

Improving the match between patients' needs & end-of-life care by increasing patient choice in Medicare

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abstract

One way to achieve *health equity*—ensuring everyone has fair and just opportunities to be as healthy as possible—in the United States would be to reallocate Medicare spending from low-value medical care (expensive treatments that do little good) toward high-value medical and social care (respectively, medical interventions that have been shown to work well but are not covered by Medicare and nonmedical interventions, such as help with activities of daily living, that patients find more helpful than low-value care). In the current policy milieu, the most practical, direct step in that direction may be for Medicare—an already established, universal health care program for the elderly—to provide patients with more choices and autonomy.

Well-documented inequalities in health insurance coverage, access to care, and population health clearly show that the United States has far to go to reach anything approaching *health equity*—a goal the Robert Wood Johnson Foundation has defined as everyone having “a fair and just opportunity to be as healthy as possible.”¹ What are the best approaches for moving toward health equity?

In this article, I propose that the most direct and far-reaching action that might be achievable in the current political climate would be for Medicare, which offers medical coverage to everyone 65 years of age and older, to shift away from primarily covering and promoting medical care services near the end of life that often turn out to be low value, and instead move toward enabling patients to receive high-value medical care and social services paid for by Medicare. By *low-value medical care services*, I mean expensive medical interventions that do little good, such as delivering last-ditch chemotherapy to a cancer patient who has little chance of responding and who is more likely to be harmed by side effects than helped. By *high-value medical care and social services*, I mean medical care that has been shown to work well but that is not directly financed by Medicare, such as comfort-focused palliative care given before a patient elects to receive hospice care and forgo curative therapy, and nonmedical services, such as meal preparation or help with transportation to doctors’ offices, that tend to be less expensive than medical care and are more predictably beneficial to elderly persons across many health circumstances.

The need for changes in health-related spending is undeniable. The United States invests a great deal in health care: the nation’s expenditure on health care, which represents around half of the country’s total spending, is approximately equivalent to the combined governmental and private spending in most high-income nations. Yet the United States has only middling population-level health outcomes.² This pattern has often been viewed as evidence that inequality in access to and use of care leads to poor outcomes, but that is not the whole explanation. Research

conducted by Elizabeth H. Bradley and Lauren Taylor of Yale University³ shows that lack of investment in social services that affect health—such as education, income support, housing, nutrition, and child care—explains a substantial portion of the nation’s poor health in spite of its high health care spending. What Taylor and Bradley have called “the national investment in health”—the combined money devoted to health care and social services—is merely average compared with that of the other nations in the Organisation for Economic Co-operation and Development. A middling national investment in health yields middling health outcomes.

Bradley and Taylor³ concluded that policymakers concerned with health equity should broaden their focus beyond simply expanding access to health insurance and should work to expand social interventions. The important effects of social factors on health are well documented and may explain over half the variation in observed health outcomes between nations and between groups within nations.^{4–6}

In spite of ample evidence that health outcomes are influenced by many factors, for the last decade, the health policy focus in Washington, DC, has primarily centered on passing (or opposing) and implementing (or sabotaging) the Affordable Care Act (ACA), which prioritized expanding insurance coverage to nonelderly individuals who lacked access to employer-sponsored health insurance, a relatively small slice of the overall population. The controversy generated by this fairly narrow reform, which was nevertheless the most comprehensive since the creation of Medicare and Medicaid in 1965, demonstrates how difficult large-scale efforts to disrupt the status quo can be.

One could imagine an alternative policy initiative that invests the same magnitude of resources into social services for children, for example. The ACA was financed by a mix of cuts in reimbursement to the Medicare program and increased taxes. If the same money were instead invested in social services, funding better education and housing for low-income children, the allocation would move the nation’s investment in health

Core Findings

What is the issue?

U.S. health outcomes lag behind those of other developed countries despite high levels of health care investment. Public spending investments through Medicare tend to cover low-value end-of-life medical care and not broader high-value care alternatives that include social service options. An evidence-based shift toward these options can serve both efficiency and equity in health outcomes.

How can you act?

Selected recommendations include:

- 1) Identifying specific medical conditions that frequently result in low-value care provision
- 2) Testing the efficacy of covering lump sums as an end-of-life health care alternative, to encourage use of social services like home nursing and transportation for doctor visits

Who should take the lead?

Researchers, policymakers, and stakeholders in health care

in a direction that the social science and public health literatures suggest is conducive to better societal-level health outcomes,⁶⁻⁸ such as more children going on to earn good incomes and living in healthier conditions.

