

Web Table 1. Cumulative Probability (Unadjusted) Over 18 Years and Age-adjusted and Multivariate-adjusted Hazard Ratios for Death (Underlying Cause) by ALT Decile *After Excluding the First 3 Years of Follow-up* in the United States, 1988–2006

Mortality Outcome/ ALT Decile ^a	No. of Deaths	Unadjusted Cumulative Mortality ^b	Age-adjusted (<i>n</i> = 14,334)			Multivariate-adjusted (<i>n</i> = 12,874)		
			Hazard Ratio ^c	95% CI	<i>P</i> Value	Hazard Ratio ^d	95% CI	<i>P</i> Value
All causes								
1st	638	31.0	1.61	1.39, 1.85	<0.001	1.47	1.25, 1.73	<0.001
2nd	318	26.5	1.39	1.16, 1.66	<0.001	1.27	1.04, 1.56	0.018
3rd	411	24.9	1.34	1.11, 1.62	0.003	1.35	1.11, 1.64	0.003
4th–9th	1,507	15.9	1.00			1.00		
10th	184	16.2	1.36	1.03, 1.78	0.029	1.27	0.92, 1.76	0.14
CVD								
1st	248	14.6	1.67	1.36, 2.06	<0.001	1.47	1.14, 1.90	0.003
2nd	127	8.1	1.30	0.98, 1.73	0.067	1.13	0.79, 1.60	0.50
3rd	145	10.7	1.27	0.90, 1.79	0.17	1.24	0.87, 1.77	0.23
4th–9th	533	6.0	1.00			1.00		
10th	52	3.3	1.05	0.66, 1.66	0.85	0.94	0.58, 1.52	0.81
Cancer								
1st	134	7.1	1.63	1.20, 2.22	0.002	1.59	1.14, 2.22	0.007
2nd	70	9.7	1.48	1.05, 2.08	0.027	1.41	0.96, 2.08	0.078
3rd	100	6.7	1.59	1.09, 2.32	0.018	1.63	1.07, 2.48	0.023
4th–9th	341	4.0	1.00			1.00		
10th	40	5.1	1.03	0.65, 1.64	0.89	0.95	0.53, 1.71	0.87
Diabetes								
1st	15	0.49	0.79	0.31, 2.04	0.62	0.70	0.31, 1.56	0.37
2nd	9	0.69	1.76	0.70, 4.47	0.23	3.47	1.15, 10.48	0.028
3rd	9	0.15	0.34	0.16, 0.77	0.010	0.63	0.25, 1.61	0.33
4th–9th	59	0.52	1.00			1.00		
10th	11	1.7	2.86	0.99, 8.30	0.053	1.51	0.49, 4.59	0.46
Liver disease								
1st	1	0.0019	0.016	0.0012, 0.21	0.002	0.012	0.00071, 0.22	0.003

2nd	1	0.046	0.42	0.050, 3.59	0.42	0.37	0.035, 3.97	0.40
3rd	2	0.016	0.13	0.018, 0.88	0.037	0.12	0.016, 0.91	0.041
4th–9th	10	0.14	1.00			1.00		
10th	14	0.62	7.43	2.08, 26.57	0.003	5.35	1.87, 15.28	0.002
Other								
1st	240	12.6	1.56	1.26, 1.93	<0.001	1.43	1.10, 1.86	0.009
2nd	111	10.8	1.38	1.08, 1.77	0.011	1.26	0.95, 1.66	0.10
3rd	155	9.7	1.33	1.03, 1.72	0.030	1.29	0.96, 1.73	0.094
4th–9th	564	6.2	1.00			1.00		
10th	67	6.4	1.63	1.13, 2.35	0.010	1.69	1.09, 2.61	0.020

Abbreviations: ALT, alanine aminotransferase; CI, confidence interval; CVD, cardiovascular disease.

^a Cutpoints (IU/L) were as follows: for men, 9, 11, 13, and 33; for women, 7, 8, 9, and 22.

^b Estimated using Kaplan-Meier analysis.

^c Estimated using Cox proportional hazards regression analysis.

^d Adjusted for age, sex, race/ethnicity, education, body mass index, waist:hip ratio, glucose status (physician-diagnosed diabetes, hemoglobin A_{1c} ≥6.5%), total cholesterol, high-density lipoprotein cholesterol, systolic blood pressure, diastolic blood pressure, C-reactive protein, estimated glomerular filtration rate, transferrin saturation, smoking, alcohol drinking, caffeine, and physical activity.

^e Nonmalignant.

