Supplementary Digital Content for:

The Interrelationship of Tinnitus and Hearing Loss Secondary to Age, Noise Exposure, and TBI

DETAILS OF METHODS

Outcome Assessment

In surveys, participants were queried, "Please tell us if you have been diagnosed with the following conditions: Tinnitus or ringing in the ears," and whether they felt ringing in their ears was secondary to a TBI. Tinnitus was defined as either a "yes" self-report (*n* = 123,337), an ICD diagnosis of tinnitus in the EHR (*n* = 169,248), or both. Controls were defined as a "no" answer on the surveys with no ICD diagnosis. Subjects with diagnosis codes of "pulsatile" or "objective tinnitus" were excluded.

Hearing loss was defined as one or more of the following:

a. Most recent audiogram threshold at any measured frequency (0.25, 0.50, 1,2,3,4,6, and 8 KHz) of greater than 25 dB in either ear (37,38) for those with audiograms in the EHR (n = 238,169).

b. Self-report of hearing difficulty ("Please tell us if you have been diagnosed with the following conditions: Severe hearing loss or partial deafness in one or both ears.").

c. Self-report of hearing aid use.

d. ICD codes for sensorineural hearing loss. Participants with diagnoses of "conductive hearing loss", "mixed hearing loss", "unilateral hearing loss", "sudden hearing loss", "ototoxic", or "acoustic neuroma" were excluded from analyses.

"Best Hearing Ear" and "Worst Hearing Ear" were calculated by averaging pure tones for frequencies 1KHz, 2KHz, 3KHz, and 4KHz in each ear (PTA4), then comparing left versus right. Hearing levels were adjusted for age and sex to obtain "Best Ear – adjusted values" and "Worst Ear – adjusted values" utilizing International Standards Organization 7029:2017(E) computations (39), which correct to the mean normal hearing for age and sex.

To determine incidence, ages at onset of tinnitus and onset of hearing loss were calculated from earliest of self-reported dates of onset or date of ICD diagnosis, and/or date of first audiogram with hearing loss as defined above. Impossible ages (less than 17 and greater than 112) were removed.

Variables were measured as follows: Age at enrollment was categorized into bins for comparison with military era served. Military service was reported as a categorical value from the baseline survey, which included pre-World War II, World War II, Post World War II, the Korean Era, 1955-1964, Vietnam (1964-1975), 1975-1990, the Gulf War, and Post-9/11 service.

Exposure Assessment

Deployment to a combat zone was a yes/no question and was combined with military exposure in combat by using those who had not deployed (answered "no") as the baseline control. Questions about combat exposure included an aggregate of categorical questions regarding exposure to noise in combat, including gunfire, artillery, rockets, mortars, bombs, mines, and blasts. Subjects were asked whether they went on combat patrols or missions, encountered unanticipated detonations, blasts, were engaged in gunfire, were under fire in a vehicle, or part of an invasion, utilizing answers as a surrogate for acoustic exposure. The maximum answer from any category was noted ("never", "a few times total", "a few times each month", "a few times each week", or "daily or almost daily"), and was scored from 1-5 on a Likert Scale, 5 being "daily or almost daily". Exposure to blast included improvised explosive devices or mines with or without injury and was a dichotomous variable.

TBI prevalence was determined from either ICD diagnosis of head injury (n = 36,140) or description of symptoms following head trauma (n = 103,758). Questions regarding TBI included, "Have you been diagnosed with a traumatic brain injury or concussion", and combat-

specific queries, "Did any injury received while you were deployed result in the following?" Possible answers ranged from being dazed, confused, or seeing stars, to loss of consciousness for less than a minute through longer than 20 minutes. Other questions included post-concussive symptoms, such as headache, dizziness, memory problems, balance problems, ringing in the ears, irritability, or sleep problems related to possible head injury or concussion. Any "Yes" answer or ICD with concussion or brain injury was determined to be indicative of TBI.

Statistical Analysis

A correlation matrix was fashioned for all identified variables (see Supplemental Digital Content Table S2). Univariate logistic regression was performed to ascertain significance of individual variables. Variables were assessed for collinearity based on generalized variable inflation factor > 5 (Table S4), and F-test was calculated for significance of individual predictors (Wald Test). McFadden's pseudo-r^2 was calculated for multiple models, leaving one variable out at a time.

Generalized variance inflation factors were in all cases less than 2, indicating lack of multicollinearity in the model, despite moderate correlations of hearing to tinnitus (.381, p-value < 0.001), TBI to tinnitus (0.381, p-value 0.001), and high correlation of age to era of military service (0.884, p-value < 0.001). Pseudo-r-squared showed that this model explained 87.54% of the variance in tinnitus (26 degrees of freedom). The Wald statistic was significant for each category, indicating that each variable was distinct from the others.

Logistic regression was then performed as a multivariate analysis with tinnitus as a binary outcome. The best-fitting multivariate logistic model included sex, ancestry, age at baseline enrollment, era served, deployment, a categorical measure of noise exposure in combat,

TBI, and association with hearing loss. Blast exposure was removed from the model and incorporated into TBI because of non-significance.

