
What if people expect to live 1000 years?

Aubrey D.N.J. de Grey

SENS Research Foundation, Mountain View, USA

The conversation around the future medical control of aging is not what it was. Twenty-odd years ago, when I switched fields to become a biomedical gerontologist, the idea that we might – ever! – develop medicines that could greatly delay the typical age at which people begin to suffer from the progressive, chronic conditions of old age was almost universally viewed as nothing more than science fiction. I was initially bewildered by this view, but eventually I came to understand that it was just one pillar of the defences that humanity has erected to help people put aging out of their minds.

Now, by contrast, it is becoming rarer to encounter an educated person who thinks that way. There is an increasingly widespread appreciation that the depredations of old age are indeed amenable, in principle, to medical intervention that could, in principle, be as effective in warding them off as are the medicines we routinely use against most infectious diseases.

However, there remains a wide spectrum of degrees to which this new thinking is yet adopted. Both of the uses of «in principle» in my previous sentence allude to aspects of this. Many people believe that aging is, yes, a medical problem, but that it is so incomparably more challenging than any disease that we have yet overcome, or even the diseases that we are still working to overcome, that this is purely an academic fact, not one that will ever actually change the world from that which would exist if the defeat of aging contravened the laws of physics. And many other people, while going the further step of accepting that aging is amenable to medical intervention in the foreseeable future, remain convinced that the magnitude of that intervention, i.e. the number of years that the health problems of old age can foreseeably be postponed, is very modest, like single digits.

In addition, there is a third common type of resistance to the idea that we might soon see the end of aging: one of reliance on one's own ignorance. While it is undoubtedly wise to maintain a realistic sense of what one doesn't know, one must also resist the tendency to pretend that one doesn't know something when in fact one does know it, but one wishes it were not true. In the present context, this manifests as an attitude of «wait and see» – of choosing to continue to hold one or other of the views I described in the previous paragraph until the evidence that progress is more rapid becomes unequivocal, even though one knows in one's heart of hearts

that that evidence is already quite strong. This is often justified by the (desperately uncritiqued...) conviction that one doesn't need to know: that one's actions (or inaction) in the near term will not ultimately affect one's chances of benefiting from future events if they turn out to unfold in the manner that one is choosing to assume they won't.

All three of these categories of – pessimism, scepticism, whatever you want to call it – are problematic in an obvious way: they diminish people's belief that resources allocated to the attempt to hasten the defeat of aging would deliver sufficiently valuable results, so they diminish what resources are actually made available, and thus the pace of progress against aging. But my focus in this essay is a less obvious problem: that the transition to a post-aging world, following the development of the enabling medical technology, will be both slower and more turbulent than it might have been if society had anticipated it better.

I am one of the more optimistic experts on the biology of aging and its modulation: as of now, I think we have a 50% chance of reaching, within 17 years, a level of control over aging that delivers «longevity escape velocity», the postponement of age-related decline by more than one year per year. While many of my colleagues in biomedical gerontology are more cautious than that (and MUCH more cautious than that in their public statements, as I will discuss below), I maintain that this estimate is well justified by the current state of our ability to manipulate our molecular and cellular structure and composition and the rate at which that ability is increasing. And I feel I can say without fear of contradiction that, over the past 15 years, the consensus view has moved much further in my direction than mine has moved in its.

But here's the thing: there are two reasons why the consensus view has shifted. One is that my own optimism at the turn of the century was based on a host of science that had been developed outside of gerontology, for reasons not related to aging – and, thus, of which gerontologists were overwhelmingly unaware. It simply took time for them to get up to speed. But the other is that those years have seen large, and accelerating, progress in the lab – not only the SENS Research Foundation labs, but worldwide. Every step forward makes the next step seem more feasible. And this will, in all probability, continue.

And there's the problem. Because I am the only biomedical gerontologist expert who has the freedom to speak plainly – the only one who became prominent without having had to sell his soul to the tyranny of peer review – I remain something of a heretical voice in the wilderness even today. My colleagues, perpetually in fear that someone on a study section will accuse them of irresponsibly engendering unwarranted public optimism, need to remain curmudgeonly. But as progress continues, that stance will become less and less tenable – and eventually the dam will break, very, very suddenly. There will, I am sure, come a day when the publicly stated bi-

ogerontological consensus does a total 180 degrees and becomes rather well aligned with what I've been saying all along. And I mean a day, because it will be triggered by just one or two sufficiently dramatic laboratory advances.

You may still be thinking, well, so what? Let me take you through the next steps. Opinion-formers of the wider world – the Oprahs – got where they are by being attentive to emerging momentous changes when they were not yet widely appreciated and getting in the lead. They do it by having their finger on the pulse of changing expert opinion, in science as elsewhere. So, you can be very sure that there will be no lag at all between the above change in publicly-stated expert opinion and a call by such opinion-formers for a «War On Aging». And opinion-formers are, well, influential. It will instantly become impossible to get elected without a manifesto commitment to engage in such a war.

And then what? This brings me, in conclusion, to the title of this essay. Once the world is induced to think rationally about aging – about its status as the world's most important problem, and also about the feasibility of solving it – people are going to put two and two together and realise that these advances are likely to impact their own lives. Even those who feel they are probably too old to benefit will still know that their kids will benefit – and most people won't need to go that far, because the therapies in question will be bona fide rejuvenation therapies that will probably benefit anyone who is not at death's door. So, here's the issue: this change of personal expectation will happen WAY BEFORE the therapies that justify that expectation are actually developed. It will only require those therapies to become widely anticipated. And it takes no imagination at all to see how seismic that will be to the global economy, given that it so hugely alters the appropriate allocation of the most big-ticket items of a typical person's expenditure, such as life and health insurance, pensions, anything to do with inheritance, etc.

Worried yet? I'm not done, because I haven't yet told you how soon I expect this step-change to occur. I noted earlier that the actual arrival of these therapies (at a level of comprehensiveness that delivers longevity escape velocity) has a 50% chance of occurring within 17 years. My corresponding prediction for the arrival of the widespread anticipation of the therapies? THREE years. Be ready.