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ORIGINAL ARTICLE

Choosing the Correct Database for Measuring Life Expectancy

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Introduction

Historically, there have been numerous publications in the Journal of Forensic Economics and other litigation economics journals, pointing out the shortcomings of life expectancy tables.

However, life expectancy trends indicate a general pattern of increasing life expectancy in the 21st century, despite variances (some of which may have been significant, before the effects of COVID-19). This trend has been referred to as the "Annual Rate of Improvement" in life expectancy as indicated in "Current Versus Ultimate Life Expectancies: Perceptions and Implications" by Jack P. Suyderhoud and Richard L. Pollock.

The impact of predicting accurate life expectancies for personal injury and/or wrongful death cases is critical, in that life expectancy is one leg of the triangle when trying to measure the present value damages in a claim for pecuniary damages. Along with an accurate prediction of life expectancy, the essential components of determining this type of present value damage calculation include the individual modality measured and the savings/net accumulation computed grown at the relevant growth rate and reduced to present value.

Tables 1–2 below indicate the life expectancy tables for the years 2009 through 2019, plus 2020 (COVID-19) broken out by gender and demographic grouping where the data was available.

Table 1: Vital Statistics Life Expectancy for Males at Age 0, Years 2009-2020

Measurement Year	Publication Year	White Males	Black Males	Hispanic Males
2009	2014	76.3	70.7	78.7
2010	2014	76.4	71.4[D]	78.7
2011	2015	76.4	71.7[E]	79[F]
2012	2016	76.5[A]	71.9	79.3
2013	2017	76.5	71.9	79.2
2014	2017	76.5	72.2[D]	79.4
2015	2018	76.3	71.9[E]	79.3[F]
2016	2019	76.2[A]	71.6	79.1
2017	2019	76.1[B]	71.5[C]	79.1
2018	2020	76.2	71.3	79.1
2019	2022	76.3[B]	71.3[C]	79.1
2020	2022	74.8‡	67.8‡	74.6‡

Legend

A Life expectancy published in 2016 and available for use that year was higher than the life expectancy for the year 2016 that was published in 2019. The difference was 0.3

years or 110 days.

B Life expectancy for white males published in 2019 and available for use that year was lower than the life expectancy for the year 2019 that was published in 2022. The difference was 0.2 years or 73 days.

C Life expectancy0 for black males published in 2019 and available for use that year was higher than the life expectancy for the year 2019 that was published in 2022. The difference was 0.2 years or 73 days.

D Life expectancy for black males published in 2014 and available for use was lower than the life expectancy for the year 2014 that was published in 2017. The difference was 0.88 years or 292 days.

E Life expectancy for black males published in 2015 and available for use was lower than the life expectancy for the year 2015 that was published in 2018. The difference was 0.2 years or 73 days.

F Life expectancy for Hispanic males published in 2015 and available for use was lower than the life expectancy for the year 2015 that was published in 2018. The difference was 0.3 years or 110 days.

‡ First year of COVID-19 pandemic which resulted in drastically lower life expectancies for all male demographic groups.

Table 2: Vital Statistics Life Expectancy for Females at Age 0, Years 2009-2020

Measurement Year	Publication Year	White Females	Black Females	Hispanic Females
2009	2014	81.1	77.4	83.5
2010	2014	81.1	77.7[E]	83.8
2011	2015	81.1	77.9[F]	83.8
2012	2016	81.2[A]	78.1	84.3
2013	2017	81.2	77.1	84.2
2014	2017	81.2[B]	78.2[E]	84.5
2015	2018	81.0[C]	78.1[F]	84.3
2016	2019	81.0[A]	78.0	84.3
2017	2019	81.0[B,D]	78.1	84.3
2018	2020	81.1[C]	78.0	84.3
2019	2022	81.3[D]	78.1	84.4
2020	2022	80.1‡	75.4‡	81.3‡

Legend

A Life expectancy for white females published in 2016 and available for use that year was higher than the life expectancy for the year 2016 that was published in 2019. The difference was 0.2 years or 73 days.

