The Role of Media Sources for COVID-19 Information on Engaging in Recommended

Preventive Behaviors among Medicare Beneficiaries Aged ≥ 65 Years

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Abstract

Objectives: The public relies on various media sources and communication platforms for receipt of COVID-19 information. Therefore, identifying the primary sources of COVID-19 information among older adults can be valuable, as it can enable information on life-saving measures to be effectively disseminated to this population.

Methods: We analyzed the Medicare Current Beneficiary Survey COVID-19 Supplement that was administrated from June 2020 through July 2020 (n=8,050). A survey-weighted logistic model was conducted to examine the association between sources of COVID-19 information Medicare beneficiaries most relied on (i.e., traditional news sources, social media, comments/guidance from government officials, other webpages/internet, friends/family members, and health care providers) and engaging in all three recommended preventive behaviors (i.e., mask wearing, social distancing, and handwashing).

Results: Among study participants, 89.8% engaged in all three recommended preventive behaviors. Approximately 59.3% of beneficiaries reported that they most relied upon traditional news sources for COVID-19 information; 11.4% reported health care providers; 10.6% reported comments/guidance from government officials; 8.8% reported other webpages/internet, 8.6% reported friends/family members; and 1.3% reported they relied upon social media. Beneficiaries who relied on comments/guidance from government officials for COVID-19 information (vs. traditional news sources) were more likely to engage in preventive behaviors (OR=1.68, 95% CI=1.20,2.35). However, those who relied on COVID-19 information from friends/family members (vs. traditional news sources) were less likely to engage in preventive behaviors (OR=0.56, 95% CI=0.44,0.73).

Discussion: Our findings can inform decision making about the effective communication sources to reach Medicare beneficiaries for public health messaging regarding preventive measures, including COVID-19 vaccination.

Keywords: Medicare, COVID-19, Media sources, Preventive behaviors

INTRODUCTION

Since the first reported case of COVID-19 on January 20, 2020 (Koonin et al., 2020), the United States has surpassed all countries in the world with 16.7 million reported cases of COVID-19, and as of December 17, 2020, a reported 306,000 deaths (CDC, 2020a). Older adults, particularly those with chronic conditions, have a higher risk of serious illness due to COVID-19 (Gold et al., 2020; Powell, Bellin, & Ehrlich, 2020; Wortham et al., 2020). Gold and colleagues, who examined race, ethnicity, and age trends in individuals who died from COVID-19 in the US, found that 78% of the deceased were aged ≥ 65 years (Gold et al., 2020). According to the Centers for Disease Control and Prevention (CDC), individuals aged ≥ 65 years had at least 5 times higher risk of a COVID-19-associated hospitalization and at least 90 times higher risk of death, compared to those aged 18-29 years (CDC, 2020d). As of September 12, 2020, about 1.2 million COVID-19 cases and over 330,000 COVID-19 related hospitalizations were reported among the Medicare population (Medicare, 2020). With approximately 72% of Medicare beneficiaries having ≥ 2 chronic conditions (Maciejewski & Hammill, 2019) and higher risk for serious illness or death, it is imperative that preventive behaviors are continuously promoted and advocated by various healthcare organizations to reduce the risk of disease transmission in this population (CDC, 2020b; WHO, 2020).

Based on the latest evidence-based data, the most widely promoted preventive behaviors to reduce the risk of contracting COVID-19 are mask wearing, social distancing, and handwashing (CDC, 2020d; Chiu et al., 2020; Chu et al., 2020; Dalton, Corbett, & Katelaris, 2020; Haston et al., 2020; MacIntyre & Wang, 2020; Manikandan, 2020). SARS-CoV-2 (the virus that causes COVID-19) can be transmitted through close contact with patients, including asymptomatic patients, and possibly through touching surfaces contaminated with the virus (CDC, 2020c). Despite this guidance, attitudes toward engaging in recommended

preventive behaviors vary among individuals, especially in the US. Since older adults have higher risks of serious health consequences, promoting these preventive behaviors are paramount in this population. Even with widespread availability of a vaccine in the community, preventive behaviors will still play a key role in limiting virus transmission until herd immunity is reached (MAYO, 2020). A recent Gallup poll conducted in October 19 to November 1, 2020 indicated that about 42% of Americans reported they would not get a COVID-19 vaccine (Gallop, 2020), reinforcing the need for continued advocacy for other preventive measures, such as mask wearing, social distancing, and hand washing.