A shift from spending on the elderly toward spending on children might be expected to have the biggest bang for the buck in moving the U.S. population toward health equity. Such a shift would, of course, be politically impossible in the United States today, where the elderly advocate powerfully for the health care complex that provides them with care and where the government is currently inclined to cut social spending.

Yet shifting expenditures within the Medicare program from the kind of health care that is often delivered near the end of a person's life to other medical care and social services would probably be more politically feasible and would better meet the needs of many, as I argue in this article. I also describe ways to determine which services people prefer and to discover whether shifting Medicare coverage in this direction would, in fact, improve outcomes while increasing the autonomy and participation of the elderly in determining the best ways to address their illnesses and disabilities.

Why Shifting Away From Low-Value Medical Care Near the End of Life Makes Policy Sense

One reason to focus on care delivered near the end of life is that the United States overspends on low-value care at that time, as abundant evidence indicates. Since 1970, one in four Medicare dollars has been spent during the last year of a Medicare beneficiary's life.⁹ Yet the expensive care that is provided in a person's last days, weeks, or months often does not extend life or improve other health outcomes and may even harm patients.^{10,11} Many families experience regret over care choices made for loved ones just before death, and studies have documented posttraumatic stress disorder in survivors who witness a loved one die in an intensive care unit.¹²⁻¹⁴

The kinds of changes I am recommending could apply, for instance, to an elderly person suffering from advanced heart failure, which has no clear medical therapy to cure the disease, or to a patient with lung cancer who has already tried the existing chemotherapy and radiation treatments. There is almost always something else to try medically, but I am proposing to allow patients to decide when they have had enough medical care that is not working and to instead use their Medicare coverage to pay for other types of care or social services that would be more likely to improve their quality of life.

A change in Medicare policy that reallocated money within the program to make changes driven by patient choices might be more palatable to policymakers than other proposals for improving health outcomes in the United States because it would not require added funding or creating a new program. The approach would benefit many elderly patients—a growing segment of the population—and potentially reduce health inequity between disadvantaged and advantaged senior citizens. For instance, shifting resources from low-value medical care to social services in a program that already covers everyone after they reach the age of 65 years could help to compensate for long-standing sources of inequity, including race, income, education, and rural residence, in that age group. No similar universal insurance structure exists for younger persons. In addition, given that much spending by Medicare near the end of life is of questionable value, the approach has the potential to reallocate some program spending without the change being detrimental to one group while benefiting another.

The proposal has another benefit as well: if evidence-based reallocation of low-value medical spending to high-value social spending could be achieved in Medicare by enabling patients to play a larger role in determining their own care, that accomplishment could catalyze considerations of similar reallocations in other programs that could improve health equity.

There is a problem with directing a policy toward the end of life: the “end of life” concept is

“most people in a given clinical situation will not benefit from last-ditch medical treatment”

inherently retrospective. In other words, you do not know when the last year of life started until it ends. Predicting death involves a great deal of uncertainty, even for very sick elderly patients, and so it is impossible to design policies that specifically address the last year or months of patients' lives prospectively, which is the only way to change observed spending patterns. Indeed, physicians often do not know how long a person will survive or whether a given intervention is futile. As Lisa Rosenbaum of Brigham and Women's Hospital noted in a recent essay¹⁵ that pushed back against what she termed the “less-is-more crusade” in treatment, “sometimes less is more, sometimes more is more, and often we just don't know.”

A recent analysis of Medicare claims data supports quantitatively Rosenbaum's caution about the difficulty of predicting who will die, even among seriously ill elderly persons.¹⁶

The provider's dilemma—how to decide what to do in the face of uncertainty about, on the one hand, any given individual's prognosis and, on the other hand, reasonable evidence that most people in a given clinical situation will not benefit from last-ditch medical treatment—can be addressed in part by providing better information and additional care options to patients who are afforded the autonomy to make their own decisions with the best information available. This approach is also the most plausible way to address a common two-sided learning problem that contributes to the perpetuation of Medicare-funded low-value-care delivery. In the balance of this article, I outline a process for addressing such problems, one that keeps research evidence and patient preferences at the fore of attempts to reform the system.

Why End-of-Life Care Has Been Hard to Change

One part of the two-sided learning problem standing in the way of better end-of-life care is summarized by the truism “your mother only dies once.” That is, after a loved one dies, family members and other caregivers who learned how to navigate health care decisions for the patient often do nothing with their hard-won wisdom. There are no clear feedback mechanisms through which they can share knowledge with those who are beginning the same journey, and so a wealth of practical knowledge is lost.

