Nearly 20% of adults in the United States provide unpaid care for an adult with significant health or functional needs. The involvement of a family member in home-based care is associated with improved patient health outcomes and lower rates of health care utilization, but also high caregiver stress. Recent policy changes have signaled the readiness for more timely and sustainable caregiver support. Yet, in spite of new policies and payment mechanisms, the adoption of family caregiver support has been limited. In this article, the authors present the clinical and business case for Medicare Advantage plans to support family caregivers through a cost-saving and actionable care model that leverages evidence-based practices, human-centered design, and scalable technology. This model offers interventions that Medicare Advantage plans, and health care systems serving Medicare Advantage populations, can choose from to improve caregiver and patient outcomes, enhance their members’ experience of care, and reduce health care spending.

Nearly one in five adults in the United States provides unpaid care for an adult with health or functional needs. These 2019 data also show that approximately 48 million caregivers are vital to the functioning of our health care system and serve as a critical safety net for vulnerable older adults and those with disabilities.

Nearly 80% of home-based care for individuals with chronic health conditions and intense medical care needs is carried out by a family member or friend. The involvement of a family member in home-based care is associated with improved health outcomes and lower rates of health care utilization. However, the spillover effects of caregiving are significant, and almost 4 in 10...
Caregivers report their caregiving situation to be highly stressful and adversely affecting their own health.1

Caregiver support is available under the Older Americans Act.6 Each year, the National Family Caregiver Support Program (NFCSP) within the Administration for Community Living offers funding for states to support family caregivers of older adults. However, the reach of NFCSP is limited; in fiscal year 2016, only approximately 740,000 family caregivers received services funded in part by NFCSP, which had a budget of about $150 million.7

Three recent state- and federal-level changes have signaled the readiness of the larger policy environment (including legislative, regulatory, and private-sector leadership) to provide more timely and sustainable caregiver support: the Caregiver Advise, Record, Enable (CARE) Act, the RAISE Family Caregivers Act of 2018, and the expansion of Medicare Advantage supplemental benefits in 2019. The CARE Act, which has been enacted under various names in about 40 U.S. states,8 aims to establish a standard of clinical care that requires hospitals to identify caregivers, record caregiver information in the electronic medical record, and involve caregivers in discharge planning for all patients.9 The RAISE Family Caregivers Act (the federal law approved in January 2018 that is also known as the Recognize, Assist, Include, Support, and Engage Family Caregivers Act of 2017 and that has been extended through January 202210) will help identify actions that communities, providers, and governments may take through an Advisory Council working with the Department of Health and Human Services.11,12 Finally, to provide payments for caregiver interventions, the Centers for Medicare & Medicaid Services has also recently authorized Medicare Advantage plans to cover direct support for family caregivers using supplemental benefits.13,14

“The resulting Caring for Caregivers model focuses on family caregivers of older adults with chronic medical conditions or with significant functional needs and offers a number of evidence-based interventions that payers, health care systems, or policy makers can choose from to improve caregiver and patient outcomes, enhance their experience of care, and reduce health care spending.”

In spite of these new policies and payment mechanisms, the adoption of family caregiver support has been slow. Only about 13% of home- and community-based services submitted claims for caregivers for patients with long-term care needs.15 In 2021, 2 years after the expansion of the supplemental benefits, only 383 out of 3,550 Medicare Advantage plans offered caregiver support (inclusive of direct caregiver support and in-home support).16,17

The low adoption rate of caregiver support programs has created a gap between policy and practice, attributable in part to the absence of action-oriented guidelines on the selection and implementation of such programs, a lack of ability to link claims data for caregiver and care receiver, a lack of federal and organizational funding, and a limited understanding of family-centered care.18 Further, while cost-benefit analyses are only one factor among many that catalyze
implementation of caregiver support, such analyses are essential to organizational decisions and, to date, are underrepresented in the literature. For example, in a recent comprehensive literature review of family caregiver interventions, few performed economic or cost-benefit analyses. As a result, motivated health care systems are often not well informed about interventions or the cost-benefit of these programs.

