traordinarily high risk for critical illness and death. Most medical centers have protocols for children and adults, but nothing for elders. Basic standards of health equity demand protocols with elder-specific diagnostic, treatment, and outcome-prediction tools, addressing lower baseline and illness-related body temperatures, atypical disease presentations, and care options geared to the life stage, health status, and life expectancy of older patients.

Such an approach would have prevented Sally from being offered a "routine," "elective," "low-risk" procedure that ended, predictably, as an expensive medical fiasco with ongoing costs and consequences. In medicine's current framing of old age, Sally's age and multiple conditions are blamed for this outcome. In truth, an approach recognizing her life priorities, functional status, and age-specific medical risks and needs would have prevented her from receiving low-value care. Risk assessment and high-quality care cannot be accomplished by looking only at age and diagnoses. Sally would still be a vibrant, active member of society but for her recent medical care.

Fourth, we can help prevent or delay rationing by prioritizing advance care planning. As a geriatrician and an octogenarian's daughter, I know many happy, engaged elders in their 70s, 80s, 90s, and 100s — including Sally — who would not want to be put on a respirator if they become critically ill from Covid-19. Patients and our health system would be better served if all adults and elders use some of the spare time created by our new, home-confined lives to discuss and document their care preferences,[3] whether their goal is aggressive, supportive, or palliative care. The absence of such planning increases suffering at the end of life, and its presence helps people with serious or life-limiting illness to live and die according to their personal priorities.[4]

If we ignore age, we too often provide costly, ineffective care. We undertreat — seeing only "elderly" or "multimorbidity" — or overtreat, as recently happened to Sally. But if we make age the sole criterion for rationing, we take a giant step toward overt valuing of some lives over others. Not only does that approach defy the core tenets of medicine, but a glance at the U.S. Department of Health and Human Services definition of "special populations" reveals that it would put most of us at risk for second-class care.[5] We must do everything possible to avoid the first step down that slippery slope.

The patient's name has been changed to protect her privacy.

Disclosure forms provided by the author are available at NEJM.org.

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This article was published on April 7, 2020, at NEJM.org.

1. Behforouz HL, Drain PK, Rhatigan JJ. Rethinking the social history. N Engl J Med 2014;371:1277-9.
2. CDC COVID-19 Response Team. Severe outcomes among patients with coronavirus disease 2019 (COVID-19) — United States, February 12–March 16, 2020. MMWR Morb Mortal Wkly Rep 2020;69:343-6.
3. Sudore RL, Schillinger D, Katen MT, et al. Engaging diverse English- and Spanish-speaking older adults in advance care planning: the PREPARE randomized clinical trial. JAMA Intern Med 2018;178:1616-25.
4. Block BL, Young Jeon S, Sudore RL, Matthay MA, Boscardin WJ, Smith AK. Patterns and trends in advance care planning among older adults who received intensive care at the end of life. JAMA Intern Med 2020 March 2 (Epub ahead of print).
5. Special populations: emergency and disaster preparedness. Washington, DC: Department of Health and Human Services (https://sis.nlm.nih.gov/outreach/specialpopulationsanddisasters.html).

DOI: 10.1056/NEJMp2006115

The Cost, Price, and Debt of Medical Education

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In the 1960s, 4 years of U.S. medical education could be purchased for about $40,000 (in 2018 dollars).[1] By 2018, the average price had increased by 750%, to about $300,000; approximately 75% of students took on loans, and their average debt at graduation was $200,000.[2] In contrast, U.S. college tuition increased by about 250% over the same period. Some analyses blame high medical education prices for the fact that a majority of U.S. medical school graduates pursue higher-paid specialties rather than lower-paid primary care, but the high price of medical education would be a problem even if it were not the cause of perceived specialty maldistribution: between 2010 and

2018, for example, the percentage of medical students graduating with no debt also increased — a happy result if it arose from lower prices or more scholarships, but its occurrence in the absence of those conditions suggests that medicine is increasingly a profession accessible only to the rich.[3]

Various policies aim to combat or offset these trends. In 2018, New York University announced that its medical school would be tuition-free. The next year, Weill Cornell Medical College announced that its education would be debt-free for students with financial need. These institutional policies are being implemented alongside federal loan-repayment programs designed to forgive debt under specified practice conditions. The subtle differences among these programs may be missed if the terms "cost," "price," and "debt" are used interchangeably. But policies that target cost, price, or debt have different consequences, and those differences matter.