B Life expectancy for white females published in 2017 and available for use that year was higher than the life expectancy for the year 2017 that was published in 2019. The difference was 0.2 years or 73 days.

C Life expectancy for white females published in 2018 and available for use that year was higher than the life expectancy for the year 2018 that was published in 2020. The difference was 0.1 years or 37 days.

D Life expectancy for white females published in 2019 and available for use was lower than the life expectancy for the year 2019 that was published in 2022. The difference was 0.3 years or 110 days.

E Life expectancy for black females published in 2014 and available for use was lower than the life expectancy for the year 2014 that was published in 2017. The difference was 0.5 years or 183 days.

F Life expectancy for black females published in 2015 and available for use was lower than the life expectancy for the year 2015 that was published in 2018. The difference was 0.2 years or 73 days.

‡ First year of COVID-19 pandemic which

resulted in drastically lower life expectancies for all female demographic groups.

There are always significant time lags between when a life expectancy table is published, and the actual year used in computing those calculations. In Tables 1-2, we have highlighted the years where there was a difference of greater than 0.1 years between the life expectancy published in a given year and the actual life expectancy measured for that year and subsequently published. In other words, the compilation of a table in one year and subsequent publication two years later may not comport with the date that the client was injured/killed, and which would be the most reliable, significant and relevant table/data to use in a damage calculation.

When this is the case and a report is initially published, but subsequently updated for deposition or trial, the question becomes "*Do I use the historic table originally reported in the first report*" or "*Do I update for the database in the year of injury/death?"* For example, there is a large variance regarding black males whereby the difference between the date published as of 2014 and the data from the year 2014 (published in 2017), was nearly one full year or .8 years (292 days). That is a significant difference when appraising the need for exorbitant aide and attendant care figures for someone who requires 24/7 care at $200,000 per year. This would indicate any attempt at present value which reduced the figures would be off by nearly $165,000. Similarly, if the decedent was carrying forward a $100,000 net accumulation claim for an additional .8 year, that would also indicate a shortfall in the damage claim.

The question becomes whether or not when assessing economic damages, even small differences in life expectancy (months and days) can significantly impact economic calculations as shown in the examples above. One additional calculation not discussed is the loss of household services calculation which can also be impacted by an inaccurate life expectancy measure. Small changes can lead to large damage differences in injury cases and death cases where a significant amount of household services were performed.

In light of the amendments made to Rule 702 of the Federal Rules of Evidence on December 1, 2023 regarding whether or not an "expert's opinion reflects a reliable application of the principles and methods to the facts of the case," we believe it is imperative to use the exact database in the year of incident (death or injury) when facing challenges to the accuracy and reliability of economic damages claims. The tables above show differences in the last ten years for five of the six demographic groups that were part of the analysis. The Asian study did not have enough published data as of the analysis date to extract any meaningful conclusions.

In conclusion, when measuring economic damages in a wrongful injury or wrongful death case, it is essential to apply the database in the year of incident/death. Any other database would offset the claim for damages and be subject to Rule 702/Daubert challenges before being accepted by the courts.

Summary

In our opinion as forensic economists/ accountants, it is imperative that the jury is educated/acquainted with this reasonable and admissible alternative to the reliance on conventional, but often times inappropriate, life tables. In time, the lag between data collection and data publication will definitely be reduced, but probably not completely. In the interim, we offer this alternative.

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References

1. Ben-Zion, Barry, and Ronald G. Reddall, "Life Expectancy and Actuarial Present Values: A Note to Forensic Economists," Research in Law and Economics, 7, 1985. pp 161-171
2. U.S. Department of Health and Human Services, National Center for Health Statistics, Vital Statistics of the United States, Hyattsville, Maryland, (2014-2022)