To fill this policy-practice gap, we present the clinical and business case for health care organizations serving Medicare Advantage populations to support family caregivers. Medicare Advantage Plans are operated by approved private companies and receive capitated, risk-adjusted payments to offer all Medicare-covered services for their enrollees. We decided to focus on Medicare Advantage plans because of their recently expanded supplemental benefits, their flexibility in implementing innovative caregiver supports within their capitated payment structure, and their increasing popularity among older adults.

This exercise involves the development of a cost-saving and actionable care model that leverages evidence-based practices, human-centered design, and scalable technology. The resulting Caring for Caregivers model focuses on family caregivers of older adults with chronic medical conditions or with significant functional needs and offers a number of evidence-based interventions that payers, health care systems, or policy makers can choose from to improve caregiver and patient outcomes, enhance their experience of care, and reduce health care spending. This investigation is not intended to be exhaustive or applicable to every patient or caregiver and does not aim to identify all solutions that accelerate the adoption of family caregiver interventions. Rather, the goal is to clearly demonstrate examples of interventions that may help organizations make considerable progress toward the Triple Aim. In this article, we describe a mixed-methods approach to developing this Caring for Caregivers model and three cost-benefit analyses that help estimate savings if this model were implemented on a national scale for Medicare Advantage populations.

**Care Model Development and Methods**

**Model Development**

We employed a methodology developed at Stanford University’s Clinical Excellence Research Center (CERC) for health care delivery innovation. CERC embeds human-centered design into care delivery models to achieve the Triple Aim (improve health outcomes, enhance patient experience, and decrease health care costs). We used literature review, interviews with stakeholders, and cross-country site visits to identify three important unmet needs (social isolation, care fragmentation, and unmet day-to-day care needs) and consolidated three solutions (peer support groups, integrated caregiver and patient workflows, and virtual assistants) that would have the most potential to achieve the Triple Aim. In conversations with more than 50 health care leaders, we identified only a handful who were aware of the cost-saving effects of family caregiver interventions.
We used literature review, interviews with stakeholders, and cross-country site visits to identify three important unmet needs (social isolation, care fragmentation, and unmet day-to-day care needs).
and consolidated three solutions (peer support groups, integrated caregiver and patient workflows, and virtual assistants) that would have the most potential to achieve the Triple Aim.”

This care model offers a snapshot of clear opportunities for health care leaders and health care systems to achieve the Triple Aim with a particular focus on short-term cost saving and ease of implementation; thus, it is not meant to capture all potential solutions. Table 1 provides a summary of the solutions.

Figure 1 and the Appendix provide additional information on the model development process and our methodology. The second part of the Appendix offers more detail on evidence and cost data.

FIGURE 1

Caring for Caregivers Model Development Timeline

Our team, including three postdoctoral fellows (two MDs and one PhD), employed a methodology developed at Stanford University’s Clinical Excellence Research Center (CERC) for health care delivery innovation. This iterative process involves literature reviews, interviews with health care leaders and clinicians, interviews with caregivers, and site visits.

Month 1
- Interviewed 50 health care leaders and clinicians

Months 2–3
- Literature review

Months 4–6
- Interviewed 20 caregivers in group settings
- Conducted 10 on-site/virtual visits
- Developed an initial model and updated the model

Month 8
- Finalized model

Source: The authors.

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Estimating Model Cost Savings

On the basis of estimated cost savings for each component of our care model, we calculated potential national savings for Medicare Advantage populations (i.e., 24.1 million people in 2020).\(^{25}\) Cost savings were extrapolated from the best available data from the Health Education Program (HEP),\(^ {26}\) the Healthy Aging Brain Center (HABC),\(^ {27}\) and Care Angel. Each program is representative of one of the care model components and was selected for use in estimating cost savings because of available data on caregiver and patient outcomes, cost, strength of the evidence, and ease of implementation.