Females have been eligible for combat roles only since 2015. To assess whether the lower percentage of tinnitus identified in females was related to combat exposure, interactive terms of sex times X combat exposure and sex X deployment were tested in the model and found to be not significant (p-values 0.05-0.96 and 0.08, respectively). Likewise, to assess whether historical era served was related to age, the interaction of military era served X age was added and did not reach statistical significance (p-values no less than 0.15).

Figure S1. Flow Chart with Availability of Records – Tinnitus

- **34,841 had both self-report of tinnitus and tinnitus secondary to tbi**
- **91,361 had both self-report and dx of tinnitus**
- **79,308 self-reported tinnitus with no ICD in the VA EHR, either with or without TBI**
- **86,592 carried a clinical diagnosis with no self-report of tinnitus**

Table S1a. Correlation with Tinnitus Variables.

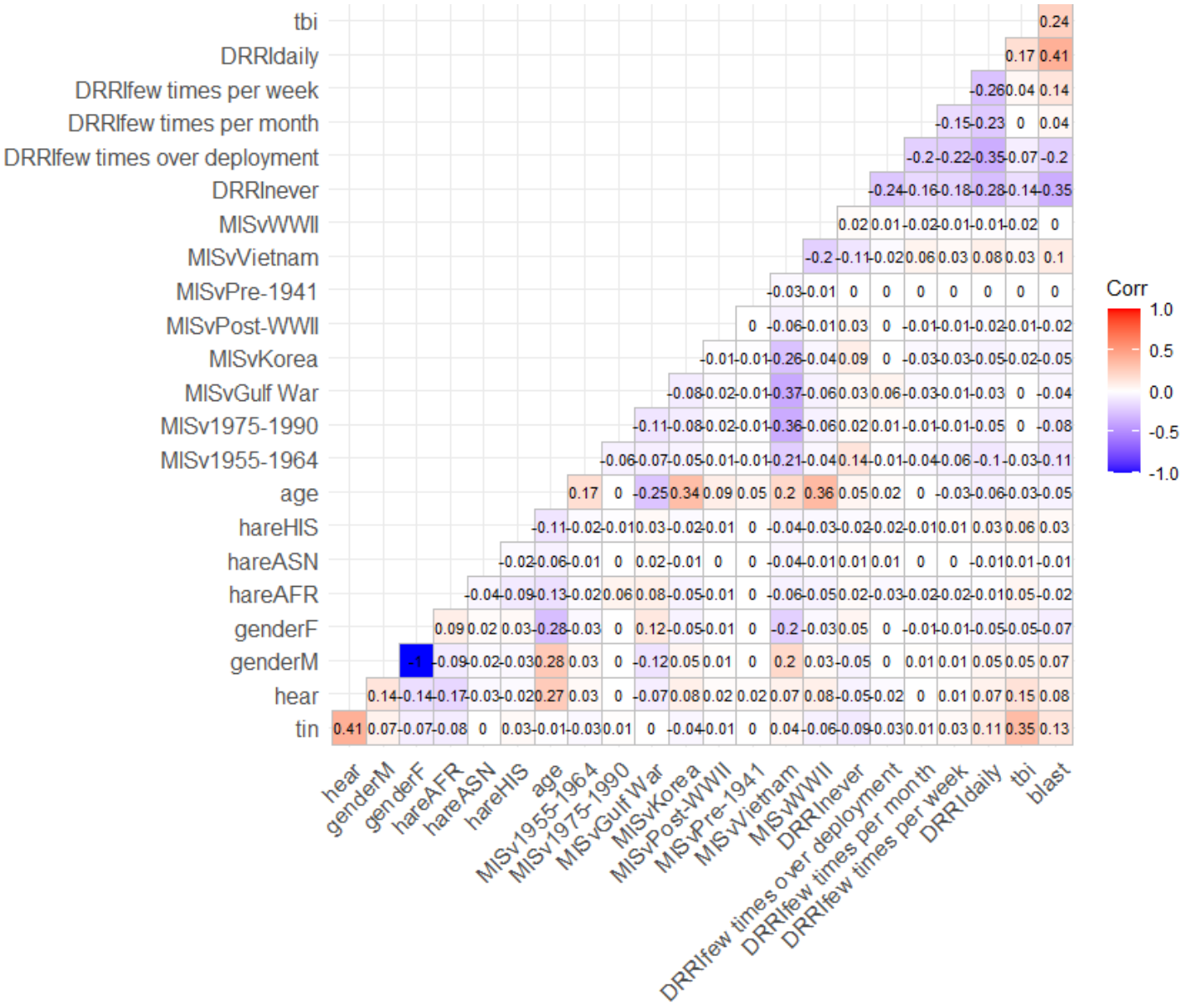

Table S1b. P-values for correlations

