Supplemental Figure 1. Flowchart for the selection of patients in the study sample

**Supplemental Figure 1A. Truven sample**



**Supplemental Figure 1B. IQVIATM RWD Adjudicated Claims - US sample**



**Supplemental Figure 2A. 1L regimens by index year - Truven sample**

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| 1L, first line of therapy post-index; I-O, immuno-oncology |
| Note: 2016 data was based on only on Q1 - Q2 (January 1 - June 30) | |

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| 1L, first line of therapy post-index |
| Note: 2016 data was based on only on Q1 - Q2 (January 1 - June 30) | |

**Supplemental Figure 2B. 1L regimens by index year- IQVIATM RWD Adjudicated Claims - US sample**

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| --- | --- |
| 1L, first line of therapy post-index; I-O, immuno-oncology |  |
| Note: 2016 data was based on only on Q1 - Q2 (January 1 - June 30) | |

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| --- | --- | --- | --- |
| 1L, first line of therapy post-index |  |  |  |
| Note: 2016 data was based on only on Q1 - Q2 (January 1 - June 30) | | | |

## Supplemental Table 1. Patient chracteristics stratified by BRAF testing prior to 1L

Supplemental Table 1A. Truven Sample

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|  |  | **Truven** | | |
|  | **With claim for BRAF test before 1L** | **Without claim for BRAF test before 1L** | **p-value1** |
|  | **N = 92** | **N = 70** |
| **DEMOGRAPHICS**  *(at index date)* |  |  |  |  |
| Age |  |  |  |  |
| Mean ± SD |  | 55.0 ± 12.8 | 58.0 ± 11.6 | 0.125 |
| Median [IQR] |  | 57.0 [47.0 - 62.0] | 59.0 [50.0 - 65.0] |  |
| Males, N (%) |  | 55 (59.8%) | 43 (61.4%) | 0.832 |
| Type of healthplan, N (%) |  |  |  |  |
| Preferred Provider Organization |  | 57 (62.0%) | 38 (54.3%) | 0.326 |
| Health Maintenance Organization |  | 7 (7.6%) | 7 (10.0%) | 0.592 |
| Point of Service Plan |  | 5 (5.4%) | 5 (7.1%) | 0.655 |
| Comprehensive |  | 6 (6.5%) | 12 (17.1%) | 0.033\* |
| High-Deductible Health Plan |  | 5 (5.4%) | 4 (5.7%) | 0.939 |
| Consumer-Directed Health Plan |  | 11 (12.0%) | 3 (4.3%) | 0.085 |
| Point of Service Plan with Capitalisation |  | 1 (1.1%) | 1 (1.4%) | 0.845 |
| Exclusive Provider Organization |  | 0 (0.0%) | 0 (0.0%) | - |
| **UNDERLYING TUMOR BURDEN** *(between first melanoma diagnosis and line start)* |  |  |  |  |
| Prior cancer-directed therapies, N (%) |  |  |  |  |
| Pharmacological |  | 18 (19.6%) | 10 (14.3%) | 0.379 |
| Radiation therapy |  | 43 (46.7%) | 27 (38.6%) | 0.299 |
| Surgery, N (%)  *(patients can have >1 type of surgery)* |  | 50 (54.3%) | 30 (42.9%) | 0.147 |
| Skin biopsy |  | 50 (54.3%) | 42 (60.0%) | 0.472 |
| Excision of skin tumor |  | 49 (53.3%) | 33 (47.1%) | 0.440 |
| Lymph node dissection |  | 37 (40.2%) | 17 (24.3%) | 0.033\* |
| Brain metastases, N(%) |  |  |  |  |
| Number of metastatic sites  *(maximum = 6; listed above)* |  |  |  |  |
| Mean ± SD |  | 2.5 ± 1.4 | 2.1 ± 1.1 | 0.019\* |
| Median [IQR] |  | 2.0 [1.5 - 3.0] | 2.0 [1.0 - 3.0] |  |
| **COMORBIDITIES**  *(during baseline period)* |  |  |  |  |
| Charlson comorbidity score [CCI]2 |  | 7.1 ± 1.4 | 6.6 ± 1.0 | 0.008\* |
| Mean ± SD |  | 6.0 [6.0 - 8.0] | 6.0 [6.0 - 7.0] |  |
| Median [IQR] |  |  |  |  |
| Specific comorbidities, N (%) |  |  |  |  |
| Anemia |  | 22 (23.9%) | 11 (15.7%) | 0.199 |
| Cardiovascular disease3 |  | 45 (48.9%) | 33 (47.1%) | 0.823 |
| Diabetes (type I or II) |  | 13 (14.1%) | 8 (11.4%) | 0.612 |
| Hemiplegia |  | 8 (8.7%) | 2 (2.9%) | 0.126 |
| Immune diseases4 |  | 6 (6.5%) | 8 (11.4%) | 0.271 |
| Liver disease |  | 20 (21.7%) | 13 (18.6%) | 0.620 |
| Renal disease |  | 8 (8.7%) | 1 (1.4%) | 0.045\* |
| **HEALTHCARE RESOURCE UTILIZATION** *(during baseline period)* |  |  |  |  |
| Inpatient admission(s), N (%) |  | 44 (47.8%) | 29 (41.4%) | 0.418 |
| Emergency department visit(s), N (%) |  | 27 (29.3%) | 19 (27.1%) | 0.758 |
| **HEALTHCARE COST**  *(during baseline period)* |  |  |  |  |
| All-cause cost (per patient per month) |  |  |  |  |
| Mean ± SD |  | 13,030.4 ± 15,389.3 | 8,509.7 ± 11,130.8 | 0.032\* |
| Median [IQR] |  | 7,321.2 [2,868.7 - 15,786.8] | 5,724.4 [1,910.3 - 10,187.8] |  |
| **IMMUNOHISTOCHEMISTRY TESTING**  *(from first melanoma diagnosis to 1L start)* |  |  |  |  |
| IHC test before 1L, N(%) |  | 81 (88.0%) | 53 (75.7%) | 0.040\* |