To encourage the public to engage in these recommended preventive behaviors, the media plays a critical role in disseminating information (Wakefield, Loken, & Hornik, 2010), especially during a health crisis, such as the pandemic caused by SARS-CoV-2. The media circulates not only epidemiological data, but also information pertaining to life-saving preventive measures and interventions. Previous studies have examined the role of media during other disease outbreaks, such as H1N1 in 2009 and MERS in 2015, and reported its positive influence on the uptake of preventive measures (Rubin, Potts, & Michie, 2010; Seo, 2019; Zhang, Kong, & Chang, 2015). Today, the role of traditional media has evolved, and social media (e.g., Facebook, Twitter) and other forms of communication (e.g., WhatsApp group texts) have emerged as prominent sources of information. Understanding the impact these other forms or sources of communication have on the dissemination of health-related information has become increasingly important.

Although previous studies have investigated the roles of traditional news sources and social media during a disease outbreak, limited information is available on the type of communication sources older adults rely on for preventive measures during an outbreak.

With the public frequently seeking information and guidelines to protect themselves and their families, knowing which sources of information Medicare beneficiaries most rely upon is important for targeting public health campaigns and messaging. This study is also clinically relevant, as our findings can inform decision making on which media sources should be prioritized to reach this at-risk population when a vaccine becomes widely available. Using the most relied upon media sources, vital information on COVID-19 vaccination can also be effectively disseminated to Medicare beneficiaries regarding how and where they can be vaccinated.

Therefore, the objective of this study was to examine the association between media sources Medicare beneficiaries most relied on for COVID-19 information (i.e., traditional news sources [e.g., TV, radio, websites, and newspapers], social media, comments or guidance from government officials, other webpages/internet, friends or family members, and health care providers) and engaging in all three recommended preventive behaviors (i.e., wearing masks, social distancing, and handwashing).

METHODS

Data

From June 10, 2020 through July 15, 2020, the Medicare Current Beneficiary Survey (MCBS) COVID-19 Rapid Response Supplement Questionnaire was conducted in either English or Spanish to understand the impact of COVID-19 on existing MCBS Medicare beneficiaries (MCBS, 2020a). This is a cross-sectional and nationally representative sample of community-dwelling Medicare beneficiaries. The MCBS COVID-19 Summer Supplement Public Use File contains demographic information and information related to COVID-19, such as engagement in preventive behaviors during the pandemic and the primary sources of

COVID-19 information accessed by beneficiaries. Additional information related to the survey is available at CMS MCBS (MCBS, 2020a).

Study population

Medicare beneficiaries aged ≥ 65 years who answered questions regarding engagement in preventive behaviors in response to COVID-19, reliance upon sources of COVID-19 information, and socio-demographic and co-morbidity covariates were included in this study (n=8,050, weighted n=42.8 million).

Measures

Dependent variable

The dependent variable was engaging in all three recommended preventive behaviors, which was measured by the following three questions: "[Have you/Has sample person (SP)] done any of the following in response to the outbreak of the new coronavirus?" (1) Washed [your/his/her] hands for 20 seconds with soap and water; (2) Wore a facemask when out in public; or (3) Kept a six-foot distance between [yourself/himself/herself] and people outside [your/his/her] household? (MCBS, 2020a)

A binary variable of engaging in all three recommended preventive behaviors was created, with the value of "1" for those who answered "yes" to all three questions and "0" for those who answered "no" on any of the three questions.

Primary Independent Variable

The sources of COVID-19 information Medicare beneficiaries most relied on were measured by the question: "Which of these sources [do you/does he/does she] rely on most for

information about the coronavirus?" (a) Traditional news sources, including on TV, radio, websites, and newspapers; (b) Social media; (c) Comments or guidance from government officials; (d) Other webpages/internet; (e) Friends or family members; (f) Health care providers. (MCBS, 2020a)

A six-level categorical variable was constructed corresponding to each of the sources for COVID-19 information.

Covariates

Socio-demographic characteristics and co-morbidities were included in the regression model as covariates. Covariates included age (65-74, ≥75), sex (male, female), race/ethnicity (non-Hispanic White, non-Hispanic Black, Hispanic, and Other), language other than English spoken at home (yes, no), residing area (metro, non-metro), living status (alone, not alone), Census region (Northeast, Midwest, South, West), income level (< $25,000, ≥ $25,000) and a categorical variable for the number of co-morbidities (≤ 1 condition, 2-3 conditions, 4-5 conditions, 6 or more conditions). The number of co-morbidities variable was created based on beneficiaries reporting chronic conditions including high blood pressure, high cholesterol, myocardial infarction, angina, congestive heart failure, other heart conditions, arthritis, diabetes, depression, COPD, Alzheimer's disease, osteoporosis, cancer, and stroke.