Web Table 2. Cumulative Probability (Unadjusted) Over 18 Years and Age-adjusted and Multivariate-adjusted Hazard Ratios for Death (Underlying Cause) by ALT Decile *Including Participants With Viral Hepatitis* in the United States, 1988–2006

Mortality Outcome/ ALT Decile ^a	No. of Deaths	Unadjusted Cumulative Mortality ^b	Age-adjusted (<i>n</i> = 15,502)			Multivariate-adjusted (<i>n</i> = 13,835)		
			Hazard Ratio ^c	95% CI	<i>P</i> Value	Hazard Ratio ^d	95% CI	<i>P</i> Value
All causes								
1st	831	34.6	1.59	1.39, 1.81	<0.001	1.39	1.22, 1.59	<0.001
2nd	405	29.6	1.42	1.21, 1.67	<0.001	1.24	1.04, 1.49	0.020
3rd	506	26.5	1.27	1.07, 1.51	0.006	1.23	1.03, 1.47	0.021
4th–9th	1,831	17.6	1.00			1.00		
10th	286	19.3	1.51	1.25, 1.84	<0.001	1.42	1.13, 1.78	0.004
CVD								
1st	334	16.2	1.62	1.33, 1.96	<0.001	1.38	1.09, 1.75	0.008
2nd	162	9.3	1.32	1.01, 1.74	0.045	1.09	0.78, 1.53	0.60
3rd	191	11.4	1.25	0.90, 1.73	0.18	1.18	0.84, 1.66	0.33
4th–9th	641	6.6	1.00			1.00		
10th	73	4.5	1.28	0.89, 1.83	0.18	1.08	0.74, 1.58	0.68
Cancer								
1st	174	8.5	1.69	1.32, 2.16	<0.001	1.57	1.18, 2.08	0.003
2nd	91	11.0	1.62	1.21, 2.17	0.002	1.48	1.04, 2.10	0.030
3rd	116	7.0	1.43	1.01, 2.02	0.043	1.42	0.95, 2.12	0.083
4th–9th	415	4.4	1.00			1.00		
10th	58	5.2	0.98	0.65, 1.48	0.94	0.90	0.54, 1.49	0.67
Diabetes								
1st	20	0.63	1.00	0.40, 2.47	1.0	0.63	0.32, 1.26	0.19
2nd	13	0.80	1.82	0.78, 4.24	0.16	3.13	1.20, 8.15	0.020
3rd	12	0.18	0.37	0.18, 0.77	0.009	0.69	0.27, 1.75	0.42
4th–9th	66	0.56	1.00			1.00		
10th	17	1.8	3.29	1.32, 8.18	0.012	1.89	0.69, 5.15	0.21
Liver disease								
1st	3	0.10	0.55	0.067, 4.47	0.57	0.46	0.052, 4.05	0.48

2nd	1	0.045	0.22	0.032, 1.52	0.12	0.14	0.020, 1.01	0.051
3rd	3	0.027	0.14	0.030, 0.64	0.013	0.12	0.026, 0.57	0.009
4th–9th	17	0.21	1.00			1.00		
10th	29	1.7	10.21	3.78, 27.61	<0.001	6.81	2.84, 16.34	<0.001
Other								
1st	300	14.1	1.52	1.27, 1.82	<0.001	1.31	1.04, 1.66	0.023
2nd	138	12.0	1.38	1.11, 1.72	0.005	1.19	0.93, 1.51	0.16
3rd	184	10.6	1.28	1.01, 1.63	0.044	1.20	0.90, 1.59	0.20
4th–9th	692	7.0	1.00			1.00		
10th	109	7.6	1.65	1.24, 2.19	0.001	1.73	1.26, 2.38	0.001

Abbreviations: ALT, alanine aminotransferase; CI, confidence interval; CVD, cardiovascular disease.

^a Cutpoints (IU/L) were as follows: for men, 9, 11, 13, and 33; for women, 7, 8, 9, and 22.

^b Estimated using Kaplan-Meier analysis.

^c Estimated using Cox proportional hazards regression analysis.

^d Adjusted for age, sex, race/ethnicity, education, body mass index, waist:hip ratio, glucose status (physician-diagnosed diabetes, hemoglobin A_{1c} ≥6.5%), total cholesterol, high-density lipoprotein cholesterol, systolic blood pressure, diastolic blood pressure, C-reactive protein, estimated glomerular filtration rate, transferrin saturation, smoking, alcohol drinking, caffeine, and physical activity.

