**Supplement**

**Supplemental Table 1. Access to digital technology among beneficiaries with usual care providers (Summer 2020 vs. Fall 2020)**

|  |  |  |
| --- | --- | --- |
|  | Beneficiaries with usual care providers | p-value |
| Summer Survey(n=10,604; N=53,508,942) | Fall Survey(n=9,216; N=52,663,158) |
| Smartphone/Tablet + Internet | 70.03% | 71.53 % | 0.012\* |
| Smartphone + No Internet | 3.71% | 4.07% |
| Computer only + Internet | 8.12% | 7.18% |
| No Smartphone + No Internet | 17.70% | 16.70% |
| Unknown | 0.44% | 0.53% |

**Figure 1.** **Offers of telemedicine to Medicare beneficiaries by usual care providers during the COVID-19 pandemic: March-June 2020 vs. July-November 20201**

1. This figure includes all beneficiaries with usual care providers and telemedicine information. The summer sample included 10,601 beneficiaries with usual care providers, representing 53,500,958 beneficiaries. The sample for the fall survey was 9,214 representing 52,652,319 beneficiaries.

**Supplemental Table 2. Access to digital technologies among beneficiaries with usual care providers by beneficiary characteristics, July-November 2020 (n=9,216; N=52,663,158)1**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Variable | Category  | Smartphone/ Tablet + Internet | Smartphone dependent | Computer only + Internet | No access | Unknown | p-value |
| Age  | <65 years | 71.4% | 6.5% | 4.9% | 16.8% | 0.4% | <0.001\*\*\* |
| 65-74 years | 81.2% | 3.2% | 5.7% | 9.5% | 0.5% |
| 75+ years | 57.1% | 3.9% | 10.9% | 27.6% | 0.6% |
| Sex | Male | 70.4% | 4.0% | 8.7% | 16.5% | 0.5% | <0.001\*\*\* |
| Female  | 72.5% | 4.2% | 6.0% | 16.9% | 0.6% |
| Race/ Ethnicity | Non-Hispanic white | 74.8% | 3.1% | 8.0% | 13.6% | 0.4% | <0.001\*\*\* |
| Non-Hispanic Black  | 59.5% | 7.6% | 3.5% | 28.5% | 1.0% |
| Hispanic  | 56.7% | 8.4% | 3.3% | 30.1% | 1.4% |
| Other/Unknown  | 70.3% | 4.3% | 7.7% | 17.6% | 0.1% |
| Number of chronic conditions | 0 or 1 conditions | 75.8% | 3.6% | 6.5% | 14.0% | 0.2% | <0.001\*\*\* |
| 2 or 3 conditions | 71.0% | 4.3% | 7.6% | 16.4% | 0.7% |
| >3 conditions | 65.7% | 4.4% | 7.3% | 22.1% | 0.6% |
| Dual Eligible | Not dual eligible | 74.9% | 3.3% | 7.6% | 13.8% | 0.4% | <0.001\*\*\* |
| Dual eligible | 52.1% | 8.4% | 5.1% | 33.3% | 1.1% |
| Income2 | $25,000 or more | 81.4%  | 2.3% | 7.2% | 8.9% | 0.2% | <0.001\*\*\* |
| Less than $25,000 | 51.9%  | 7.7% | 6.9% | 32.3% | 1.2% |
| English speaker | Primary English speaker | 72.8% | 3.7% | 7.6% | 15.5% | 0.5% | <0.001\*\*\* |
| Not primary speaker | 61.5% | 7.1% | 4.1% | 26.6% | 0.8% |
| Usual care provider | Medical office/clinic | 71.6% | 4.0% | 7.2% | 16.8% | 0.4% | 0.010\* |
| HMO/managed care  | 72.9% | 7.6% | 5.4% | 13.3% | 0.8% |
| Urgent care/ER | 73.2% | 2.9% | 6.0% | 17.3% | 0.7% |
| VA Facility | 65.0% | 4.1% | 11.1% | 17.6% | 2.2% |
| Other/Unknown | 69.2% | 5.0% | 3.7% | 20.0% | 2.2% |
| Area type | Metro | 73.7% | 4.0% | 6.6% | 15.2% | 0.5% | <0.001\*\*\* |
| Non-metro | 62.9% | 4.2% | 9.7% | 22.6% | 0.5% |
| Region | Northeast | 70.5% | 5.5% | 7.9% | 15.5% | 0.6% | <0.001\*\*\* |
| Midwest | 69.8% | 2.9% | 9.0% | 17.9% | 0.4% |
| South | 69.8% | 5.0% | 6.0% | 18.5% | 0.7% |
| West | 77.2% | 2.4% | 6.9% | 13.2% | 0.3% |

1. Results displayed are from the fall 2020 round of the survey. Results are similar for the summer 2020 round of the survey. Available upon request.
2. Income had a higher rate of missingness than the rest of the variables. Sample size of income was 8,808 participants, representing 50,740,543 beneficiaries.