Statistical Analyses

We first examined differences in prevalence (illustrated in percentages) of socio-demographics, co-morbidities, and sources of COVID-19 information Medicare beneficiaries most relied upon by engagement in all three recommended preventive behaviors status using Wald χ^2 tests. A multivariable logistic regression model, adjusted for socio-demographics and co-morbidities, was then conducted to examine the association between sources of COVID-

19 information Medicare beneficiaries most relied upon and engaging in all three recommended preventive behaviors. To ensure the accuracy of the estimates, all analyses incorporated survey weights from the data to account for the complex survey design. SAS Enterprise Guide version 6.1 (SAS Institute Inc) and Stata/IC version 11.2 (StataCorp LLC) were used to conduct the analysis in 2020.

RESULTS

Among study participants aged ≥ 65 years, 89.8% (representing 38.5 million Medicare beneficiaries) engaged in all three recommended preventive behaviors during the COVID-19 pandemic. Approximately 96.5% (41.3 million beneficiaries) reported handwashing, 96.0% (41.0 million beneficiaries) reported mask wearing, and 95.4% (40.7 million beneficiaries) reported engaging in social distancing (Table 1).

Approximately 59.3% of study beneficiaries reported that they most relied upon traditional news sources for COVID-19 information; 11.4% reported health care providers; 10.6% reported comments or guidance from government officials; 8.8% reported other webpages or internet, 8.6% reported friends or family members; and 1.3% reported they most relied upon social media (Table 2).

A higher percentage of younger beneficiaries (aged 65-74 years) reported engaging in all three preventive behaviors than those who did not (64.5% vs 60.3%) (Table 2). More female beneficiaries (55.8% vs 46.3%), more Hispanic beneficiaries (7.5% vs 4.3%) and more beneficiaries of "Other" race/ethnicity (5.8% vs 4.6%) reported engaging in all three preventive behaviors than those who did not. Beneficiaries living in a metro area (81.5% vs 75.5%), beneficiaries not living alone (80.3% vs 74.5%), and beneficiaries living in the

Northeast (18.8% vs 13.1%), Midwest (22.7% vs 19.7%) or West (22.9% vs 21.1%) reported

higher prevalence of engaging in all three preventive behaviors than their counterparts. A

higher proportion of beneficiaries speaking a language other than English at home (10.7% vs

6.7%), and beneficiaries with higher annual household income (income ≥ $25,000) (75.5% vs

71.3%) reported engaging in all three preventive behaviors than those who did not. Compared

with beneficiaries who did not engage in all three preventive behaviors, a higher proportion

of beneficiaries who did, indicated that they relied most on comments or guidance from

government officials (11.2% vs 5.9%), health care providers (11.6% vs 10.2%), and

traditional news sources (59.4% vs 58.1%) for COVID-19 related information (Table 2).

Results from the multivariable logistic regression model are presented in Table 3.

Beneficiaries who relied most on COVID-19 information from comments or guidance from

government officials were more likely to engage in preventive behaviors compared to those

who relied on COVID-19 information from traditional news sources (OR= 1.68, 95% CI=

1.20,2.35, *p*= 0.003). However, those who relied most on COVID-19 information from

friends or family members were less likely to report engaging in preventive behaviors (OR=

0.56, 95% CI= 0.44,0.73, *p*< 0.001) than those who relied on traditional news sources.

Among study beneficiaries aged ≥ 65 years, male beneficiaries had 0.63 times the odds (95%

CI= 0.52,0.76, *p*< 0.001) of engaging in all three preventive behaviors during COVID-19

than female beneficiaries. Hispanic beneficiaries were more likely to engage in all three

preventive behaviors than non-Hispanic Whites (OR= 1.55; 95% CI= 1.04,2.30, *p*= 0.031).

Beneficiaries living alone were less likely to engage in all three preventive behaviors than

those who did not (OR= 0.72; 95% CI= 0.58,0.89, *p*= 0.004). Beneficiaries from the Census

regions of Northeast, Midwest and West were more likely to engage in all three preventive

behaviors than those from the South (OR=1.74; 95% CI=1.33,2.27, *p*= <0.001; OR=1.58; 95% CI=1.28,1.96, *p*= <0.001; OR=1.34; 95% CI=1.00,1.78, *p*= 0.047, respectively).

