

## Preventive Health Care Will No Longer Be Cheap

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For decades, preventive health care has been championed as the most cost-effective investment in medicine. The narrative was simple: a vaccine, a blood pressure pill, or a screening test spared the patient from later catastrophe—and spared the health system from expensive treatments. Prevention was synonymous with thrift, efficiency, and common sense.

Today, however, the contours of prevention are changing. The global pursuit of longevity and the expansion of health technologies are driving preventive care far beyond its traditional domain. In this new landscape, prevention may remain valuable—but it will not remain cheap.

### **The longevity economy and the medicalization of aging**

A major driver of this shift is the burgeoning “longevity economy.” Populations worldwide, particularly in Asia, Europe, and North America, are aging rapidly. At the same time, consumer demand for youthfulness, vitality, and extended lifespan has created a market in which prevention is not only about avoiding disease, but also about forestalling the natural biology of aging.

What once meant immunizations and advice to quit smoking now includes interventions such as senolytic drugs, NAD+ boosters, stem cell therapies, platelet-rich plasma injections, and prophylactic surgeries for genetic risk carriers. This represents the medicalization of prevention: treating the future possibility of decline as if it were a disease in itself.

Such interventions are resource-intensive, require specialized expertise, and are marketed less as public health necessities than as personal investments. The consequence is clear: preventive health care is becoming more expensive, individualized, and consumer-driven.

### **Wearables and the new era of health monitoring**

Another engine of change lies in the proliferation of wearable devices and health applications. Smartwatches track sleep, heart rate, and oxygen saturation; continuous glucose monitors are being marketed to healthy individuals; and smartphone applications offer daily risk scores, wellness nudges, and predictive analytics.

The promise is seductive: real-time monitoring could enable earlier intervention, tailor lifestyle advice, and prevent disease before it manifests. Yet evidence lags behind marketing. Only a fraction of these technologies are rigorously validated, and their impact on long-term health outcomes remains uncertain.

There are also unintended consequences. Over-monitoring can generate “data fatigue” or health anxiety, with individuals chasing numerical targets without understanding their clinical significance. Some resort to unnecessary supplementation, repeated laboratory tests, or unproven therapies in response to app-generated alerts. In this way, prevention can paradoxically lead to overdiagnosis, overtreatment, and overspending.

#### From public health to consumer market

The evolution of prevention is also a story of market forces. The supplement and nutraceutical industry is now worth over US\$200 billion globally. Food products are fortified with claims of anti-aging properties; wellness clinics offer preventive “packages” that include vitamin drips, PRP injections, and stem cell boosters. For example, in Thailand, there is a growing trend among parents to seek DNA tests to assess their child’s potential intelligence, with the aim of tailoring educational strategies accordingly. Another emerging practice involves using genomic information to design personalized exercise programs, with companies in Thailand offering these services to individuals seeking to optimize their fitness regimens based on their genetic predispositions.

Unlike vaccines or hypertension control, which are evidence-based and widely accessible, these consumer-driven preventive services are largely unregulated and unevenly supported by science. Their popularity stems not from public health necessity but from a desire to optimize one’s body as a form of health capital.

The economic burden is twofold. Individuals pay out-of-pocket for interventions of uncertain benefit, while societies face the downstream costs of managing complications or correcting misinformation. Far from being cheap, prevention is becoming commodified.

#### The expanding vaccine frontier

Vaccination illustrates both the triumph and the complexity of modern prevention. Traditionally, the domain of childhood and communicable disease control, vaccines are now entering the realm of adult and geriatric care.

Annual influenza and COVID-19 boosters are increasingly joined by vaccines for shingles, HPV, RSV, and pneumococcal disease for adults. Research is advancing on therapeutic cancer vaccines and even vaccines against neurodegenerative diseases such as Alzheimer’s.

This broadening of the vaccine frontier raises critical questions. Should every new vaccine become a universal preventive measure, or should cost-effectiveness and risk stratification guide its use? The line between collective benefit and consumer demand is blurring, and with it, the economics of prevention are shifting.

#### Preventive surgery and regenerative therapies

In certain domains, prevention now extends to invasive measures. Women carrying BRCA mutations may undergo prophylactic mastectomy or oophorectomy. Patients with early joint degeneration are offered orthobiologic injections—PRP, hyaluronic acid, stem cells—long before disability sets in. Researchers are trialing brain stimulation and senolytic drugs for the prevention of dementia.

These approaches underscore the willingness of modern societies to intervene early, sometimes dramatically, in the name of prevention. They also demonstrate why preventive health care is no longer synonymous with “cheap”: high-technology interventions come with high price tags, even when justified by risk reduction.

#### **Ethical and socioeconomic tensions**

##### **The new preventive paradigm raises urgent ethical questions**

Equity: Wearables, supplements, and advanced biologics are disproportionately accessible to affluent populations. Prevention risks becoming a luxury, widening the gap between those who can afford longevity and those who cannot. Evidence vs. enthusiasm: The cultural momentum toward “doing something” to prevent aging may outpace scientific validation. Unregulated preventive markets risk promoting ineffective or harmful practices.

Policy challenge: Health systems must navigate the tension between supporting evidence-based prevention (e.g., hypertension control, childhood immunization) and regulating consumer-driven wellness markets.

These tensions highlight the core problem: prevention is being redefined as an individual lifestyle choice rather than a public good.

#### **Toward a balanced perspective**

Preventive health care is indeed evolving, but it is not disappearing. Its principles remain sound: early intervention saves lives and reduces suffering. The challenge is to distinguish between evidence-based, equitable prevention and market-driven longevity products.

Medical journals, universities, and policymakers must therefore adopt a balanced perspective. On one hand, we should welcome scientific innovations that expand the boundaries of prevention—such as vaccines against cancer or validated digital monitoring. On the other hand, we must remain vigilant against uncritical adoption of costly, unproven interventions.

The message is not to reject prevention, but to reframe it. Preventive health care will no longer be cheap; it will increasingly be seen as an investment—one that demands rigorous evaluation, equitable distribution, and careful stewardship.

#### **Conclusion**

The old saying that “prevention is cheaper than cure” remains true. However, in the 21<sup>st</sup> century, prevention is no longer inexpensive, straightforward, or universally accessible. It has become technologically sophisticated, commercially commodified, and increasingly complex in terms of its ethical implications.

The task before us is to ensure that preventive healthcare remains grounded in science and equity, rather than drifting into luxury and excess. Only then will the promise of prevention—healthier lives and reduced suffering—be realized for society as a whole.