**Supplemental Table 3. Characteristics of Medicare beneficiaries offered a telemedicine appointment by their usual care provider as compared to all Medicare beneficiaries with usual care providers**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Summer Survey(n=10,604; N=53,508,942) | Fall Survey(n=9,216; N=55,327,472) |
| Variable | Category  | Has usual care provider | Offered tele-medicine(n=3,375) | p-value | Has usual care provider | Offered tele-Medicine(n=2,633) | p-value |
| Age  | <65 years | 14.20% | 17.17% | <0.001\*\*\* | 19.77% | 20.87% | 0.002\*\* |
| 65-74 years | 53.32% | 53.77% | 48.26% | 50.21% |
| 75+ years | 32.48% | 29.07% | 31.96% | 28.92% |
| Sex | Male | 44.79% | 44.94% | 0.862 | 44.79% | 46.31% | 0.074 |
| Female  | 55.21% | 55.06% | 55.21% | 53.69% |
| Race/ Ethnicity | Non-Hispanic white | 76.13% | 73.74% | 0.010\* | 75.75% | 71.48% | <0.001\*\*\* |
| Non-Hispanic Black  | 9.73% | 10.23% | 9.71% | 10.73% |
| Hispanic  | 7.97% | 8.72% | 8.33% | 10.51% |
| Other/Unknown  | 6.17% | 7.30% | 6.21% | 7.28% |
| Number of chronic conditions | 0 or 1 conditions | 33.13% | 27.71% | <0.001\*\*\* | 33.37% | 27.75% | <0.001\*\*\* |
| 2 or 3 conditions | 46.55% | 47.44% | 46.97% | 47.77% |
| >3 conditions | 20.32% | 24.85% | 19.66% | 24.49% |
| Dual Eligible | Not dual eligible | 85.46% | 84.88% | 0.296 | 85.12% | 83.38% | 0.011\* |
| Dual eligible | 14.54% | 15.12% | 14.88% | 16.62% |
| Income1 | $25,000 or more | 69.08% | 70.57% | 0.052 | 68.82% | 68.13% | 0.367 |
| Less than $25,000 | 30.92% | 29.43% | 31.18% | 31.87% |
| English speaker | Primary English speaker | 89.10% | 87.58% | 0.006\*\* | 88.81% | 87.17% | 0.006\*\* |
| Not primary speaker | 10.90% | 12.42% | 11.19% | 12.83% |
| Usual care provider | Medical office/clinic | 87.78% | 85.38% | <0.001\*\*\* | 88.37% | 84.79% | <0.001\*\*\* |
| HMO/managed care clinic | 3.87% | 4.50% | 4.03% | 4.93% |
| Urgent care/ER | 4.41% | 4.88% | 3.96% | 4.21% |
| VA Facility | 2.90% | 4.32% | 2.75% | 5.12% |
| Other/Unknown | 1.03% | 0.92% | 0.89% | 0.95% |
| Area type | Metro | 79.89% | 83.29% | <0.001\*\*\* | 80.16% | 84.64% | <0.001\*\*\* |
| Non-metro | 20.11% | 16.71% | 19.84% | 15.36% |
| Region | Northeast | 18.04% | 19.08% | 0.152 | 18.12% | 16.86% | 0.002\*\* |
| Midwest | 22.51% | 21.76% | 22.22% | 19.26% |
| South | 37.86% | 36.19% | 38.10% | 37.99% |
| West | 21.60% | 22.97% | 21.56% | 25.90% |
| Digital access | Smartphone/Tablet + Internet | 70.03% | 76.11% | <0.001\*\*\* | 71.53% | 76.98% | <0.001\*\*\* |
| Smartphone + No Internet | 3.71% | 2.91% | 4.07% | 2.88% |
| Computer only + Internet | 8.12% | 7.24% | 7.18% | 6.49% |
| No Access | 17.70% | 13.29% | 16.07% | 13.01% |
| Unknown | 0.44% | 0.45% | 0.53% | 0.64% |

1. Income had a higher rate of missingness than the rest of the variables. The number of observations for income is 10,135 in the summer round and 8,808 in the fall round.