Although not statistically significant, younger beneficiaries (aged 65-74), those living in a metro area, those speaking language other than English at home reported higher odds of engaging in all three preventive behaviors, whereas beneficiaries with lower incomes (income < $25,000) and multiple co-morbidities reported lower odds of engaging in all three preventive behaviors (Table 3).

DISCUSSIONS

A high percentage of Medicare beneficiaries in our sample (approximately 90%, representing 38.5 million beneficiaries) reported engaging in all three recommended preventive behaviors. However, with increased risk of serious illness from COVID-19 in the older population, the on-going need to promote preventive behaviors remains, especially in light of the recent surge in hospitalizations and deaths related to COVID-19 (Schnirring, 2020). Our study illustrates that traditional news sources have played a substantial role in disseminating health information among beneficiaries during the pandemic, with almost 60% reporting it as their primary source of COVID-19 information. Social media, on the other hand, has had minimal influence (over 1%) among Medicare beneficiaries. Compared to traditional news sources, reliance on comments or guidance from government officials was positively associated with preventive behaviors, whereas information obtained from friends or family members was negatively associated**.** Women were associated with higher engagement in recommended preventive behaviors than men. Those who live in the South were significantly less likely to engage in all three preventive behaviors relative to other regions. Those who live alone were less likely to report engaging in all three preventive behaviors. Hispanic beneficiaries were

more likely than Non-Hispanic White beneficiaries to engage in all three preventive

behaviors, but Black beneficiaries and Other race beneficiaries were not significantly

different than Non-Hispanic White to engage in all three preventive behaviors.

Results from our study show that almost two thirds of Medicare beneficiaries relied heavily

on traditional news sources as a primary source of COVID-19 information, whereas a mere

1% of beneficiaries relied on social media for COVID-19 information. This finding is

consistent with a recent poll conducted by Harris Insights & Analytics, which found that

approximately 55% of US adults obtained information on COVID-19 from national media

(Poll, 2020). In a survey conducted by the Centers for Medicare and Medicaid Services

(CMS), only 2% of Medicare beneficiaries reported that their primary source of COVID-19

information came from social media (MCBS, 2020b). Additionally, researchers at the

University of Texas Austin's School of Information examined factors that influence level of

trust in COVID-19 health information. The researchers found that older adults were more

likely to trust mass media, whereas younger adults were more likely to trust social media

(Leon, 2020). People who had higher levels of trust in mass media also had more factual

COVID-19 information (Leon, 2020), which likely motivated them to engage in

recommended preventive behaviors. Furthermore, Baum and colleagues conducted a 50-state

COVID-19 survey about misinformation and found that older adults in general exhibited

lower levels of misinformation concerning COVID-19 (Baum et al., 2020).

On the other hand, we found that Medicare beneficiaries who relied on comments or

guidance from government officials for COVID-19 information were more likely to engage

in preventive behaviors, compared to those who relied on traditional news sources. According

to a recent poll, about 75%-78% of US adults trusted the government resources or officials to

provide accurate information regarding the coronavirus outbreak, whereas only 65%-74% of them trusted national or local media for COVID-19 information (Poll, 2020). This difference might have been reflected in our findings. Our results highlight that Medicare beneficiaries seem to rely more on data-driven sources for COVID-19 information.

Our study showed that female Medicare beneficiaries were more likely to engage in all three preventive behaviors, compared to males. A recent study by Okten et al. examined gender differences in preventing the spread of COVID-19 among US populations, and found that females engaged in preventive practices (social distancing, handwashing, and mask wearing) to a greater degree than males (Okten, Gollwitzer, & Oettingen, 2020). Other recent publications by the Morbidity and Mortality Weekly Report (MMWR) examined preventive behaviors, such as hand washing during COVID-19, and found that females engaged in more frequent handwashing than males (Czeisler et al., 2020; Haston et al., 2020). This utilization pattern among females and males has been well documented in the past (Ng & Jensen, 2018; Ng, Jensen, & Fritz, 2017). As a result, public health messaging should consider targeting male beneficiaries to encourage and facilitate preventive behaviors. This targeted strategy may be beneficial, as more male Medicare beneficiaries have experienced COVID-19-related hospitalizations than females (Medicare, 2020).

