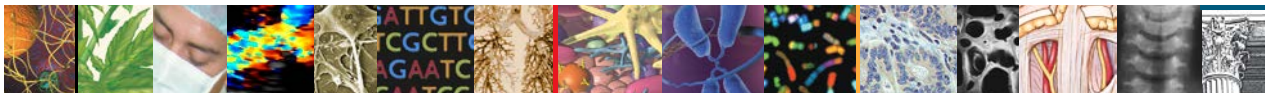

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Perspective

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Time after Time — Health Policy Implications of a Three-Generation Case Study

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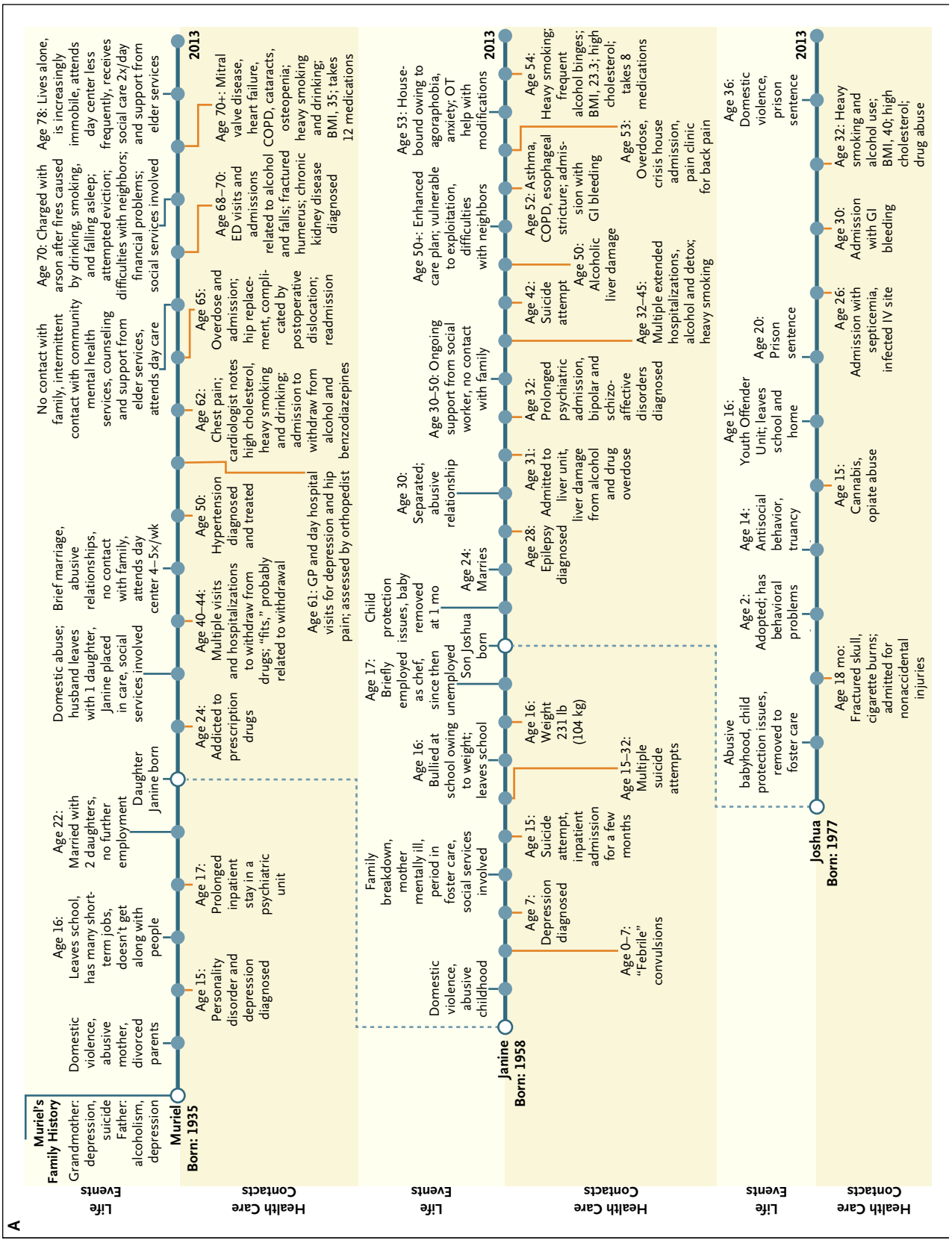
Conventional wisdom holds that the redesign of health care requires stepping back from the issues of individual patients and analyzing patterns of outcomes and costs for large patient populations.

As practicing primary care physicians, we think a useful, complementary perspective might result from doing the opposite: looking intensely at the health and health care of an individual but widening the lens through which that patient is viewed. We wanted to consider a patient's entire life story — and more.

More, in one recent instance, turned out to be three generations of a single family being cared for by the same primary care physician, who recognized that similar issues were arising in each generation with discouraging predictability. Our timeline was derived from a detailed review of medical records of Muriel (born 1935), her daughter Janine (born 1958), and Janine's son Joshua (born 1977). We used information from the medical records of these three patients to derive a rough estimate of the costs of their care over the year leading up to the chart review.

This three-generation case study shows the intertwined effects of poverty, depression, alcoholism, drug addiction, unemployment, domestic violence, and occasionally incarceration on individual family members and the family as a whole. Each family member was born into a chaotic social context, and then social and presumably some genetic factors combined to lead to a downward personal spiral. If records had been available for Muriel's father and grandmother, we would in all likelihood have had a five-generation case study with similar themes.