**Supplemental Figure 2. Offers of telemedicine to Medicare beneficiaries by usual care providers during the COVID-19 pandemic, March-June 20201**

1. This figure includes all beneficiaries with usual care providers and telemedicine information in the summer survey. The sample for the summer survey was 10,601 representing 53,497,338 beneficiaries.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Category  | White | Black  | Hispanic  | Other | p-value |
| Variable | Overall | 71.47% | 10.74% | 10.52% | 7.27% |  |
| Age  | <65 years | 64.21% | 14.31% | 12.41% | 9.07% | 0.014\* |
| 65-74 years | 72.49% | 10.88% | 9.84% | 6.79% |
| 75+ years | 74.94% | 07.92% | 10.33% | 6.81% |
| Sex | Male | 71.15% | 10.84% | 9.65% | 8.36% | 0.297 |
| Female  | 71.75% | 10.66% | 11.27% | 6.33% |
| Number of chronic conditions | 0 or 1 conditions | 76.47% | 8.80% | 8.41% | 6.31% | 0.034\* |
| 2 or 3 conditions | 70.92% | 11.14% | 9.96% | 7.98% |
| >3 conditions | 66.91% | 12.14% | 14.00% | 6.96% |
| Dual Eligible | Not dual eligible | 77.45% | 9.11% | 6.93% | 6.51% | <0.001\*\*\* |
| Dual eligible | 41.46% | 18.92% | 28.53% | 11.09% |
| Income1 | $25,000 or more1 | 78.61%  | 7.93% | 6.65% | 6.81% |  |
| Less than $25,0001 | 55.77%  | 16.72%  | 18.92%  | 8.59% |
| English speaker | Primary English speaker | 79.41% | 11.74% | 2.85% | 5.99% | <0.001\*\*\* |
| Not primary speaker | 17.58% | 3.91% | 62.54% | 15.97% |
| Usual care provider | Medical office/clinic | 72.59% | 10.62% | 9.69% | 7.09% | 0.013\* |
| HMO/managed care clinic | 55.03% | 14.02% | 23.65% | 7.30% |
| Urgent care/ER | 70.85% | 9.30% | 16.57% | 3.28% |
| VA Facility | 69.11% | 11.16% | 6.81% | 12.93% |
| Other/Unknown | 72.10% | 8.36% | 9.26% | 10.27% |
| Area type | Metro | 68.64% | 11.64% | 12.19% | 7.53% | 0.001\* |
| Non-metro | 87.08% | 5.78% | 1.30% | 5.84% |
| Region | Northeast | 79.52% | 5.40% | 9.65% | 5.44% | <0.001\*\*\* |
| Midwest | 82.16% | 8.93% | 3.43% | 5.47% |
| South | 68.31% | 17.89% | 8.39% | 5.40% |
| West | 62.90% | 5.08% | 19.47% | 12.54% |
| Digital access | Smartphone + Internet | 74.18% | 9.62% | 8.57% | 7.63% | <0.001\*\*\* |
| Smartphone-dependent | 56.48% | 16.78% | 20.32% | 6.42% |
| Computer only + Internet | 80.35% | 5.79% | 5.68% | 8.18% |
| No Access | 54.81% | 18.00% | 21.96% | 5.22% |
| Unknown | 62.52% | 20.93% | 16.54% | 0.0% |

 **Supplemental Table 4. Characteristics of Medicare beneficiaries offered telemedicine appointment by race/ethnicity category (Fall survey round; n=2,631; N=15,769,800)**

1. Income had a higher rate of missingness than the rest of the variables. Sample size of income was 2,528 participants, representing 15,271,389 beneficiaries.