Racial and ethnic minorities have been disproportionately affected by COVID-19-related deaths and hospitalizations (Gold et al., 2020; Medicare, 2020). Our findings of a greater likelihood of Hispanic beneficiaries engaging in preventive behaviors compared to non-Hispanic Whites could be in part reflective of the public awareness of this health disparity. The engagement in recommended preventive behaviors by minorities is particularly important to reduce the risk of COVID-19. In contrast, those living alone were less likely to

engage in recommended preventive behaviors, which could possibly be due to the autonomy and self-reliance of these individuals. This finding suggests the need for tailored interventions, policies, and messaging to convince these at-risk populations of the importance of preventive behaviors to reduce the transmission of COVID-19.

Medicare beneficiaries living in the Northeast, Midwest and West regions were more likely to engage in recommended preventive behaviors than those in the South. This observation was likely due to a lag in reporting of COVID-19 cases in the South (Jaffe, Lee, Huynh, & Haskell, 2020; JHCRC, 2020) and slower implementation of COVID-19-related mitigation strategies and policies (Jaffe et al., 2020; NASHP, 2020). Therefore, older adults in southern states might have a different risk perception concerning COVID-19 compared to those living in other regions, resulting in lower engagement in preventive behaviors. This difference in risk perception seems to align with the current trends in reported COVID-19 cases and hospitalizations in the southern states. As of December 12, 2020, Medicare has reported more COVID-19 cases and hospitalizations per 100,000 beneficiaries in the southern states than many states in other regions (Medicare, 2020). Therefore, outreach efforts in this region remain a priority until the vaccine is available to most people and herd immunity is reached.

Limitations

There are several limitations to this study. Results may not be applicable to older adults living in long-term care facilities or non-Medicare populations. The cross-sectional nature of the data and analyses prevent assumptions of causality. Common biases related to surveys, such as recall bias, may be present, however, the survey was conducted during the midst of the pandemic, so recall bias likely remains low. Social desirability bias could have potentially affected our findings, especially with questions regarding engagement in the three

recommended preventive behaviors. In addition, CMS predefined wide categories of socio-demographic variables; therefore, more detailed categories could yield different results (e.g., only two-level categories for income, no information related to education attainment). Finally, studies that specifically focus on differences by gender are warranted.

Conclusion

Although a high percentage of Medicare beneficiaries engaged in all three recommended preventive behaviors, more effort is needed to communicate the importance of preventive behaviors, especially for this high at-risk population, until herd immunity from a vaccine is achieved. Strategies to help older adults to remember social distancing practices, mask wearing and hand washing, and those that address COVID-19 risk perception for certain at-risk groups should be identified and implemented. Targeted communication to individuals in at-risk groups should be considered. Identifying the primary sources of COVID-19 information that Medicare beneficiaries rely on can inform decision making for public health promotional outreach efforts, such as on-going COVID-19 messaging on mitigation strategies and vaccination.

REFERENCES

Baum, Matthew A., Ognyanova, Katherine, Chwe, Hanyu, Quintana, Alexi, Perlis, Roy H.,
Lazer, David, . . . Green, Jon. (2020). The State of the Nation: A 50-State COVID-19
Survey : Misinformation and Vaccine Acceptance

CDC. (2020a). CDC COVID Data Tracker.   Retrieved November 23, 2020, from
https://covid.cdc.gov/covid-data-tracker/#cases_casesper100klast7days

CDC. (2020b). CDC How to Protect Yourself & Others.   Retrieved November 23, 2020,
from https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-
sick/prevention.html

CDC. (2020c). How COVID-19 Spreads.   Retrieved December 12, 2020, from
https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/how-covid-
spreads.html

CDC. (2020d). Older Adults: At greater risk of requiring hospitalization or dying if
diagnosed with COVID-19.   Retrieved December 12, 2020, from
https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/older-adults.html

Chiu, N. C., Chi, H., Tai, Y. L., Peng, C. C., Tseng, C. Y., Chen, C. C., . . . Lin, C. Y. (2020).
Impact of Wearing Masks, Hand Hygiene, and Social Distancing on Influenza,
Enterovirus, and All-Cause Pneumonia During the Coronavirus Pandemic:
Retrospective National Epidemiological Surveillance Study. *J Med Internet Res,
22*(8), e21257. doi: 10.2196/21257