The second part of the problem is the converse of the first: the health care system copes repeatedly with people near the end of their life (after all, everyone dies!), and providers can see after the fact that much of a patient's last year of treatment was useless or harmful. But the retrospective knowledge that low-value care is common at life's end does not typically get translated into an effective, evidence-based strategy for changing treatment and spending patterns near the end of life, for a variety of reasons. For instance, a multifaceted inertia favors the systematic, aggressive provision of care, much of which is understood in retrospect to have provided little benefit.

Standing in the way of reduced low-value health spending are existing systemwide financial incentives that favor delivering more treatment—incentives that align well with the professional ethos in American medicine that more is better. (In Rosenbaum's essay,¹⁵ she suggested that professional norms and a desire for certainty—which can prompt excessive testing and multiple follow-up procedures—may actually be more influential than financial gain in driving the delivery of much care that is later recognized to have been of low value.) The United States' complex incentive structure did not form in a vacuum, and it is not surprising that health care providers in a culture that uses military metaphors for health problems (“We will wage a war on cancer”; “She lost her fight”) assume that patients and their families want all illnesses treated aggressively.

The behavioral economics and social psychology literatures have detailed factors that interfere with individuals' ability to make more cost-effective end-of-life health care decisions, particularly well-known behavioral biases that limit people's ability to make rational decisions. First, when there is a possibility, however slight, of a miracle recovery, hope springs eternal. According to prospect theory,^{17,18} people tend to overweight low-probability events (which explains why they pay a premium for both lottery tickets and expensive insurance coverage), and they do so especially in emotionally charged situations, such as when they are judging the potential for recovery from an illness that has been deemed terminal.¹⁹

Second, people tend to give undue weight to outcomes in the very near term, such as the possibility of keeping a loved one alive just a little bit longer, and to drastically discount future outcomes. They tend, for instance, to undervalue the years of financial misery that may result from this decision or the regret that they may feel about the poor quality of life a loved one experienced during their weeks, months, or years of extended life.²⁰ Third, most people find even thinking about sacrificing life out of financial concern terribly unpleasant—people tend to avoid even contemplating making trade-offs between sacred values, such as human life, and secular values, such as money, when the decision involves a particular individual who is “infinitely important.”²¹

A Strategy for Moving Away From Low-Value Care

As I noted earlier, allowing Medicare patients who are well-informed about their care options to refuse last-ditch medical care in return for reimbursement of medical and social services not currently covered by the Medicare program's benefit package could improve the value that patients and their families receive from Medicare spending. The new services might include, for instance, flexible home-based social care that helps patients deal with limitations in dressing, bathing, eating, and other activities

of daily living. More radical options could also be imagined, such as giving cash to patients who forgo care that is understood to be of low value; the money can then be used for whatever purpose they choose. Right now, hospice care is limited to cases in which physicians certify that a patient is likely to die within six months; such limitations could be relaxed, allowing patients to choose to receive palliative care earlier in their disease course, without first having to cease curative care.

Before instituting specific plans along these lines, Medicare will need to perform careful pilot tests, and monitoring will be essential to ensure that patients and family caregivers understand the options offered and the choices they make. But a study called CHAT (Choosing Health Plans All Together) that I conducted at Duke University with several colleagues already supports the notion that patients would appreciate adjustments in what Medicare will cover and that seriously ill patients are able to engage in difficult trade-offs, especially when they are able to talk about them with other patients. We found evidence²² that Medicare beneficiaries with advanced cancer and their family members or other caregivers would be willing to forgo last-ditch cancer treatments that are often judged retrospectively to be of low value in return for having the flexibility to receive “high-touch, low-tech” care designed to improve quality of life. In the cancer setting, last-ditch care typically means experimental chemotherapy, whereas high-touch, low-tech care could take the form of hospice-like services or social care such as a nurse's aide who can help an elderly person with activities of daily living instead of a long-shot bid for a miracle cure.

