# Long Term Drivers of Future Mortality – A Podcast Series – Interview with Yair Babad

Mortality and Longevity

Podcast Transcript

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**SPEAKERS**

Ronora Stryker, Yair Babad, Rose Northon

**TRANSCRIPT**

RONORA STRYKER 00:06

Welcome listeners to the Research Insights Podcast!

I'm Ronora Stryker. I'm a Senior Practice Research Actuary at the Society of Actuaries Research Institute.

Welcome back to our special podcast series focusing on an informative paper that was written as part of the Mortality and Longevity Strategic Research Program 2023 Living to 100 Symposium. The title of the paper is *Long-Term Drivers of Future Mortality*, authored by Yair Babad, professor emeritus at the University of Illinois, Chicago, and Al Klein, Principal and Consulting Actuary at Milliman.

And today, listeners, we have a very special episode!  We have with us, all the way from Israel, Yair Babad!

Welcome Yair and thank you for taking the time during your vacation to stop by our offices here in Chicago on Bryn Mawr and East River Road!

YAIR BABAD 01:02

Thank you very much. For me it's an honor to be here with you, and more than that, to be with all of the people who listen to this podcast. I wish you the best and to enjoy it. And I hope it will awaken your thinking process, and you will begin to wonder what you are doing. That is really what the whole motivation is for this subject.

RONORA STRYKER 01:25

Thanks, Yair! Okay, listeners, I know you want to listen to Yair, but before we get started, I want to make sure you all know how to navigate to this paper. Just go to soa.org, click on the "Research Institute" tab and under "Research by Topic", click on the words "Mortality & Longevity", and it will take you to the M&L landing page. Once you're there in the upper right corner, you will find the link to the landing page for this paper and podcast series.

So, let's get started! Yair, what prompted you or what was your motivation for starting this project?

YAIR BABAD 02:03

Well, basically, my experience. I am a pension, long-term care and health actuary, over many, many years, and some of them in the United States, some of them in Israel. That experience taught me to suspect classical data and other data that is based on, rely on past data that determines some trends to be used in pricing, reserving and even to predict the "long-term" and I put it in very big quotes, health of funds and plans. While this provided reasonable short term, three, five, maybe even 10 years predictions, too many of them fail in the long run. Let me give you some examples.

I started as a defined benefit actuary, we don't have it now in the United States much, wherein the benefits were determined by the presumed future needs of the retirees, and the underlying assumption was that future entrants to the plan will assure its long-term stability. History proved that the fallacy of this assumption, as the global move to define contributions proved. The needs of retirees also changed with extended life span and the future levels of entrants and values of accumulation were not realized due to the economical and societal changes.

Long-term care is another illustration. When our plans were designed in the 20th century, basically the mid-80s, past data suggested that the expected handicapped person would be around for about five years. Medical technology, better management of chronic health conditions, and the lengthening of life, soon more than doubled the expected life span of the handicapped individual. And therefore, most of these plans collapsed or closed. In Israel, long-term plans survived for about three decades, and now are collapsing, and next year they are going to disappear unless we change major, major things.

Life Insurance actuaries also have to consider long-term drivers, so it's not always clear how to use them. Just consider the COVID-19 Pandemic and the long COVID results that we are getting after the pandemic, and the aging of the German and Japanese populations. All the mortality assumptions that were used for life insurance fail in all these cases. And we have to be to be rethought and how to protect them.

I'm also an information science educator and practitioner. And during my lifetime, we passed from the 1950s a few IBM 530 computers will satisfy all the needs of the United States statement to the internet, cloud computing, global networking, social networking, and already the development of quantum computing. All past computing and technology development predictions collapsed soon after they were made.

Thus, I learned that any long-term consideration and projections must expand beyond the past data analysis and trends and should consider a broad spectrum of drivers or issues that change and have implications to mortality and morbidity and lifespan and environment that interact with the phenomena of the internet. Populations and their mortality and morbidity outcomes are affected by many factors that are not explicitly reflected in the raw mortality morbidity data. Some of these factors are presented in the paper Al Klein and I wrote, which is presented in this series of podcasts, in which you clearly already held some of them in the last podcast, and you will probably hear more in the coming months, indeed, after we prepare the podcasts.

Al Klein and I were already considering updating and expanding this paper by two additional chapters on current developments and drivers that were not discussed in the paper and proved to be important. An additional future development and drivers that are not yet available today but can be expected. This paper will be called, hopefully, Longer-term Drivers of Mortality.

RONORA STRYKER 06:59

Thanks Yair. Your career is certainly an interesting one, and with so many experiences. And while you're here, I'm going to take advantage of that a little bit and ask you a few more questions. You know, one of the things that I thought of while you were talking is, can you explain how the traditional role of actuaries, how it has evolved over time, especially in relation to studying populations rather than just individuals or cohorts?

YAIR BABAD 07:27

Well, if you begin to go to the 16th century, when we started insurance with commercial fleets that were bringing products from the Far East and so forth. The insurance was the risk that the ship will drown [sink]. And this was the population of interest the ships. Over the time it began expanding, there were fires in London. London was the capital of the insurance business for many years, and suddenly we have to consider loss of houses, infrastructure and so forth.

Later, we found that we have the issue of mortality. And that comes, for example, when Bismarck in the 1860 decided to make a pension plan. The pension plan has to consume how long will people live to get their pensions after they retire. At this time, it was assumed that people will live not more than five years after they will retire. Today, people can live 40 and even 50 years after retirement. So that shows you how we got into this.

Then we got in the end of the First World War, the Spanish flu. And we have to begin to think about morbidity, about the risk that people will become sick and out of the sick some of them will die. So, all of this added and added new issues to this. In all of these times, we have no real data. We had no computers and no databases the way that you have now with billions and billions and terabytes and petabytes of information. All we had is the data that was recorded manually in papers about how many people lived in a community, how many of them were covered, how many of them died in each particular year. So that brought us to this traditional actuarial approach of looking at past data in order to assume what will happen in the future.

RONORA STRYKER 09:42

Let's start talking about some of the drivers that are in the paper. We've learned in some of our podcasts that, I think most actuaries would agree that aging is one of the primary drivers of mortality. And maybe for some actuaries, they would put that at number one. I'm just curious if you agree with that, and maybe if you could explain what you feel are, let's say the top three drivers of mortality.

YAIR BABAD 10:12

I will not put aging at the front. I will not put aging at the front. Just to give you an example, we had since the 1970 or 1980 life was increased, the expectation of life was increased by medicine, better foods, better services, better health care and so forth. That was true. But this trend stopped somewhere around 2010 between even in the United States, between 2017 and 2017 or 18 the expected length of life decreased.

There are most actuaries, or most, I would say, epidemiologists and a population demographers believe that you will never get much as a population beyond 115 or maybe 120. There will be few people who will get, God never knows how long, like Abraham lived to 191 or 189 whatever. But most people don't, will not get there.

In many, in many North Africa societies which are very poor, you have lifespan of 50 to 60 year. In the United States, the difference between some states and other states can be as much as six years to the lifespan, the expected lifespan. Oh, yes, that is known phenomena. So aging is not the major thing.

What is the first and most are two. One is the way that we as people, handle ourselves and take care of ourselves. What we called in the paper, lifestyle: what we eat, how we exercise, how we live with others, how we support others. Today, with the social networks, one of the biggest issues is the support networks for youngsters who are depressed and have a high level of suicides, and we need support for them. We have a major problem with people who are sick in their mind, mental illness. We have many problems with them. That is probably the first and most important. And that is something that each one of us is responsible to take care of, for himself, for his family, for his community, and that is probably the first one.

The second one that I look, is the phenomenal growth in the scientific research, mostly medical and medicine. We can see lengthening of life. We can see today managing genetic illnesses through crisper technology. We can cut things phenomenally with the fact is that many people who had COVID by just changing the way that oxygen was given to them, they lived much longer and even never got the long COVID. And we can go on and on and on.

We are moving into an area where there will be personal medicine. Not that I come and if a doctor will say, well, you are 65 take this medicine ABC, no, let me give you a blood test, let me look at your DNA and now we suggest that you will take x, y, z, whatever x, y and z is, it will be personal.

We can today take people who live in the rural areas, we can put technology, telephones, computers and so forth. We can find monitor them day to day. We can find what is the status. We can give them warnings. We can get, we can invite them to come and be tested. That is the second thing that I consider the most important.