Chu, D. K., Akl, E. A., Duda, S., Solo, K., Yaacoub, S., & Schünemann, H. J. (2020).
Physical distancing, face masks, and eye protection to prevent person-to-person
transmission of SARS-CoV-2 and COVID-19: a systematic review and meta-analysis.
Lancet, 395(10242), 1973-1987. doi: 10.1016/s0140-6736(20)31142-9

Czeisler, MÉ, Garcia-Williams, A. G., Molinari, N. A., Gharpure, R., Li, Y., Barrett, C. E., . . . Howard, M. E. (2020). Demographic Characteristics, Experiences, and Beliefs Associated with Hand Hygiene Among Adults During the COVID-19 Pandemic - United States, June 24-30, 2020. *MMWR Morb Mortal Wkly Rep, 69*(41), 1485-1491. doi: 10.15585/mmwr.mm6941a3

Dalton, C. B., Corbett, S. J., & Katelaris, A. L. (2020). COVID-19: implementing sustainable low cost physical distancing and enhanced hygiene. *Med J Aust, 212*(10), 443-446.e441. doi: 10.5694/mja2.50602

Gallop. (2020). More Americans Now Willing to Get COVID-19 Vaccine.   Retrieved December 18, 2020, from https://news.gallup.com/poll/325208/americans-willing-covid-vaccine.aspx

Gold, J. A. W., Rossen, L. M., Ahmad, F. B., Sutton, P., Li, Z., Salvatore, P. P., . . . Jackson, B. R. (2020). Race, Ethnicity, and Age Trends in Persons Who Died from COVID-19 - United States, May-August 2020. *MMWR Morb Mortal Wkly Rep, 69*(42), 1517-1521. doi: 10.15585/mmwr.mm6942e1

Haston, J. C., Miller, G. F., Berendes, D., Andújar, A., Marshall, B., Cope, J., . . . Garcia-Williams, A. G. (2020). Characteristics Associated with Adults Remembering to Wash Hands in Multiple Situations Before and During the COVID-19 Pandemic - United States, October 2019 and June 2020. *MMWR Morb Mortal Wkly Rep, 69*(40), 1443-1449. doi: 10.15585/mmwr.mm6940a2

Jaffe, D. H., Lee, L., Huynh, S., & Haskell, T. P. (2020). Health Inequalities in the Use of Telehealth in the United States in the Lens of COVID-19. *Popul Health Manag, 23*(5), 368-377. doi: 10.1089/pop.2020.0186

JHCRC. (2020). Timeline of COVID-19 policies, cases, and deaths in your state—Johns Hopkins Coronavirus Resource Center. . Retrieved December 13, 2020, from https://coronavirus.jhu.edu/data/state-timeline/new-confirmed-cases/washington

Koonin, L. M., Hoots, B., Tsang, C. A., Leroy, Z., Farris, K., Jolly, T., . . . Harris, A. M. (2020). Trends in the Use of Telehealth During the Emergence of the COVID-19 Pandemic - United States, January-March 2020. *MMWR Morb Mortal Wkly Rep, 69*(43), 1595-1599. doi: 10.15585/mmwr.mm6943a3

Leon, Luis de. (2020). UT researchers exploring how much people trust public health information on COVID-19. Retrieved December 13, 2020, from https://www.kvue.com/article/news/health/coronavirus/ut-researchers-trust-public-health-information-covid19/269-af470636-c045-469e-966d-817cccfdc2f7

Maciejewski, M. L., & Hammill, B. G. (2019). Measuring the burden of multimorbidity among Medicare beneficiaries via condition counts and cumulative duration. *Health Serv Res, 54*(2), 484-491. doi: 10.1111/1475-6773.13124

MacIntyre, C. R., & Wang, Q. (2020). Physical distancing, face masks, and eye protection for prevention of COVID-19. *Lancet, 395*(10242), 1950-1951. doi: 10.1016/s0140-6736(20)31183-1

Manikandan, N. (2020). Are social distancing, hand washing and wearing masks appropriate measures to mitigate transmission of COVID-19? *Vacunas, 21*(2), 136-137. doi: 10.1016/j.vacun.2020.09.001

MAYO. (2020). Herd immunity and COVID-19 (coronavirus): What you need to know. Retrieved December 18, 2020, from https://www.mayoclinic.org/diseases-conditions/coronavirus/in-depth/herd-immunity-and-coronavirus/art-20486808

MCBS. (2020a). Medicare Current Beneficiary Survey. Retrieved November 23, 2020, from https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/MCBS

MCBS. (2020b). Medicare Current Beneficiary Survey COVID-19 Data Snapshot.