**Supplemental Table 5:** **Multivariable logistic regression** **model substituting English speaker variable for race/ethnicity variable (Fall survey; n=2,631; N=15,769,800)**

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | Category  | OR (SE) | p-value |
| Age  | <65 years | *Reference* |
| 65-74 years | 1.19 (0.21) | 0.315 |
| 75+ years | 1.43 (0.25) | 0.042 |
| Sex | Male | *Reference* |
| Female  | 0.94 (0.11) | 0.625 |
| English speaker | Primary English speaker | *Reference* |
| Not primary speaker | 1.64 (0.24) | 0.001\*\* |
| Number of chronic conditions | 0 or 1 conditions | *Reference* |
| 2 or 3 conditions | 0.94 (0.10) | 0.569 |
| >3 conditions | 0.94 (0.14) | 0.680 |
| Dual Eligible | Not dual eligible | *Reference* |
| Dual eligible | 1.70 (0.27) | 0.001\*\* |
| Usual care provider | Medical office/clinic | *Reference* |
| HMO/managed care clinic | 1.22 (0.27) | 0.374 |
| Urgent care/ER | 1.12 (0.26) | 0.636 |
| VA Facility | 1.24 (0.25) | 0.278 |
| Other/Unknown | 1.59 (0.77) | 0.340 |
| Area type | Metro | *Reference* |
| Non-metro | 1.63 (0.29) | 0.007\*\* |
| Region | Northeast | *Reference* |
| Midwest | 1.12 (0.21) | 0.543 |
| South | 1.31 (0.23) | 0.119 |
| West | 1.02 (0.18) | 0.899 |
| Digital access | Smartphone + Internet | *Reference* |
| Smartphone + No Internet | 1.67 (0.45) | 0.058 |
| Computer only + Internet | 1.64 (0.28) | 0.005\*\* |
| No Smartphone + No Internet | 2.49 (0.34) | <0.001\*\*\* |
| Unknown | 3.42 (2.19) | 0.058 |
| Constant | 0.27 (0.05) | <0.001\*\*\* |

**Supplemental Table 6:** **Multivariable logistic regression model** **substituting income variable for dual-eligibility variable (Fall survey; n=2,528; N=15,271,389)**

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | Category  | OR (SE) | p-value |
| Age  | <65 years | *Reference* |
| 65-74 years | 1.14 (0.19) | 0.425 |
| 75+ years | 1.39 (0.23) | 0.056 |
| Sex | Male | *Reference* |
| Female  | 0.93 (0.11) | 0.513 |
| Race/Ethnicity | Non-Hispanic white | *Reference* |
| Non-Hispanic Black  | 1.30 (0.26) | 0.198 |
| Hispanic  | 2.26 (0.39) | <0.001\*\*\* |
| Other/Unknown  | 0.98 (0.21) | 0.912 |
| Number of chronic conditions | 0 or 1 conditions | *Reference* |
| 2 or 3 conditions | 0.94 (0.11) | 0.592 |
| >3 conditions | 0.98 (0.15) | 0.893 |
| Income | $25,000 or more | *Reference* |
| Less than $25,000 | 1.26 (0.15) | 0.063 |
| Usual care provider | Medical office/clinic | *Reference* |
| HMO/managed care clinic | 1.19 (0.27) | 0.454 |
| Urgent care/ER | 1.10 (0.27) | 0.699 |
| VA Facility | 1.20 (0.24) | 0.377 |
| Other/Unknown | 1.79 (0.89) | 0.239 |
| Area type | Metro | *Reference* |
| Non-metro | 1.66 (0.31) | 0.007\*\* |
| Region | Northeast | *Reference* |
| Midwest | 1.07 (0.21) | 0.744 |
| South | 1.21 (0.22) | 0.308 |
| West | 0.94 (0.16) | 0.719 |
| Digital access | Smartphone + Internet | *Reference* |
| Smartphone + No Internet | 1.61 (0.49) | 0.124 |
| Computer only + Internet | 1.63 (0.30) | 0.010\*\* |
| No Smartphone + No Internet | 2.36 (0.33) | <0.001\*\*\* |
| Unknown | 3.14 (1.94) | 0.066 |
| Constant | 0.29 (0.05) | <0.001\*\*\* |

**Supplemental Table 7:** **Multivariable logistic regression model** **interacting race/ethnicity variable and dual-eligibility variable (Fall survey; n=2,631; N=15,769,800)**

