



**Reconciliation Review  
[Doctor] and [Scientist]  
Lapetus Solutions**

Date of Report: November 9, 2020

Policy: [REDACTED]  
Job ID: [REDACTED]  
Full Name:

**LE based on current age of patient:**

**2020: Lapetus = 125.8 months (96-136 months)**

**2020-10-23:** LE Provider B = mean 76 months (median 60 months) [REDACTED]

**2020-09-29:** LE Provider C = 184 months, [REDACTED]

**2020-10-22:** LE Provider D = mean 210 months (median 207 months) [REDACTED]

**Predicted average LE from other providers based on the current age of the patient = 156.7 months; it's 197 months for providers C and D – which is comparable to an average man his age in the U.S.**

**Lapetus LE estimate = 125.8 months (range= 96 -136 months)**

**Summary**

The typical LE prediction is based on a debit/credit system that links keywords in the medical records to debits/credits in mortality/survival risk based on the use of mortality multipliers. This debit/credit system can be unreliable for estimating LE for patients with some diseases as these patients may have multiple comorbidities and lifestyle choices and disease trajectories that can affect survival estimates. This survival estimate cannot be reliably detected with only a keyword search but relies upon an expert to review the medical records and incorporate clinical studies that look at multiple risk and protective factors. This is often referred to as evidence-based predictive medicine and is what is used at Lapetus.

In this case, LE provider B undoubtedly used alcoholic cirrhosis as the primary impairment – which explains their very low estimated LE, and LE providers C and D assumed the patient's LE is comparable to

an average man his age – implying they discounted the documented primary impairments. A more detailed explanation of the Lapetus estimate of LE is provided below.

With regard to this particular patient, the average remaining duration of life for a man this age in the United States is 208.8 months without factoring in his significant medical issues. This is similar to estimates generated by providers C and D. On the other hand, LE provider B had the lowest LE and used alcoholic cirrhosis as the primary diagnosis, which is not a confirmed diagnosis in this patient.

The estimate provided by Lapetus is lower than the predicted average of the 3 providers, and well below the predicted average of [REDACTED]. This patient has primary impairments documented in the medical records that include fatty liver disease without cirrhosis and nonrheumatic valvular heart disease without ischemic heart disease. He has been found on echocardiogram to have hypertrophic obstructive cardiomyopathy (HCM). The data shows that the natural history of HCM indicate a significant reduction in disease-related mortality to 0.5%/year, no different than in the general population, and similar at any age of presentation, including in children and young adults who often demonstrate the most aggressive clinical course [1].

In regard to his liver disease, he is known to have a combination of non-alcoholic steatohepatitis (NASH) and alcoholic steatohepatitis (ASH). At the current stage, he does not have cirrhosis. Nevertheless, he needs to maintain the recommendations of his gastroenterologists to try to avoid the development of end-stage liver disease. He needs to maintain sobriety, eat a healthy diet, and maintain optimal weight and exercise. A study has shown that obesity in both NASH and ASH predispose to the development of fatty liver and chronic liver disease. In the study, they found that the overall survival was worse in the ASH group. Patients in the ASH group had a higher liver-related mortality, but patients in the NASH group died more frequently from cardiovascular disease as already demonstrated in previous studies [2]. This patient already has F4 fibrosis, which places him at higher risk of development of liver disease complications (variceal bleeding, ascites, and hepatic encephalopathy) [3]. The estimate of 125.8 months was derived from review of these studies and the fact that he has already had many years of liver disease with advancing fibrosis, which raises his risk of death above the average man his age.

Should he fail to maintain sobriety, his life expectancy would likely be significantly compromised from the Lapetus estimate provided here. The operating assumption for this assessment is that he maintains sobriety, avoids regaining weight and maintains follow-up as recommended.

**[1] Maron BJ, Rowin EJ, Casey SA, Link MS, Lesser JR, Chan RH, Garberich RF, Udelson JE, Maron MS. Hypertrophic cardiomyopathy in adulthood associated with low cardiovascular mortality with contemporary management strategies. J Am Coll Cardiol. 2015;65:1915-1928. doi: 10.1016/j.jacc.2015.02.061**

[2] Hafliðadóttir, S., Jonasson, J.G., Norland, H. et al. Long term follow-up and liver-related death rate in patients with non-alcoholic and alcoholic related fatty liver disease. *BMC Gastroenterol* 14,166 (2014). <https://doi.org/10.1186/1471-230X-14-166>

[3] Axley P, Mudumbi S, Sarker S, Kuo YF, Singal AK. Patients with stage 3 compared to stage 4 liver fibrosis have lower frequency of and longer time to liver disease complications [published correction appears in *PLoS One*. 2018 Aug 2;13(8):e0199402]. *PLoS One*. 2018;13(5):e0197117. Published 2018 May 10. doi:10.1371/journal.pone.0197117