[1] Chi-square tests and T-tests were conducted to assess whether there are any statistically significant differences between cohorts

[2] Deyo RA, Cherkin DC, Ciol MA. Adapting a clinical comorbidity index for use with ICD-9-CM administrative databases. Journal of clinical epidemiology. 1992;45(6):613–619. All patients received 6 points in the CCI score for the metastatic disease.

[3] Any of the following: cerebrovascular disease, congestive heart failure, myocardial infarction, peripheral vascular disease.

[4] Any of the following: ankylosing spondylitis; thyroiditis; Graves’ disease; inflammatory bowel disease [including Chron's disease and ulcerative colitis], multiple sclerosis, psoriasis, psoriatic arthritis, rheumatoid arthritis, systemic lupus erythematosus, or vitiligo.

Supplemental Table 1B. IQVIATM RWD Adjudicated Claims - US Sample

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **IQVIATM RWD Adjudicated Claims - US** | | |
|  | **With claim for BRAF test before 1L** | **Without claim for BRAF test before 1L** | **p-value1** |
|  | **N = 158** | **N = 89** |
| **DEMOGRAPHICS**  *(at index date)* |  |  |  |  |
| Age |  |  |  |  |
| Mean ± SD |  | 51.4 ± 10.2 | 54.7 ± 10.9 | 0.016\* |
| Median [IQR] |  | 54.0 [45.0 - 59.0] | 56.0 [49.0 - 62.0] |  |
| Males, N (%) |  | 92 (58.2%) | 61 (68.5%) | 0.109 |
| Type of healthplan, N (%) |  |  |  |  |
| Preferred Provider Organization |  | 132 (83.5%) | 72 (80.9%) | 0.599 |
| Health Maintenance Organization |  | 20 (12.7%) | 11 (12.4%) | 0.946 |
| Point of Service Plan |  | 0 (0.0%) | 5 (5.6%) | 0.003\* |
| Consumer-Directed Health Plan |  | 0 (0.0%) | 0 (0.0%) | - |
| Exclusive Provider Organization |  | 6 (3.8%) | 1 (1.1%) | 0.224 |
| **UNDERLYING TUMOR BURDEN** *(between first melanoma diagnosis and line start)* |  |  |  |  |
| Prior cancer-directed therapies, N (%) |  |  |  |  |
| Pharmacological |  | 23 (14.6%) | 11 (12.4%) | 0.630 |
| Radiation therapy |  | 67 (42.4%) | 30 (33.7%) | 0.179 |
| Surgery, N (%)  *(patients can have >1 type of surgery)* |  |  |  |  |
| Skin biopsy |  | 69 (43.7%) | 28 (31.5%) | 0.059 |
| Excision of skin tumor |  | 97 (61.4%) | 38 (42.7%) | 0.005\* |
| Lymph node dissection |  | 89 (56.3%) | 38 (42.7%) | 0.040\* |
| Brain metastases, N(%) |  | 53 (33.5%) | 20 (22.5%) | 0.067 |