HEP is a social worker–led, non–disease-specific peer group intervention for family caregivers of people with chronic conditions. It is a year-long manualized program that facilitates social interaction with peers, self-care, and management of family members’ chronic conditions. HABC provides specialty care for older adults with memory conditions (e.g., mild cognitive impairment [MCI], depression, and dementia). It provides evidence-based medication management, care navigation, and brief family caregiver consultation. Care Angel is a virtual assistant that sends automatic reminders to patients and notifies a nurse or a caregiver if concerning behaviors or events are identified (e.g., a patient does not respond to the virtual assistant’s calls or a patient reports not having medication at home). The human nurse is then able to escalate care if needed.

“Assuming that 24.1 million older adults are Medicare Advantage enrollees, 24.8% of them suffer from dementia or mild cognitive impairment, and 10% of all eligible patients and caregivers have access to an integrated care pathway such as the Healthy Aging Brain Center, net savings for this intervention were estimated to be $1.89 billion over 1 year.”

Monte Carlo simulation was used to estimate confidence intervals, while allowing for variation in several parameters to address uncertainty. We assumed that the resources needed for production of the care model components were the same across different health systems using a conservative estimate for these costs. For each component of the model, we calculated cost savings considering three major parameters: net cost savings after deduction of program cost, size of target population who would benefit from the intervention, and estimated reach of the intervention (i.e., the proportion of the target population who would adopt and adhere to the program) (Table 2).\(^ {28}\)

While we believe that the Caring for Caregivers model can be applied to or adapted for different family caregivers of older adults with chronic conditions, we particularly focused on Medicare Advantage populations and modeled the target population on the basis of the studies selected (i.e., highly stressed caregivers for peer support groups, patients with MCIs or dementia and their caregivers for integrated caregiver and patient workflows, and older adults with three or more chronic conditions for virtual assistants). Detailed descriptions of the variables used to develop the models are given in Table 2.
Table 2. Cost Modeling for HEP, HABC, and Care Angel for Medicare Advantage Populations

<table>
<thead>
<tr>
<th>Components</th>
<th>Base Case Parameters</th>
<th>Simulated Parameters</th>
<th>Simulation Models&lt;sup&gt;6&lt;/sup&gt;</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. HEP</td>
<td></td>
<td></td>
<td>T1,T2</td>
<td></td>
</tr>
<tr>
<td>Family caregivers of a Medicare Advantage enrollee, number</td>
<td>11,400,000</td>
<td>n/a</td>
<td>n/a</td>
<td>T1,T2</td>
</tr>
<tr>
<td>Proportion with high stress</td>
<td>30%</td>
<td>29.77%</td>
<td>T1,T3</td>
<td></td>
</tr>
<tr>
<td>Net cost savings per caregiver per year (December 2019 dollars)</td>
<td>861.09 (SD 688.87)</td>
<td>893.25</td>
<td>Normal</td>
<td>T4</td>
</tr>
<tr>
<td>Net cost savings per care recipient per year (December 2019 dollars)</td>
<td>1,460.82 (SD 1,168.65)</td>
<td>1,472.59</td>
<td>Normal</td>
<td>T4</td>
</tr>
<tr>
<td>Penetration</td>
<td>20%</td>
<td>18.63%</td>
<td>T1,T5</td>
<td></td>
</tr>
<tr>
<td>2. HABC</td>
<td></td>
<td></td>
<td>T6</td>
<td></td>
</tr>
<tr>
<td>Medicare Advantage enrollees (older than 65 years), number</td>
<td>24,100,000</td>
<td>n/a</td>
<td>n/a</td>
<td>T6</td>
</tr>
<tr>
<td>Proportion with dementia and MCI</td>
<td>24.80%</td>
<td>24.99%</td>
<td>Metalog (lower bound: 10%; median: 23%; high: 35%)</td>
<td>T7,T8</td>
</tr>
<tr>
<td>Net cost savings per patient per year (December 2019 dollars)</td>
<td>3,167.84 (SD 7,581.67)</td>
<td>2,861.47</td>
<td>Normal</td>
<td>T9</td>
</tr>
<tr>
<td>Penetration</td>
<td>10%</td>
<td>11.58%</td>
<td>T10</td>
<td></td>
</tr>
<tr>
<td>3. Care Angel</td>
<td></td>
<td></td>
<td>T15</td>
<td></td>
</tr>
<tr>
<td>Medicare enrollees (older than 65 years), number</td>
<td>24,100,000</td>
<td>n/a</td>
<td>n/a</td>
<td>T6</td>
</tr>
<tr>
<td>Proportion with three or more chronic conditions</td>
<td>35%</td>
<td>35.20%</td>
<td>Metalog (lower bound: 15%; high: 70%)</td>
<td>T11,T14</td>
</tr>
<tr>
<td>Net cost savings per patient per year (December 2019 dollars)</td>
<td>492 (SD 123)</td>
<td>489.67</td>
<td>Normal</td>
<td>T15</td>
</tr>
<tr>
<td>Penetration</td>
<td>50%</td>
<td>44.72%</td>
<td>T15</td>
<td></td>
</tr>
</tbody>
</table>