The case study revealed what will come as no surprise to primary care physicians: that "social determinants of health" actually do determine health. The life stories of these three people are punctuated by health care events: fractures, hospitalizations (for heart failure, chronic obstructive pulmonary disease, liver disease, kidney disease, seizures, and gastrointestinal bleeding), suicide attempts, and psychiatric admissions. Patterns of behavior associated with deprivation and mental



B

Health Care Contacts and Associated Costs, 2012–2013

Service	Muriel		Janine		Joshua	
	No. of Contacts	Cost in U.K.£	No. of Contacts	Cost in U.K.£	No. of Contacts	Cost in U.K.£
Accident and emergency (ED) attendances	8	1,032	2	258	9	1,161
Hospital admissions	4	10,120	2	5,060	2	5,060
Outpatient visits	13	2,626	3	606	2	404
General practitioner appointments	20	1,080	16	864	5	270
Home visits	1	54	3	162		
Out-of-office-hours visits			6	324		
Community referrals			2	108		
Other						
Health care	Intermittent prolonged community nurse input; intermittent contact with community mental health services		Intermittent contact with community mental health services; has a community psychiatric nurse, use of crisis house regularly, community psychology care plan at enhanced level			
Social care	4× weekly day center; counseling and support from elder services; 6 mo of package of care from social services; OT modifications to her home		Named social worker on case plan; OT assessment for provision of equipment and home adaptations			
Incarceration						40,000

Case Study of Three Generations of a Family with Long-Term Conditions.

Panel A shows a timeline of the health care contacts and other life events of Muriel, Janine, and Joshua, and Panel B shows the numbers of various types of health care contacts for each of the three patients in 2012–2013, along with the estimated associated costs. To convert U.K. pounds to U.S. dollars, multiply by 1.63. BMI denotes body-mass index, the weight in kilograms divided by the square of the height in meters; COPD chronic obstructive pulmonary disease; ED emergency department; GI gastrointestinal; GP general practitioner; IV intravenous; and OT occupational therapy.

illness have led to the development of a textbook range of chronic conditions.

Data are important, of course, but numbers sometimes imply an order to what is happening that can be misleading. Stories are better at capturing a different type of "big picture." The chaos of the timeline shown here mirrors the chaos of these people's lives and that of the systems that seek to support them. Although their clinicians fully understand the effects of social and mental health issues on physical health, these patients "disappeared" in the transition to adulthood, only to reappear to the health care system as the effects of their behavior patterns kicked in. And as the needs of these patients became more complex, so did the demands on the medical and social systems around them.

Our clinical colleagues who have reviewed this timeline have had a range of reactions, including frustration that the patients themselves have not been willing or able to take more control of their social and medical problems. But one thing that every clinician immediately sees is that his or her own ability to change the overall trajectory of such patients' health issues through traditional medical means is limited at best. It feels as if we are medical physicians facing a patient with a surgical abdomen. We know that the tools at our disposal are not going to work.

Nevertheless, from a pragmatic perspective, when we are the physicians caring for such patients, our jobs are to help these very real human beings — who may, like Muriel, Janine, and Joshua, have their considerable charms. Yet we also have roles as stewards of society's resources,

which must be used to provide care for everyone. A rough estimate of the costs of providing care and other social services to these three individuals over the year before the chart review was approximately £1 million ($1.68 million). Not all these costs are accounted for by traditional "health care" — for example, there's the estimated £40,000 ($67,100) for a prison term — but they all represent spending of taxpayer funds that could have been used in some other good way. We think these cost estimates are actually conservative and that the real total health care and social costs for the three patients are higher.

Of course, these three patients are not the problem. In fact, interdependency of social and health issues affects patients of all social strata and with all types of medical conditions. Accordingly, we believe that this case study highlights the need for a reassessment of how we think about strategy as we try to redesign health care.

We already know that, at a population level, we have predictably poor health outcomes (especially for patients with mental health problems) and that there is deeply ingrained dysfunction in our system. We respond reasonably well to crises, but there is little focus on prevention or the wider determinants of health. All too often, care is fragmented, unplanned, and uncoordinated, regardless of the patient's economic status. And as clinicians, we are painfully aware of increasing demands from patients such as these, the increasing complexity of patients' cases (e.g., those of elderly patients with multiple coexisting conditions), and the fragmentation and poor coordination of the systems around us.

An audio interview with Dr. Lee is available at NEJM.org

We think the message to be derived from this timeline is that we need to reorganize care around achieving value for patients — and that we have to do it in more thoughtful and strategic ways. If we are really trying to improve health outcomes for patients, we first need to define all the activities that are likely to enhance health for specific segments of the population — that is, to map out what organizational strategists call "value chain analyses." Many of those activities — such as addressing housing and nutritional needs — lie outside the traditional health care system. Others — such as prenatal care, teaching parenting skills, and supporting families during the first years of a child's life — represent long-term "investments."

Health care providers obviously cannot take on all those activities, and some that are considered "health care" (e.g., education about prevention) may be done better and more efficiently by others. In such cases, health care organizations might consider diverting some of their resources to other organizations that can perform those activities best. At a minimum, health care providers might work to ensure that those value-enhancing activities occur and that they are coordinated with the provision of traditional clinical care. An example is the integration into clinical settings of personnel who can help address social needs, such as a lack of housing or access to adequate food.

Throughout our careers, we have learned much from our patients, and we think these three patients from one family offer an important lesson for the work that lies ahead. We don't think that lesson is different on our two sides of the Atlantic. We cannot think of health care redesign without thinking of the activities that will influence the social factors that are intertwined with health — and that thus affect health care spending. The approach we're advocating isn't charity; it's strategy. And we believe it's our best hope for ensuring that one or two generations from now, the story line of Muriel, Janine, and Joshua's family is a different one.

The patients' names and other identifying details have been changed in order to protect their privacy.

Disclosure forms provided by the authors are available with the full text of this article at NEJM.org.

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