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | Category  | OR (SE) | p-value |
| Dual eligible | Not dual eligible | *Reference* |
| Dual eligible | 1.32 (0.28) | 0.197 |
| Race/ethnicity | Non-Hispanic white | *Reference* |
| Non-Hispanic Black  | 1.39 (0.32) | 0.146 |
| Hispanic  | 1.58 (0.32) | 0.024\* |
| Other/Unknown  | 0.86 (0.24) | 0.593 |
| Dual eligible \* Race/ethnicity | Non-Hispanic white \* Dual  | *Reference* |
| Non-Hispanic Black \* Dual  | 0.90 (0.32) | 0.765 |
| Hispanic \* Dual | 2.25 (0.56) | 0.018\* |
| Other/Unknown \* Dual  | 1.54 (0.83) | 0.429 |
| Age  | <65 years | *Reference* |
| 65-74 years | 1.16 (0.21) | 0.415 |
| 75+ years | 1.44 (0.26) | 0.047\* |
| Sex | Male | *Reference* |
| Female  | 0.94 (0.11) | 0.584 |
| Number of chronic conditions | 0 or 1 conditions | *Reference* |
| 2 or 3 conditions | 0.92 (0.10) | 0.455 |
| >3 conditions | 0.92 (0.13) | 0.559 |
| Usual care provider | Medical office/clinic | *Reference* |
| HMO/managed care clinic | 1.17 (0.27) | 0.479 |
| Urgent care/ER | 1.12 (0.27) | 0.648 |
| VA Facility | 1.24 (0.25) | 0.283 |
| Other/Unknown | 1.85 (0.88) | 0.199 |
| Area type | Metro | *Reference* |
| Non-metro | 1.72 (0.30) | 0.002\*\* |
| Region | Northeast | *Reference* |
| Midwest | 1.13 (0.21) | 0.524 |
| South | 1.27 (0.23) | 0.179 |
| West | 1.00 (0.17) | 0.982 |
| Digital access | Smartphone + Internet | *Reference* |
| Smartphone + No Internet | 1.58 (0.44) | 0.103 |
| Computer only + Internet | 1.67 (0.29) | 0.004\*\* |
| No Smartphone + No Internet | 2.31 (0.31) | <0.001\*\*\* |
| Unknown | 3.07 (2.01) | 0.090 |
| Constant | 0.28 (0.06) | <0.001\*\*\* |

**Supplemental Table 8:** **Multivariable logistic regression model** **interacting race/ethnicity variable and metro-residence variable (Fall survey; n=2,631; N=15,769,800)**

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | Category  | OR (SE) | p-value |
| Area type | Metro | *Reference* |
| Non-metro | 1.64 (0.29) | 0.007\*\* |
| Race/Ethnicity | Non-Hispanic white | *Reference* |
| Non-Hispanic Black  | 1.18 (0.26) | 0.449 |
| Hispanic  | 2.11 (0.35) | <0.001\*\*\* |
| Other/Unknown  | 0.97 (0.21) | 0.878 |
| Area type \* Race/Ethnicity | Non-Hispanic white \* Metro | *Reference* |
| Non-Hispanic Black \* Metro | 3.14 (1.58) | 0.025 |
| Hispanic \* Metro | 0.34 (0.26) | 0.168 |
| Other/Unknown \*Metro  | 0.83 (0.48) | 0.746 |
| Age  | <65 years | *Reference* |
| 65-74 years | 1.20 (0.21) | 0.296 |
| 75+ years | 1.48 (0.26) | 0.027 |
| Sex | Male | *Reference* |
| Female  | 0.94 (0.11) | 0.596 |
| Number of chronic conditions | 0 or 1 conditions | *Reference* |
| 2 or 3 conditions | 0.93 (0.11) | 0.520 |
| >3 conditions | 0.92 (0.13) | 0.585 |
| Dual Eligible | Not dual eligible | *Reference* |
| Dual eligible | 1.63 (0.25) | 0.002 |
| Usual care provider | Medical office/clinic | *Reference* |
| HMO/managed care clinic | 1.19 (0.27) | 0.435 |
| Urgent care/ER | 1.12 (0.28) | 0.657 |
| VA Facility | 1.24 (0.25) | 0.270 |
| Other/Unknown | 1.73 (0.81) | 0.246 |
| Region | Northeast | *Reference* |
| Midwest | 1.14 (0.22) | 0.500 |
| South | 1.26 (0.22) | 0.199 |
| West | 1.00 (0.17) | 0.993 |
| Digital access | Smartphone + Internet | *Reference* |
| Smartphone + No Internet | 1.59 (0.45) | 0.105 |
| Computer only + Internet | 1.65 (0.29) | 0.005\*\* |
| No Smartphone + No Internet | 2.36 (0.31) | <0.001\*\*\* |
| Unknown | 3.22 (2.08) | 0.072 |
| Constant | 0.26 (0.05) | <0.001\*\*\* |