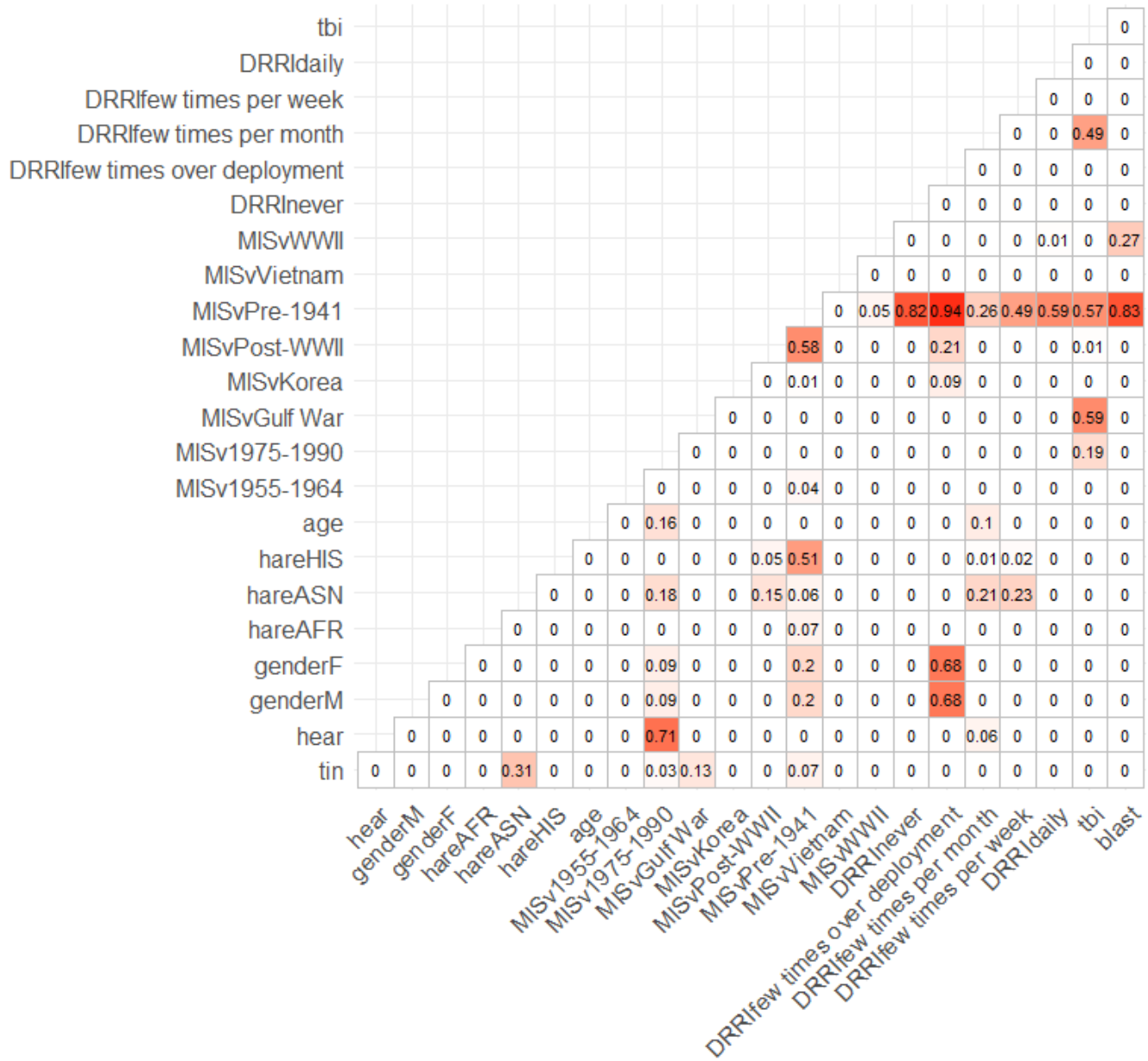

Table S2. Hypothesis testing. Tests for multicollinearity, proportion of variation in a binomial variable, and significance of explanatory variables.

Variable	GVIF	df	GVIF ^(1/2*df)	squared	McFadden's pseudo-r-squared	Wald test	Wald test P-value
Sex	1.14721	1	1.071082163	1.147217	19.18	25.65	4.09E-07
Ancestry	1.11204	3	1.017856923	1.036033	19.05	50.66	< 2.22e-16
Age bracket at enrollment	79.44253	6	1.439917984	2.073364	19.03	25.65	4.09E-07
Era Served	81.64344	8	1.316725001	1.733765	19.11	11.43	2.43E-16
Deployment	1.137195	1	1.066393455	1.137195	19.13	73.79	< 2.22e-16
Combat Exposure	1.225872	4	1.025783339	1.052231	19.12	19.5	4.73E-16
TBI	1.062767	1	1.030905912	1.062767	13.26	5344.38	< 2.22e-16
Hearing[1]	1.170666	1	1.081973197	1.170666	9.75	7871.04	< 2.22e-16
Blast_exposure					9.75	2.04	0.15296

Abbreviations: GVIF – generalized variance inflation factor with its calculation; df – degrees of freedom: Ancestry – includes European, African, Hispanic, and Asian; