

A Prospective on Longevity

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Life expectancy has improved dramatically over the past century.

Contributing to improved longevity are public health initiatives including vaccination and sanitation, improved medical and surgical care and new medications for cholesterol and blood pressure.

There appears to be a finite limitation of longevity in humans. A Canadian population study spanning the past ninety years shows the total expected years of life at age ninety to have increased maximally one year¹. Why the lack of improvement? As we age we become susceptible to and accumulate many

competing, fatal diseases. If we eliminate one fatal disease another takes its place.

Cancer and heart disease are the two leading causes of mortality. Medicine has made impressive strides in decreasing the incidence of heart disease and stroke. The past sixty years has seen a fifty four percent reduction in deaths from cardiovascular disease.

Unfortunately the improvement in cancer mortality lags far behind with an overall reduction of about one and one half percent over the past fifteen years.

Life style is a strong contributor to disease as well as aging itself. Overweight/obesity and smoking are inversely related to longevity both as disease causation and aging. Smoking has decreased in most socioeconomic/age populations while overweight/obesity has increased in nearly all population segments and

is considered to be the prime detriment to improved population longevity.

Wealth has a profound effect on life expectancy in the United States². The longevity of the wealthiest one percentile beginning at age forty trends longer giving them a life expectancy ten to fifteen years longer than the bottom percentiles. Also the longevity gap between males and females decreases from six years at the lowest percentiles of wealth to one and one half years at the top.

In summary, who lives the longest? Those with the best genes, those with higher socio-economic and education status and those with the healthiest life styles.

What is on the horizon impacting longevity for common diseases?

Cancer is a complex disease predominantly

genetic with multiple interacting, external, environmental influences. Evaluating and analyzing each is a complex endeavor that will likely take years to resolve.

Cardiovascular disease has witnessed a dramatic improvement in mortality. With new treatments and medications the favorable trend will continue albeit at a slower pace. Many feel the slowing of improvement will be due to the obesity epidemic with its secondary adverse effects especially diabetes.

Alzheimer's disease is the subject of intense research but as with cancer it is multifactorial. By the time it is diagnosed by symptoms most patients have large accumulations of toxic and damaging beta amyloid in the brain. No treatment is available to either slow or remove it. Ideally, treatment should be developed to prevent the development of damaging beta amyloid.

References:

1. Statistics Canada, Canadian Mortality Database, Canadian Vital Statistics- Deaths.).
2. Chetty R et al. The Association Between Income and Life Expectancy in the United States, 2001-2014. Journal of the American Medical Association 2016; 315 (16):1750-1766.