3022) |
| Weighted mean | | 458 | 57 | 150 | 26 | 128 | 137 | 955 |
| 1 year post index | | | | | | | | |
| Mean (SD) | 49,509 | 2912 (38,279) | 156 (1827) | 1885 (13,022) | 559 (6336) | 356 (1803) | 795 (1603) | 6663 (41,597) |
| Weighted mean | | 1147 | 115 | 1237 | 317 | 227 | 782 | 3824 |
| 2 years post index | | | | | | | | |
| Mean (SD) | 26,808 | 319 (4814) | 66 (689) | 392 (5009) | 193 (3177) | 113 (537) | 620 (1480) | 1703 (8191) |
| Weighted mean | | 256 | 68 | 356 | 137 | 107 | 642 | 1565 |
| 3 years post index | | | | | | | | |
| Mean (SD) | 16,027 | 226 (3588) | 50 (480) | 311 (4005) | 166 (2640) | 91 (499) | 510 (1400) | 1354 (6673) |
| Weighted mean | | 206 | 52 | 292 | 118 | 89 | 523 | 1280 |
| 4 years post index | | | | | | | | |
| Mean (SD) | 9277 | 223 (3458) | 54 (511) | 202 (2711) | 122 (2267) | 77 (397) | 399 (1284) | 1077 (5494) |
| Weighted mean | | 170 | 57 | 210 | 116 | 73 | 419 | 1054 |

All values are 2015 US dollars per patient per year. Abbreviations: DME=durable medical equipment; SD=standard deviation.

Table S7. Annualized Psychosis-related Weighted HCRU Claims Per Patient Per Year for Patients With Dementia-related Psychosis.

| | Sample Size, N | Inpatient | Emergency Department/ Observation Stay | Outpatient¹ | Skilled Nursing Fa- cility | Home Health Care/ Hos- pice | Physician Visits/DME | Prescription Drug Fills |
|-------------------------|---------------------------|------------------|---|-------------------------------|---|--|---------------------------------|------------------------------------|
| Baseline period | 49,509 | 0.07 | 0.04 | 0.14 | 0.05 | 0.02 | 0.77 | 2.11 |
| 1 year post index | 49,509 | 0.05 | 0.02 | 0.21 | 0.17 | 0.07 | 1.60 | 7.64 |
| 2 years post in- dex | 26,808 | 0.02 | 0.01 | 0.15 | 0.08 | 0.04 | 0.94 | 6.49 |
| 3 years post in- dex | 16,027 | 0.02 | 0.01 | 0.12 | 0.08 | 0.03 | 0.82 | 5.80 |
| 4 years post in- dex | 9277 | 0.01 | 0.01 | 0.13 | 0.06 | 0.03 | 0.69 | 5.25 |

Weighted mean values are shown. ¹ Outpatient setting does not include emergency department or observation hospital stays. Abbreviation: DME=durable medical equipment; LTC=long-term care; SD=standard deviation.

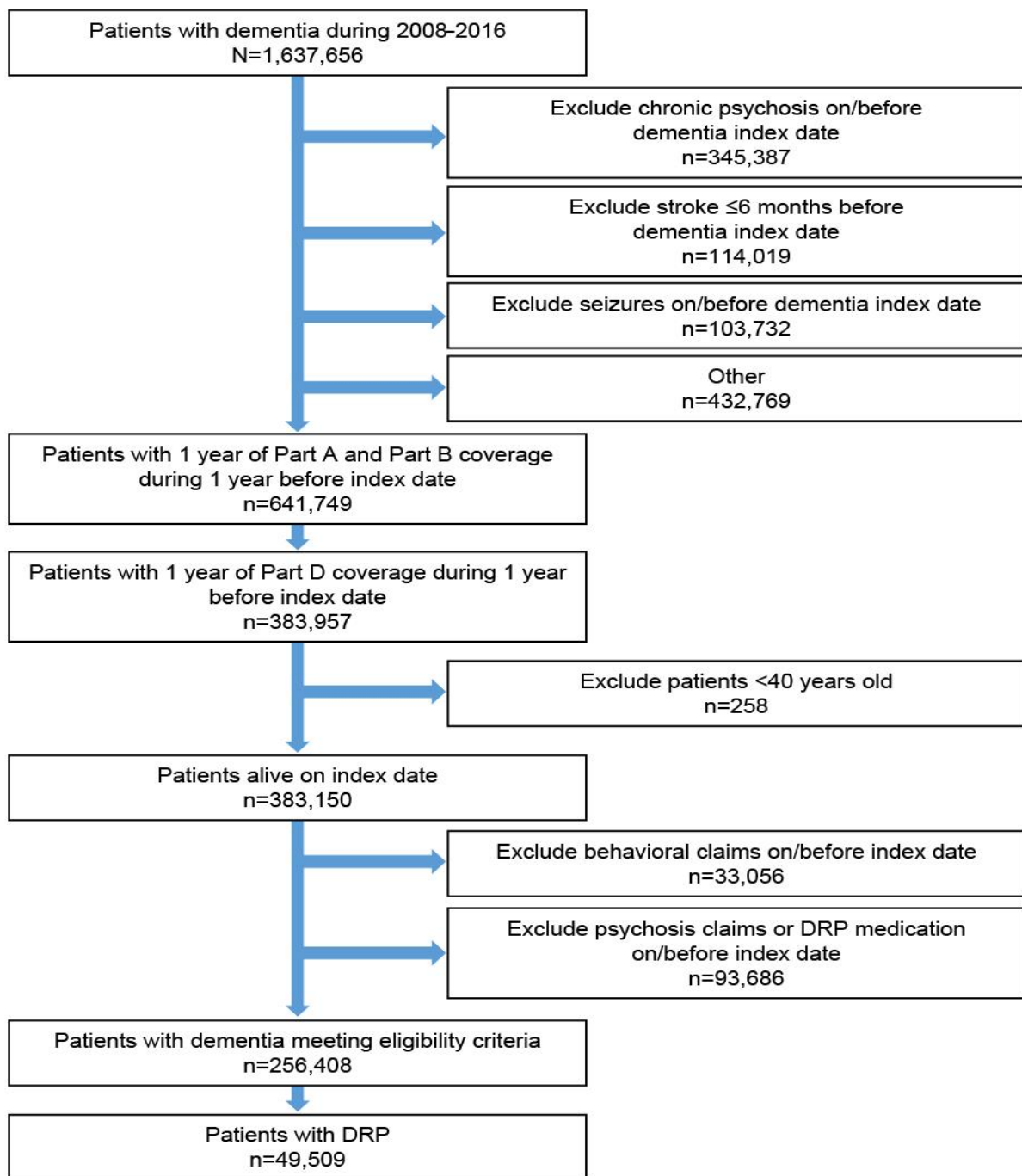


Figure S1. Patient Selection. Abbreviation: DRP=dementia-related psychosis.