^e Nonmalignant.

Web Table 3. Cumulative Probability (Unadjusted) Over 18 Years and Age-adjusted and Multivariate-adjusted Hazard Ratios for Death (Underlying Cause) by *AST Decile* in the United States, 1988–2006

Mortality Outcome/ AST Decile ^a	No. of Deaths	Unadjusted Cumulative Mortality ^b	Age-adjusted (<i>n</i> = 14,950)			Multivariate-adjusted (<i>n</i> = 13,360)		
			Hazard Ratio ^c	95% CI	<i>P</i> Value	Hazard Ratio ^d	95% CI	<i>P</i> Value
All causes								
1st	506	24.5	1.87	1.63, 2.14	<0.001	1.37	1.18, 1.58	<0.001
2nd	193	16.8	1.27	1.03, 1.57	0.026	1.20	0.99, 1.46	0.069
3rd	450	26.5	1.24	1.10, 1.40	0.001	1.05	0.93, 1.19	0.46
4th–9th	2,108	20.5	1.00			1.00		
10th	417	23.7	1.18	1.01, 1.37	0.041	1.13	0.94, 1.36	0.19
CVD								
1st	189	7.2	1.71	1.37, 2.15	<0.001	1.12	0.84, 1.49	0.44
2nd	50	3.6	0.80	0.56, 1.15	0.22	0.70	0.49, 1.00	0.049
3rd	185	16.1	1.32	1.07, 1.63	0.010	1.08	0.84, 1.38	0.54
4th–9th	813	8.2	1.00			1.00		
10th	127	8.0	1.11	0.86, 1.44	0.40	1.10	0.84, 1.42	0.49
Cancer								
1st	137	8.3	2.48	1.97, 3.12	<0.001	1.98	1.51, 2.60	<0.001
2nd	58	7.0	2.06	1.52, 2.79	<0.001	1.91	1.41, 2.58	<0.001
3rd	99	5.2	1.27	0.94, 1.72	0.12	1.10	0.79, 1.55	0.56
4th–9th	444	4.9	1.00			1.00		
10th	80	6.4	1.00	0.71, 1.40	0.99	0.98	0.66, 1.47	0.92
Diabetes								
1st	18	0.64	2.63	1.00, 6.89	0.050	1.12	0.35, 3.56	0.84
2nd	14	0.80	3.45	0.85, 13.96	0.082	1.22	0.51, 2.92	0.65
3rd	14	0.46	1.98	0.81, 4.81	0.13	1.50	0.34, 6.71	0.59
4th–9th	51	0.42	1.00			1.00		
10th	19	1.9	2.98	1.45, 6.11	0.004	1.40	0.64, 3.08	0.39
Liver disease								
1st	1	0.0016	0.019	0.0015, 0.22	0.002	0.028	0.0028, 0.29	0.003

2nd	1	0.045	0.51	0.064, 4.16	0.53	0.45	0.039, 5.25	0.52
3rd	1	0.0042	0.025	0.0026, 0.24	0.002	0.023	0.00058, 0.87	0.042
4th–9th	9	0.14	1.00			1.00		
10th	25	1.1	10.71	3.36, 34.10	<0.001	5.73	2.24, 14.67	<0.001
Other								
1st	161	10.8	1.62	1.24, 2.11	<0.001	1.21	0.90, 1.64	0.21
2nd	70	6.4	1.12	0.77, 1.63	0.55	1.13	0.77, 1.65	0.54
3rd	151	7.2	1.13	0.86, 1.50	0.38	0.98	0.73, 1.31	0.88
4th–9th	791	8.3	1.00			1.00		
10th	166	8.6	1.14	0.90, 1.43	0.28	1.14	0.87, 1.50	0.34

Abbreviations: ALT, alanine aminotransferase; CI, confidence interval; CVD, cardiovascular disease.

^a Cutpoints (IU/L) were as follows: for men, 15, 16, 18, and 30; for women, 13, 14, 15, and 26.

^b Estimated using Kaplan-Meier analysis.

^c Estimated using Cox proportional hazards regression analysis.

^d Adjusted for age, sex, race/ethnicity, education, body mass index, waist:hip ratio, glucose status (physician-diagnosed diabetes, hemoglobin A_{1c} ≥ 6.5%), total serum cholesterol, high-density lipoprotein cholesterol, systolic blood pressure, diastolic blood pressure, C-reactive protein, estimated glomerular filtration rate, transferrin saturation, smoking, alcohol drinking, caffeine, and physical activity.

^e Nonmalignant.