The CHAT study provided theoretical choices to patient participants,²² who were essentially given a budget and asked to select multiple care options from a list of 15 benefit categories, including three options that Medicare did not cover: visits by a nurse's aide for a few hours each day to help with basic tasks like using the toilet, dressing, or cooking (perhaps to allow an adult child to have a break); *concurrent palliative care*, which involves hospice-like services that

25%

Medicare dollars spent during the last year of a beneficiary's life

9%

Health Disparities
Six-month survival rate in patients diagnosed with platinum-resistant ovarian cancer

38%

Point drop in adult smokers since 1950

“Medicare’s home hospice coverage provides a nursing visit only every two to three days, even though the patient’s care needs are often much greater”

a patient can receive before deciding to cease curative care (a decision currently required for hospice care to begin); and cash that could be used for anything, including such nonmedical purposes as paying for rent or food. More than 40% of participants chose to allocate some of their budget to one or more of the services that the Medicare benefit package does not now cover, which reduced the amount of traditional medical care they could receive.

Although the patients knew that the study was hypothetical and their answers did not affect the care they were allowed to receive later, the results indicate that patients and families would not only be willing to exert more choice and take more responsibility when allocating their Medicare benefits, but they would also do so in ways that could improve satisfaction with end-of-life care and potentially reduce the cost of the care they choose to receive. The tendency of participants to allocate Medicare resources away from last-ditch, low-value care and toward other care suggests, as well, that more freedom of choice could improve health equity by allowing individuals who have different preferences because of disparities (such as difficulty affording transportation to doctors’ offices or not having a family member who can afford to miss work to help them out) to improve the value of their medical spending by choosing the services most important to them.

Three Guiding Principles for Experimentation in Medicare

The CHAT study²² provided important evidence that patients might choose different care paths if they had the option, but Medicare (via the Centers for Medicare and Medicaid Innovation or a similar governmental office) needs to test the merits of different options and examine whether patients will stick with expressed preferences when making actual care decisions. It also needs to determine if such coverage changes are acceptable from policy, financial,

and ethical perspectives and to identify their impact (if any) on the cost of care that patients receive. Applying the principles that follow should help to ensure that the outcomes of these proposed studies are translated into policy changes that better meet the needs of patients and reduce disparities in the care given to disadvantaged groups.

Principle 1: In each demonstration study, select a condition that frequently results in provision of low-value care at the end of life and offer options that are more flexible than those Medicare now provides. One condition that could be considered for such a study is platinum-resistant ovarian cancer in patients who have been hospitalized. Such patients have a 9% chance of surviving for six months, with none surviving 12 months.²³ These patients are usually offered a choice between third- or fourth-line chemotherapy and hospice care. Many patients and families who opt for home-based (instead of institutional) hospice care are surprised to discover that Medicare’s home hospice coverage provides a nursing visit only every two to three days, even though the patient’s care needs are often much greater.

A pilot study could offer patients in this situation a choice between last-ditch medical treatment or a lump sum to be used as desired, such as by paying for home-based care to help with tasks such as bathing, dressing, and cooking, which is not currently covered by the Medicare benefit package. The traditional hospice benefit would remain, and the new benefit might be thought of as “hospice plus.” If pilot studies provide evidence that this approach can work, then similar studies could be developed for very common conditions, such as congestive heart failure,²⁴ in which the length of survival is less clear than in the ovarian cancer example and patients are likely to make longer use of the high-touch, low-tech option if it is selected. Medicare could design studies so that they

evaluate the degree to which health equity is addressed by the decisions patients make.

I am talking here about the types of pilot tests that should be undertaken to improve the match between covered services and patient needs, but policymakers are sure to also consider the results from a financial perspective. If the goal is improving health equity, shifting funding from low- to high-value care would be enough to achieve such a goal, and saving money would not be a key consideration. If saving money for Medicare were a key aspect of pilot tests, then the structure of the test would likely be different. Either type of test is reasonable, but the goals of a test should be made clear to patients and families, who will have to be meaningfully involved in the allocation decisions that are an inherent part of such pilot tests. For example, if a low-income Medicare beneficiary chooses home-based care in lieu of expensive last-ditch chemotherapy, that decision would likely reduce Medicare's overall costs for this person's care. If, on the basis of the individual's low income, the person was also granted cash to pay bills and reduce family strain, this provision would reduce the cost savings to Medicare but could improve health equity.

Principle 2: Commit to an evidence-based process. Rosenbaum¹⁵ has noted that the less-is-more crusade is backed more by belief than by evidence, and I agree that a full commitment to evidence is required if an attempt to shift from low-value spending to high-value spending is to be made. The outcomes of all participants—patients, families, and providers—need to be measured and recorded, along with the effects on Medicare's finances. As the evidence base accumulates over time, the information provided to patients, families, and providers (who will have to communicate these options to patients) should be updated. New treatment options—such as a new drug that is clearly beneficial for late-stage ovarian cancer—would have to be taken into account, and a pilot test might even have to be stopped in such a case, much as a clinical trial of a new drug is often stopped if the early results are convincing. Ever-improving information, collected while following patients from choices to outcomes,

is the only way to solve the two-sided learning problem—ensuring that that the insights gained by families and by providers get captured and used instead of going nowhere.

Principle 3: Adopt an ethic of harm reduction.

The goal of reducing low-value care should be viewed through a lens of harm reduction, or the acceptance that some negative outcomes or behaviors will not be eradicated but can be reduced. Requiring new Medicare policies to instantly eliminate all mismatches between patients' needs and their care would be unrealistic; small gains and improvements are victories and should be valued for the reduction in suffering they facilitate.

The evolution of smoking policies in the United States offers an example of the value of focusing persistently on harm reduction. In 1950, 55% of the adult population smoked, and the current rate of 18% was unimaginable. The transition took 75 years of multifaceted policy efforts, combined with shifting cultural norms that were influenced by policy changes but also enabled the changes to be enacted.^{25–27} Policymakers need to adopt a long time horizon to judge success. Today, many Americans find it hard to believe that airlines still allowed smoking on planes in 1994, yet people in 1975 would have found it hard to believe that the practice would ever end.

A reduction in low-value care for one condition, such as platinum-resistant ovarian cancer, would have only a small impact on the Medicare program as a whole. However, it could be the beginning of a sustained effort that could have a large impact over time as the general idea is applied to more common conditions.

Following Through

Using these guiding principles, Medicare could design and test a series of pilot studies in which patients and families could decline care that evidence suggested was often of low value and select benefits that are not currently covered by Medicare, such as long-term support for caring for the elderly at home, hospice-like services that focus on symptom relief and maximizing the quality of life before a patient becomes

eligible for hospice, and even cash that could be used for any purpose chosen by the patient. Such pilot studies could provide insight into whether and how patients and families are able to make use of existing clinical evidence relating to the prognoses associated with the treatments available for the patients' condition. The findings would then be used to help patients and family members overcome their lack of knowledge due to the two-sided learning problem by providing them with information about the experiences of other patients. The collected results could potentially lead to changes in the benefits that the Medicare program agrees to cover.

Congress and officials in the executive branch responsible for determining what Medicare covers and the public (which both uses and pays for Medicare) would need to keep the following questions in mind when considering whether to adjust coverage rules in response to the findings of pilot studies:

- What are the differences in survival and quality of life in patients given the most common treatments?
- What are the costs of these different options, to Medicare and to patients and their families?
- Of the common treatments, are any more expensive and less effective than others? Should coverage be eliminated for the least effective approaches? (Such decisions would be controversial if implemented via a top-down administrative process, but they may be accepted by providers, patients, and families if they are driven by the results of pilot studies in which patients make the decisions.)
- How can new evidence on patient and family satisfaction with different kinds of coverage options tested in pilot studies be used to ensure that the menu of benefits made available by Medicare to patients remains up to date with the options patients and families currently desire?
- How can the way the health care system obtains information about patient and family preferences be improved?

- Can the communication of uncertainty to patients and families be improved?

Of course, it is one thing to offer patients a high-value home-care option through Medicare; it is another thing to get patients to choose this high-value option. An abundance of behavioral research suggests that the way in which options are presented to patients and their families (that is, the *choice architecture*) can critically influence their decisions.^{28,29} The optimal choice architecture must be carefully designed and tested, but behavioral research provides some educated guesses about which approaches might work best.

First, research suggests that policymakers should be careful to avoid any language that suggests a trade-off between the patient's life expectancy and money, focusing instead on improving the well-being of the patient. Second, numerous studies have found that defaults have an outsized impact on choices.³⁰ Thus, a poor prognosis by a clinician might trigger a protocol in which Medicare presents the home care option as the default choice from which patients must opt out to receive continued low-value treatment. This presentation may convey an implicit endorsement of home care and lead patients to construe home support, palliative care, and additional financial support as something they would have to give up to obtain low-value treatment,³¹ thereby making the home care option more attractive. Third, a home care default could be bolstered by an explanation that the default was set because of high satisfaction scores among families who have chosen it, as compared with the satisfaction scores of families who have chosen low-value hospital treatments; research suggests that when people face difficult choices, they can be swayed by the preferences of others who faced a similar choice.³²

Implications for Health Equity

The possibility that the pilot study research program I have described could identify low-value spending in a health insurance program open to everyone age 65 years and older means that resources could be freed for

reallocation to high-value spending, which could, in turn, improve health equity. For instance, funding could be steered to benefits more useful to disadvantaged groups, such as cash; home-based long-term care that is not currently covered by Medicare; or home modifications, such as ramps, walk-in showers, and the like, that would allow people to stay at home in spite of illness. Of course, Medicare officials and Congress, which approves the Medicare budget, would have to choose to reallocate spending in a way that would invest resources in options that are not currently covered in Medicare's benefit package, instead of using the savings to reduce the size of Medicare's overall budget.