The *costs* of medical education are the resources consumed in creating a teaching program, including faculty time, course materials, technology, facilities, administration, and the inefficiencies created by introducing medical students into clinical settings. Medical school deans often lament that medical education loses money, by which they mean that the tuition they get from students is less than what they have to spend to produce the program, a concern supported by economic analyses.[4] Medical schools may make up the difference with philanthropy, subsidies from clinical revenue, and public support.

The *price* of medical education is what students see, in the form of application fees, tuition, materials, licensure and certification, and the income sacrificed by replacing years of compensated employment with uncompensated training. And *debt* is the amount of the price that students borrow.

When people say medical education's cost is high, they typically mean the price is high. But they ought to mean that both are high: it's pricey to be a medical student, and it's costly to run a medical school. Price and cost won't be equal except in a perfectly competitive market, but the two retain enough of a connection to raise questions about how society can lower the cost of producing a physician and whether we should let schools retain those savings or pass them along in the form of lower prices, either to all students or to some.

This cost–price distinction could seem pedantic, except that it reveals how free tuition supported by philanthropy still leaves medical schools, and the whole medical education economy, on the hook for high costs — because that philanthropy could have been redirected. Similarly, loan-repayment programs do nothing to reduce the cost of medical education.

One appeal of loan-repayment programs is that they direct what physicians do after their training. By making all medical education free, a medical school may provide social value by increasing workforce diversity, but without debt and rules for paying it back, it exerts no leverage on future activity. In contrast, loan-repayment programs target specific objectives — for instance, the National Institutes of Health's programs repay the loans of graduates who become clinician-scientists.

Yet loan-repayment programs can create their own perverse incentives or conflict with one another. The Public Service Loan Forgiveness (PSLF) program requires only that physicians work for 10 years in a nonprofit or government setting. Because many graduates would have done so anyway, particularly during residency, the PSLF can substantially reduce doctors' debt but exerts little leverage on future career plans. Indeed, because the amount of required payments during the 10-year period is based on the physician's current income, physicians with longer periods of relatively low-paying residency — which typically leads to higher-paid specialties — actually get more of their debt forgiven than those entering primary care. A 2018 graduate with $190,000 in debt pursuing a 3-year family medicine residency can expect to repay $138,000 over 10 years and receive $150,000 in loan forgiveness. The same graduate pursuing 7 years of more specialized training can expect to repay $80,000 over 10 years and receive $200,000 in loan forgiveness.[5]

By contrast, the more directive National Health Service Corp (NHSC) requires 2 years of practicing primary care in an underserved area. Salaries are often lower at NHSC sites, and loan-forgiveness awards are capped at $50,000 for 2 years of service. Not surprisingly, between 2010 and 2019, graduating medical students' interest in the NHSC diminished while interest in the PSLF grew.[3]

Of course, loan-repayment programs offer nothing to students who don't finance their educa-

Alternative Policy Solutions for Reducing the Cost, Price, and Debt Associated with Medical Education.

Goal or Policy Approach	Example	Likely Consequences
Lower the price of education	New York University Grossman School of Medicine	Makes medical education more attainable for people who could not otherwise afford it Reduces revenue to the school or diverts resources to this cause Potentially encourages lower costs Creates windfall for students who would already do well financially Eliminates leverage of loan-forgiveness programs
Prevent debt for students with demonstrated need	Weill Cornell Medical College	Transfers resources to students who would otherwise need to take on debt Reduces revenue to the school or diverts resources to this cause Potentially encourages lower costs Creates windfall for students who would already do well financially Eliminates leverage of loan-forgiveness programs
Forgive student debt with minimal service requirement	Public Service Loan Forgiveness program	Transfers resources to graduates with debt Encourages the acquisition or maintenance of debt Creates windfall for students who would already do well financially Crowds out less financially favorable goal-oriented programs (e.g., National Health Service Corps) Reduces incentives to lower costs and prices
Forgive student debt with substantial service requirement	National Health Service Corps; National Institutes of Health loan-repayment program	Motivates graduates with debt to pursue particular activities or practice in particular locations Fails to encourage pursuit of particular activities among graduates without debt or those who have repaid their loans Reduces incentives to lower costs and prices
Lower the cost of education	Schools pursuing 3-year curriculum; shared curricular technology	Lowers costs May lead to lower prices and less debt if schools compete on price Reduces medical education jobs
Get physicians to work in certain specialty or geographic areas	Wage or reimbursement regulation (e.g., pay rural primary care physicians more than they are currently paid)	Targets workforce policy goals directly Doesn't make schools responsible for what they cannot control

tion with debt to begin with. But a more fundamental limitation is that because these programs target debt and not price or cost, they risk exacerbating high education prices for all. In theory, students who expect their loans to be fully or partially forgiven become less sensitive to the price of medical education and the price differences among schools. Anticipated debt relief — even partial or uncertain relief — reduces the already weak incentives for medical schools to compete on price and so effectively transfers money to the schools with higher prices. Debt relief may be welcomed by future doctors, but it merely redistributes cost to other parties. We are more fundamentally served by reducing the underlying cost of medical education and passing these savings down the line in the form of reduced prices, reduced debt, and perhaps increased student diversity.