Retrieved December 13, 2020, from https://www.cms.gov/research-statistics-data-

systems/mcbs-public-use-file/medicare-current-beneficiary-survey-covid-19-data-

snapshot

Medicare. (2020). Preliminary Medicare COVID-19 Data Snapshot.   Retrieved November

24, 2020, from https://www.cms.gov/research-statistics-data-systems/preliminary-

medicare-covid-19-data-snapshot

NASHP. (2020). National Academy for State Health Policy. Chart: Each State's COVID-19

Reopening and Reclosing Plans and Mask Requirements.   Retrieved November 23,

2020, from https://www.nashp.org/governors-prioritize-health-for-all/

Ng, B. P., & Jensen, G. A. (2018). Health Shocks and Initiation of Use of Preventive Services

Among Older Adults. *J Appl Gerontol, 37*(7), 856-880. doi:

10.1177/0733464816657474

Ng, B. P., Jensen, G. A., & Fritz, H. (2017). Effects of Medicare Coverage of a "Welcome-to-

Medicare" Visit on Use of Preventive Services among New Medicare Enrollees. *J

Aging Res, 2017*, 2074810. doi: 10.1155/2017/2074810

Okten, Irmak Olcaysoy, Gollwitzer, Anton, & Oettingen, Gabriele. (2020). Gender

differences in preventing the spread of coronavirus. *Behavioral Science & Policy*, 14.

doi: 10.31234/osf.io/ch4jy

Poll, The Harris. (2020). COVID-19 Axios and Harris Poll Livestream.   Retrieved December

13, 2020, from https://theharrispoll.com/covid-19-axios-poll/

Powell, T., Bellin, E., & Ehrlich, A. R. (2020). Older Adults and Covid-19: The Most

Vulnerable, the Hardest Hit. *Hastings Cent Rep, 50*(3), 61-63. doi: 10.1002/hast.1136

Rubin, G. J., Potts, H. W., & Michie, S. (2010). The impact of communications about swine

flu (influenza A H1N1v) on public responses to the outbreak: results from 36 national

telephone surveys in the UK. *Health Technol Assess, 14*(34), 183-266. doi: 10.3310/hta14340-03

Schnirring, Lisa. (2020). US COVID-19 hospital cases, deaths surge to new highs. Retrieved DEcenber 13, 2020, from https://www.cidrap.umn.edu/news-perspective/2020/12/us-covid-19-hospital-cases-deaths-surge-new-highs

Seo, Mihye. (2019). Amplifying Panic and Facilitating Prevention: Multifaceted Effects of Traditional and Social Media Use During the 2015 MERS Crisis in South Korea. 1077699019857693. doi: 10.1177/1077699019857693

Wakefield, M. A., Loken, B., & Hornik, R. C. (2010). Use of mass media campaigns to change health behaviour. *Lancet, 376*(9748), 1261-1271. doi: 10.1016/s0140-6736(10)60809-4

WHO. (2020). WHO Coronavirus Prevention.   Retrieved November 23, 2020, from https://www.who.int/health-topics/coronavirus#tab=tab_2

Wortham, J. M., Lee, J. T., Althomsons, S., Latash, J., Davidson, A., Guerra, K., . . . Reagan-Steiner, S. (2020). Characteristics of Persons Who Died with COVID-19 - United States, February 12-May 18, 2020. *MMWR Morb Mortal Wkly Rep, 69*(28), 923-929. doi: 10.15585/mmwr.mm6928e1

Zhang, Lingling, Kong, Ying, & Chang, Hua. (2015). Media Use and Health Behavior in H1N1 Flu Crisis: The Mediating Role of Perceived Knowledge and Fear. *Atlantic Journal of Communication, 23*(2), 67-80. doi: 10.1080/15456870.2015.1013101

Table 1. Prevalence of Engaging in Preventive Behaviors among Medicare Beneficiaries

Aged ≥ 65 Years

Preventive health behaviors	Total sample size N (weighted N)	Reported engagement of preventive behaviors	
		N (weighted N)	Weighted % (95% Confidence Interval)
Washed hands for 20 seconds with soap and water	8,041 (42.8 million)	7,726 (41.3 million)	96.5 (96.1, 96.9)
Wore a facemask when out in public	8013 (42.7 million)	7,668 (41.0 million)	96.0 (95.4, 96.6)
Kept a six-foot distance between people outside household	8014 (42.7 million)	7,631 (40.7 million)	95.4 (94.7, 96.1)
Engaged in all three measures	8,050 (42.8 million)	7,175 (38.5 million)	89.8 (88.9, 90.7)

Table 2. Characteristics of Medicare Beneficiaries Aged ≥ 65 Years, by Engaging in

Preventive Behaviors during COVID-19.