The CHAT study conducted in North Carolina gives an indication of how evidence-based revisions to Medicare offerings could improve health equity. Recall that the CHAT protocol hypothetically offered three types of benefits that Medicare does not cover. Nearly one in five participants reallocated at least some of their finite spending money to all three types of benefits (home-based long-term care, concurrent palliative care, and cash that could be used for any purpose); 40% choose at least one. The most important predictor was race: Black participants were nearly twice as likely as Whites (odds ratio = 1.91, 95% confidence interval [1.14, 3.23]; see note A) to consistently allocate resources to those options. Race was the only statistically significant predictor of choosing all three noncovered benefits, after controlling for age, gender, income, marital status, health status, and out-of-pocket spending. This finding suggests that some people who typically face health disparities (such as less access to care and worse health outcomes) may be more interested in choosing to receive some of their Medicare entitlement through the types of benefits that they anticipate would be of higher value to them when they are facing an end-of-life situation. Although the exercise²² described was theoretical, all the study participants had cancer, so the experimental situation was not implausible.

A reduction in Medicare costs could even have an indirect impact on health equity if

“funding could be steered to benefits more useful to disadvantaged groups, such as cash”

the government decided to respond to such a change by lowering (or at least not increasing) the amount that younger generations pay in payroll and income taxes to finance Medicare today for elderly beneficiaries. Easing the financing burden on workers would disproportionately help low-income workers, which should increase health equity, given the correlation between income and health.

In research seminars, when I discuss the general idea of altering Medicare in ways that would improve end-of-life care, people often invoke a study called SUPPORT³³ as an argument against it. They say that the approach has been tried and failed—in the sense that, although SUPPORT documented problems with aggressive care near the end of life, the information did not change patient and family preferences or the care people received.

The criticism that the approach has been tried unsuccessfully is wrong for two reasons. First, the SUPPORT study³³ targeted patient and family decisionmaking in the intensive care unit. When a patient arrives in the intensive care unit, it is too late for well-reasoned and nuanced decisionmaking; at that point, patients are already a part of a system set up to do everything by default. Care decisions need to be made far upstream. Second, SUPPORT is more than two decades old, and the baby boomers who are flooding into Medicare differ culturally from their parents: they are more likely to want to direct more of their care, an inclination that could be harnessed in the way I have suggested.

I also respond to doubt by noting that the persistence of health inequity and Medicare's financial problems mean that out-of-the-box changes need to be considered and discussed.

If patients and families who are given evidence-based information decide to take advantage of new high-value care options, this outcome provides some evidence that patients and families may be willing to consider more radical changes to what benefits are provided by Medicare, so long as patients maintain control over their choice of benefits.

A Brighter Future

The United States needs to engage in a broad discussion about the care its citizens receive as they age and endure illness and disability. Children, grandchildren, and great-grandchildren foot the bill as their elders join the Medicare program. Because the only thing that everyone will inevitably do is die, health researchers and policymakers urgently need to solve the two-sided learning problem, which keeps patients' and providers' insights into the flaws of today's end-of-life treatments from being translated into care that matches patients' needs. Solving the problem could provide large benefits to each of us as individuals and to society as a whole and help to transform the health care system into one that learns.³⁴ Such a system would provide a more just and equitable distribution of spending in the Medicare program and, in so doing, could spur broader reconsiderations of spending across the life course.

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endnote

A. Editors' note to nonscientists: An odds ratio conveys how the presence of one factor increases the odds of having a second factor present. In this case, an odds ratio of 1.91 means that the odds of reallocating resources were almost twice as likely for Blacks as for Whites. The 95% confidence interval indicates that there is less than a 5% probability that the odds ratio would fall outside the range of 1.14–3.23. In other words, if you took 20 samples from this population, you would expect that 19 out of 20 times, the odds ratio would be higher than 1.14 and lower than 3.23.

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