On the basis of our findings, Medicare Advantage plans adopting this model not only would achieve better health-related outcomes (e.g., fewer depression symptoms and improved medication management) for their members, but also would likely be able to accrue cost savings associated with lower health care utilization (e.g., outpatient visits, inpatient hospitalizations, and use of medication).”

Monte Carlo simulation was used to quantify uncertainty. Simulation was necessary because combining data from variables that are a mixture of normal and nonnormal distributions can yield unpredictable results.\(^{28}\) The model used 1,000 replications with the three parameters varying independently. This simulation process generated more realistic estimates of cost savings. By varying the level of net cost savings, the size of the target population that would benefit from the care model, and the rate of penetration (i.e., uptake) of the model, we were able to estimate cost savings across health care systems and geographical locations. The final estimates used the Metalog method\(^{29}\) that allowed the specification of the expected skewness in the cost distributions. Analyses were performed using MS Excel for Mac version 16.18, and Monte Carlo simulations were performed using SIPmath Modeler (ProbabilityManagement.org).\(^{30}\) All of the dollars reported below were adjusted to 2019 December U.S. dollars. Of note, HABC and Care Angel reported cost savings as per member per year (PMPY), while the HEP program reported cost savings as per member per 2 years (PMP2Y). For the sake of uniformity and ease of comparison across the model components, the PMP2Y savings for HEP were converted for this analysis to PMPY savings. The modeling intentionally excluded a number of factors related to implementation for the sake of clarity and comparability across interventions and settings. Thus, these savings will likely differ among different populations of caregivers and in different organizations.

**Results**

In this study, we present the results associated with the three components of the Caring for Caregivers Model and associated cost-modelling results (as outlined in Table 2).

**Peer Support Groups**

The peer group component targets adult caregivers who are distressed. On the basis of a previous randomized controlled trial, we estimated that HEP might generate average net savings of approximately $861 per caregiver per year (standard deviation [SD] $688) and $1,461 per patient per year (SD $1,168).\(^{26}\) The reported cost of the program was $449.79 per caregiver per year. Assuming a population of approximately 11.4 million serving as caregivers for Medicare Advantage enrollees with a 30% prevalence of distress and a 20% rate of uptake, net savings for this invention were estimated to be $1.47 billion over 1 year (SD $1.23 billion [95% confidence interval (CI) $1.39-1.55 billion]); $548 million of this total is attributable to net savings for caregivers (SD $566 million [95% CI $513-583 million]), and $921 million is attributable to net savings for patients (SD
$949 million [95% CI $862–980 million]). There is an 88% chance that Medicare Advantage plans will achieve a positive ROI for the caregiver and/or the patient.

**Integrated Caregiver and Patient Workflows**

The second component of our model targets adults aged 65 years or older with dementia or MCI, and their caregivers. Our base assumptions were drawn from a cohort study that estimated HABC might achieve a net savings of approximately $3,168 per patient per year (SD $7,582). The reported cost of the program was $770.74 per patient per year. Assuming that 24.1 million older adults are Medicare Advantage enrollees, 24.8% of them suffer from dementia or MCI, and 10% of all eligible patients and caregivers would have access to an integrated care pathway such as HABC, net savings for this intervention were estimated to be $1.89 billion over 1 year (SD $5.65 billion [95% CI $1.54–2.24 billion]). There is a 63% chance that Medicare Advantage plans will achieve a positive ROI.