Variable	Category	Total	Not engaged in all three behaviors	Engaged in all three behaviors	P value
Sources of COVID-19 information that beneficiaries most relied on	Traditional news sources	59.3	58.1	59.4	**<0.001**
	Social media	1.3	1.8	1.2	
	Comments/guidance from government officials	10.6	5.9	11.2	
	Other webpages/ internet	8.8	10.3	8.6	
	Friends or family members	8.6	13.7	8.0	
	Health care providers	11.4	10.2	11.6	
Age group	65-74 years	64.1	60.3	64.5	**0.015**
	≥ 75 years	35.9	39.7	35.5	
Sex	Female	54.8	46.3	55.8	**<0.001**
	Male	45.2	53.7	44.2	
Race/ethnicity	non-Hispanic White	78.8	82.8	78.3	**<0.001**
	non-Hispanic Black	8.4	8.3	8.4	
	Hispanic	7.1	4.3	7.5	
	Other	5.7	4.6	5.8	

Residing Area	Metro	80.9	75.5	81.5	**0.011**
	Non-metro	19.1	24.5	18.5	
Living Status	Alone	20.3	25.5	19.7	**0.003**
	Not Alone	79.7	74.5	80.3	
Census region	Northeast	18.2	13.1	18.8	**<0.001**
	Midwest	22.4	19.7	22.7	
	South	36.6	46.1	35.6	
	West	22.7	21.1	22.9	
Language other than English spoken at home	Yes	10.3	6.7	10.7	**<0.001**
	No	89.7	93.3	89.3	
Income Level	Less than $25,000	24.9	28.7	24.5	**0.010**
	$25,000 or more	75.1	71.3	75.5	
Number of Chronic Conditions	0-1	18.1	18.0	18.1	0.199
	2-3	38.7	35.3	39.1	
	4-5	29.5	30.8	29.4	
	6+	13.7	15.9	13.4	

Note: Boldface indicates statistical significance ($p < 0.05$). *P*-values were calculated based on Wald χ^2 tests. Data shown are weighted percentages.

Table 3. Factors Associated with Engaging in Preventive Behaviors among Medicare
Beneficiaries Aged ≥ 65 Years.

Variable	Category	Odds Ratio	95% CI	P Value
Sources of COVID-19 information that beneficiaries most relied on	Traditional news sources	ref		
	Social media	0.69	0.31-1.51	0.353
	Comments/guidance from government officials	1.68	1.20-2.35	**0.003**
	Other webpages/internet	0.80	0.61-1.04	0.101
	Friends or family members	0.56	0.44-0.73	**<0.001**
	Health care providers	1.07	0.78-1.46	0.663
Age group	65-74 years	1.10	0.95-1.28	0.187
	≥ 75 years	ref		
Sex	Female	ref		
	Male	0.63	0.52-0.76	**<0.001**
Race/ethnicity	non-Hispanic White	ref		
	non-Hispanic Black	1.17	0.85-1.61	0.318
	Hispanic	1.55	1.04-2.30	**0.031**
	Other	1.30	0.81-2.08	0.266
Residing Area	Metro	1.29	0.98-1.68	0.062
	Non-metro	ref		
Living Status	Alone	0.72	0.58-0.89	**0.004**
	Not Alone	ref		
Census region	Northeast	1.74	1.33-2.27	**<0.001**

	Midwest	1.58	1.28-1.96	**<0.001**
	South	ref		
	West	1.34	1.00-1.78	**0.047**
Language other than English spoken at home	Yes	1.29	0.84-2.00	0.239
	No	ref		
Income Level	Less than $25,000	0.84	0.69-1.01	0.072
	$25,000 or more	ref		
Number of Chronic Conditions	0-1	ref		
	2-3	1.10	0.82-1.48	0.515
	4-5	0.96	0.72-1.29	0.821
	6+	0.89	0.64-1.24	0.508

Note: Boldface indicates statistical significance ($p < 0.05$).