Whereas many policies target the price or debt of medical education, few contemporary policies target the cost of producing a doctor (see table). And yet no group legitimately opposes reducing the cost of medical education. At most, medical school leaders would focus on the margin received from their product — which can be served equally by lowering cost or raising revenue. And the medical educators who might find themselves cost-reduced out of a job? Well, they can get different jobs.

Neither is it hard to think of ways to reduce those costs. Some schools are shortening their programs to 3 years. Other approaches use technology to distribute teaching services more widely, possibly simultaneously improving quality. We can generate many ideas for reducing the cost of medical education, but we face few direct incentives to pursue them as long as we focus only on prices and debt. Companies that successfully cut costs without compromising quality can reduce prices, gain market

share, and increase profits, at least until others follow suit — though market share is less relevant in higher education. Medical schools that cut costs reduce the subsidy required to close the gap between cost and price. Schools can choose whether to redistribute those gains to students in the form of lower prices — something they are likely to do because they've already been doing so by setting prices below cost. In contrast, approaches that bypass cost and focus on price or debt reduction alter the distribution of who pays what, but not how much is spent overall.

Along the way, if we want more doctors to practice in certain ways — for example, encouraging more primary care physicians to practice in rural areas — then it's more direct and efficient to pay them more for doing what we want than to change the debt or pricing within our educational system.

Policies directed at medical education price and debt are important because they reflect the way we distribute resources. They remain essential tools for encouraging inclusion in the opportunities and contributions of the medical profession. But they are not a substitute for policies directed at the cost of medical education, which reflect not how we distribute resources but how we create and consume them. Ultimately, we will serve more of our goals by lowering the cost of medical education than by merely lowering the price.

Disclosure forms provided by the authors are available at NEJM.org.

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1. Greysen SR, Chen C, Mullan F. A history of medical student debt: observations and implications for the future of medical education. Acad Med 2011;86:840-5.
2. Medical student education: debt, costs, and loan repayment fact card. Washington, DC: Association of American Medical Colleges, 2018 (https://store.aamc.org/downloadable/download/sample/sample_id/240/).
3. Medical School Graduation Questionnaire (GQ) home page. Washington, DC: Association of American Medical Colleges (https://www.aamc.org/data-reports/students-residents/report/graduation-questionnaire-gq).
4. Nicholson S, Propper C. Medical workforce. In: Pauly MV, McGuire TG, Barros PP, eds. Handbook of health economics. Vol. 2. Waltham, MA: Elsevier, 2012:889-90.
5. Lynch A, Best T, Gutierrez SC, Daily JA. What should I do with my student loans? A proposed strategy for educational debt management. J Grad Med Educ 2018;10:11-5.

DOI: 10.1056/NEJMp1916528

Blame

Elizabeth Gay, M.D.

The sliver of light under the door interrupts the dark and marks this room as foreign. The room I share with my sister at home has no doors, just a curtain separating our room from the closet area, and then another curtain to define my parents' room. At night I am never alone. My sister recites the alphabet in her sleep, and her lighthouse night-light shapes the space between our beds. Most nights I can hear my parents talking in low voices, too far away to understand, but present. In this hospital bed, I listen to voices that are wrong — too high and bright, too loud for nighttime. This room, this night, this hospital bed, feel like a punishment. The crime is clear to me: I have eaten too much sugar on Halloween.

I can't remember what my costume was supposed to be that year. There is a picture of us on the porch, my sister clearly a ballerina, my friend Jennifer clearly a witch, but I'm wearing a paper grocery bag and a hat that seems to be made from a kitchen bowl. The 8-year-old self in this photo doesn't seem unsure, but that confidence is unrecognizable to me now. I knew something was wrong that Halloween. The hill of our street was endless, and for the first time I was let down by my body, which refused to run up the hill as I'd done countless times before.

In the doctor's office, they prick my finger, a dull pain that wouldn't be so bad except for the click of the finger-sticking machine. My mother cries, but that doesn't alarm me, since she cries easily — at sad songs and birthday cards and at the newspaper when there are stories of wars and accidents. Dr. Wood says,