**Virtual Assistants to Assist with Daily Care Needs**

The virtual assistant component targets older adults with multiple chronic conditions. For a population of older adults with three or more chronic conditions, Care Angel was shown to generate a net savings of $492 per patient per year (SD $123). The reported cost was $3 per patient per year. Assuming that 35% of the 24.1 million Medicare Advantage enrollees have three or more chronic conditions and 50% of all eligible patients and caregivers would be able to use this intervention, net savings were estimated to be $1.86 billion annually (SD $1.06 billion [95% CI $1.79–1.92 billion]). There is an almost 100% chance that Medicare Advantage plans will achieve a positive ROI.

**Discussion**

The Caring for Caregivers model prioritizes the experience and health outcomes of older adults with chronic conditions and their family caregivers, and the cost simulations presented in this article demonstrate that the model has a strong potential to reduce health care costs for both Medicare Advantage enrollees and caregivers. We identified social isolation, care fragmentation, and unmet day-to-day care needs as the major challenges that negatively impact quality of life and increase health care utilization. In response, we developed a three-pronged Caring for Caregivers model that includes peer support, an integrated caregiver workflow, and virtual assistants. We anticipate that, depending on stakeholder needs and resources, the three components of the model may be implemented either together as a comprehensive caregiving support program or individually to supplement existing family caregiving efforts.

The adoption of the Caring for Caregivers model by health systems will narrow the policy-practice gap and has potential implications for health plans as well as state and national efforts to support caregivers. To start, Medicare Advantage plans and capitated health systems are likely to have the greatest interest and flexibility in adopting the Caring for Caregivers model. The model provides high-value options that organizations can use to support caregivers through the new Medicare Advantage supplemental benefits. On the basis of our findings, Medicare Advantage plans

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adopting this model not only would achieve better health-related outcomes (e.g., fewer depression symptoms and improved medication management) for their members, but also would likely be able to accrue cost savings associated with lower health care utilization (e.g., outpatient visits, inpatient hospitalizations, and use of medication). Following successful implementation by value-based plans, the fee-for-service Medicare plans may also adopt the model as part of the effort to slow the rapidly increasing Medicare expenditure, which currently accounts for approximately 15% of total federal spending.37

It is notable that direct caregiver support and in-home care have together been the most commonly included new benefits since the expansion of supplemental benefits.16 Over the past 2 years, an increasing number of Medicare Advantage plans have begun offering these expanded supplemental benefits, and a recent analysis indicates that the number of plans that will offer an expanded supplemental benefit has increased by 63% in 2021.16

“Recent policy advances to support family caregivers have not been followed by robust and systematic adoption and implementation of programs to support these caregivers. The Caring for Caregivers care model may offer a menu for Medicare Advantage plans and motivated health systems to close this policy-practice gap.”

Indeed, uptake of caregiver support programs by Medicare Advantage plans will depend on the available evidence of their clinical and financial benefits and ease of implementation. It can take, on average, more than 10 years to fully adopt and integrate new research findings into practice.38 Implementation of this model in real-world settings will almost certainly necessitate modifications to best adapt and deliver each program within a given health care system. To accelerate the uptake of the model components, Medicare Advantage plans should consider partnering with organizations specialized in delivering family caregiver support. To date, many start-up companies have emerged to provide variations of the three solutions (e.g., Building Better Caregivers by Canary Health, Care Angel, care.coach, GoMo Health, Kinto.Care, LeapThru, Vesta Healthcare, and A Wider Circle) and are well positioned to collaborate with Medicare Advantage plans.