The third thing that I consider the most important is the thing that we know less about. And that is catastrophes of every type. And I'm talking about, not only natural one, which we have a hell of a lot, because we expand into the natural zones of animals, which have a lot of viruses and things we don't know. We take off much of the Amazon forest and so forth, and we are moving into areas that we don't know how to live in. So that is one thing.

The second thing is related to that and that we don't know, and that is the political arena might create catastrophe on the right and left. I don't have to speak too much about it. Just think what happened between 2022 to here today in Europe. I don't want to go on beyond that. So, these are the three that I personally consider the most important.

RONORA STRYKER 15:02

Thank you. You know, while you were talking, I was thinking this would be a good research project to do a pulse survey of the members, to learn what they feel are the top drivers of mortality.

YAIR BABAD 15:15

Fantastic!  I would love to learn it. I would love to see the results. I would analyze them.

RONORA STRYKER 15:19

So, I have another question. Your paper goes in depth into many, many drivers. What are the top three takeaways for practicing actuaries? What should they take away from your paper?

YAIR BABAD 15:36

Number one, don't trust your assumption. Check them again and again and again. Check what your assumption were last year and a year before and year before. Take the result of your predictions for next year and check them against the real data next year and see if indeed what you assumed was correct. I have seen enough cases where reserve calculations where medical, medical in performance and things of this nature, people assume something when you look at the data, two, three years later, wrong! All the assumptions were incorrect. So, check every year and against your assumptions.

Second thing, don't believe that only the assumption that we used in the last seventy-five years, or twenty years, five years are the right things, the world is changing around us. Think about what is going to change, what will be affecting us. A very simple example, and I will, I will say it, and I will take it from Israel, in this case.  Israel and the whole Mediterranean and Middle East is going through a warming period. I don't know if it will continue for 10 years, 20 years, 100 years. I have no idea. We don't know the cycle of the thing. However, already it's becoming warmer by a couple of degrees. We have less rain, and the rain when it comes is much stronger, so it floods and everything, by the way, that's what happened in Spain and northern Spain, and just a few months ago. So, there are a lot of changes around us that we have to think about indeed.

I will give in this regard, another small incident from my experience. I was doing an audit of a vehicle insurance.  In Israel, we have a law that said that anyone who has body injury will be covered by his insurance company, not by anyone, but the one who harm him. But now, I so I went and did an analysis and an audit of an insurance company and then I asked the actuaries, three of them, guys did you know that the Supreme Court in Israel, just in the last two years, had two major decisions that affect this type of insurance? No, our legal department never told us anything. Sorry, guys, if your actuaries begin to look around and learn what is around you. So that is the second thing, watch for everything. I think that will be enough.  And another thing, when you make an assumption, check it against people, against others, against literature. There is a tremendous amount of literature on the internet, I mean scientific literature that most actuaries don't read and don't know.  Just open the NEJM, The New England Journal of Medicine, or look at Lancet, or look at the reports of the WHO, or the ILO, and you will see new things that are sitting and waiting for us. We are already hearing by the WHO, expectations for another epidemic within 10 years. Oh yes, oh yes. So, my point is, begin to look and study around and learn more and not just rely on what you learned in the past. These are the three most important things that I would like to see.

RONORA STRYKER 19:19

Thanks, Yair, that's very interesting and actually fascinating. I want to thank you for joining us today and taking your time out of your vacation to stop by our offices. I really appreciate you sharing your insights about the paper and about your actuarial experiences over the years.

YAIR BABAD 19:40

Thank you very, very much, and I hope, I really, really hope to get soon from you the result of the survey that you wanted to make.

RONORA STRYKER 19:50

We'll definitely run that by the committee, and hopefully they'll agree to it.

YAIR BABAD 19:55

Thank you. Have a great day!

RONORA STRYKER 19:59

You too!

Listener that's all the time we have for today. I want to thank you for joining us on our chapter-by-chapter journey through the Long-Term Drivers of Future Mortality Podcast Series. Tune in at the end of each month for our in-depth chapter discussion.

And we'd also love to hear your feedback on this podcast, because it really helps us better serve you. If you have any thoughts or topics, just email us at Research-ML@soa.org.

For the Mortality & Longevity Strategic Research Program Steering Committee and the Research Insights Podcast, I'm Ronora Stryker with the Society of Actuaries Research Institute.

ROSE NORTHON 20:42

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