| Number of metastatic sites  *(maximum = 6; listed above)* |  |  |  |  |
| Mean ± SD |  | 2.7 ± 1.4 | 2.3 ± 1.3 | 0.024\* |
| Median [IQR] |  | 2.0 [2.0 - 4.0] | 2.0 [1.0 - 3.0] |  |
| **COMORBIDITIES**  *(during baseline period)* |  |  |  |  |
| Charlson comorbidity score [CCI]2 |  |  |  |  |
| Mean ± SD |  | 6.8 ± 1.2 | 7.0 ± 1.2 | 0.227 |
| Median [IQR] |  | 6.0 [6.0 - 8.0] | 6.0 [6.0 - 8.0] |  |
| Specific comorbidities, N (%) |  |  |  |  |
| Anemia |  | 37 (23.4%) | 16 (18.0%) | 0.317 |
| Cardiovascular disease3 |  | 44 (27.8%) | 35 (39.3%) | 0.063 |
| Diabetes (type I or II) |  | 13 (8.2%) | 14 (15.7%) | 0.070 |
| Hemiplegia |  | 7 (4.4%) | 2 (2.2%) | 0.379 |
| Immune diseases4 |  | 13 (8.2%) | 9 (10.1%) | 0.618 |
| Liver disease |  | 38 (24.1%) | 26 (29.2%) | 0.374 |
| Renal disease |  | 9 (5.7%) | 11 (12.4%) | 0.065 |
| **HEALTHCARE RESOURCE UTILIZATION** *(during baseline period)* |  |  |  |  |
| Inpatient admission(s), N (%) |  | 64 (40.5%) | 39 (43.8%) | 0.612 |
| Emergency department visit(s), N (%) |  | 48 (30.4%) | 31 (34.8%) | 0.471 |
| **HEALTHCARE COST**  *(during baseline period)* |  |  |  |  |
| All-cause cost (per patient per month) |  |  |  |  |
| Mean ± SD |  | 12,064.2 ± 18,959.5 | 12,568.4 ± 20,115.3 | 0.845 |
| Median [IQR] |  | 7,383.5 [3,238.5 - 14,154.0] | 5,138.1 [1,901.9 - 12,484.6] |  |
| **IMMUNOHISTOCHEMISTRY TESTING** *(from first melanoma diagnosis to 1L start)* |  |  |  |  |
| IHC test before 1L, N(%) |  | 131 (82.9%) | 47 (52.8%) | < 0.001\* |

[1] Chi-square tests and T-tests were conducted to assess whether there are any statistically significant differences between cohorts

[2] Deyo RA, Cherkin DC, Ciol MA. Adapting a clinical comorbidity index for use with ICD-9-CM administrative databases. Journal of clinical epidemiology. 1992;45(6):613–619. All patients received 6 points in the CCI score for the metastatic disease.

[3] Any of the following: cerebrovascular disease, congestive heart failure, myocardial infarction, peripheral vascular disease.

[4] Any of the following: ankylosing spondylitis; thyroiditis; Graves’ disease; inflammatory bowel disease [including Chron's disease and ulcerative colitis], multiple sclerosis, psoriasis, psoriatic arthritis, rheumatoid arthritis, systemic lupus erythematosus, or vitiligo.