Cost modeling demonstrates that Medicare Advantage plans that would employ the Caring for Caregivers model could achieve short-term ROI within 1 year. To date, research and policy discussions about caregiver support have emphasized that these programs delay the use of and reduce the cost of long-term services and supports (LTSS).39,40 State reforms to support older adults and their caregivers have largely been motivated by these longer-term LTSS savings from delayed institutionalization. Failing to account for the short-term ROI associated with caregiver support may hinder state efforts to institute new reforms and initiatives, such as provisions for more extensive health care reimbursement for caregiver support and the development of partnerships between health care systems and community-based organizations (CBOs). That caregiver support can generate both short- and long-term cost savings is likely to be of particular interest to state Medicaid and Medicare health plans and may encourage more progressive policy shifts to support family caregivers.
In addition to caregiver support provided by the formal health care system (providers and health plans), significant caregiver supports and services are delivered through CBOs funded by the NFCSP.\textsuperscript{41,42} The adoption of the Caring for Caregivers model, which includes a low-cost virtual assistant solution, by CBOs would help maximize the reach of NFCSP-funded services. Funders of CBOs, including the Administration for Community Living, may consider the Caring for Caregivers model as an example that CBOs could follow and strategically fund cost-beneficial, technology-enabled family caregiver supports.

**Limitations**

Our analysis has several limitations. First, the literature review restricted the search to caregiver interventions with published and unpublished cost-benefit data and, therefore, excluded several clinically effective interventions for which such data have not yet been captured. Thus, the methodology will not have captured all existing solutions for family caregivers. Of note, Tailored Caregiver Assessment and Referral (TCARE), New York University Caregiver Intervention, and Resources for Enhancing Alzheimer’s Caregiver Health II (REACH II) have each been shown to be clinically effective and cost beneficial. However, these interventions either do not yet have data on short-term ROI or are relatively complex to implement.

Second, the efficacy of and cost data regarding Care Angel are preliminary and are currently proprietary. The authors had access to some of the proprietary data but did not have access to the proprietary report. While we incorporated Care Angel into the model because of its ease of implementation and low cost, more rigorous research is needed to confirm its benefits.

Third, the cost-benefit models employed in this analysis intentionally did not take into account some of the more nuanced challenges associated with real-life implementation, including attrition rate, buy-in from clinical leaders, recruitment of clinicians and social workers, costs associated with integrating such programs into existing efforts (e.g., NFCSP or the emerging Medicare special needs plans), and interorganizational and interclinician variability.\textsuperscript{43} Additionally, policies to more widely disseminate the three caregiver interventions will very likely face impediments related to inadequate financing to support the up-front investment of implementation. We also acknowledge that reducing overall per capita spending via increased spending for seniors in one domain is challenging. The model components will need to be tested (either as a consolidated model or as stand-alone components) in different plans and practice settings in order to further delineate their financial impacts.

Fourth, many studies did not collect comprehensive data on both patients and their caregivers, and, thus, we were not able to fully estimate the cost savings for the caregiver for every component of the model. The cost savings reflected in our analysis therefore may represent an underestimate of the potential savings, but this would need to be confirmed with future studies that incorporate caregiver outcomes and health care utilization and costs.

Fifth, this study did not address the “wrong pocket problem” that occurs if the caregiver’s health insurer is unable to estimate and rebate savings that it accrues as a result of the care recipient’s health insurer investing in a caring-for-caregivers program.
Future Research

Three areas of future investigation will strengthen the clinical and financial case for supporting family caregivers. First, more randomized controlled trials and implementation studies are needed for both patient-focused and caregiver-focused interventions. Ideally, these trials should methodically collect data on health outcomes, health care utilization, and related costs for both patients and caregivers. Second, payers and academic institutions should partner together and investigate the combined short-term (e.g., reduced health care costs within 1 year) and long-term (e.g., reduced LTSS costs) benefits of family caregiver support. Third, organizational and state-level implementation strategies for family caregiver support should be further studied, and best practices should be shared across CBOs and health systems to promote a multisector learning ecosystem.

Recent policy advances to support family caregivers have not been followed by a robust and systematic adoption and implementation of programs to support these caregivers. The Caring for Caregivers care model may offer a menu for Medicare Advantage plans and motivated health systems to close this policy-practice gap.

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Appendix

Caring for Caregivers: Model Development and Components, Challenges, Examples

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*Citations in the References list marked with an asterisk are sources upon which authors’ estimates are based.

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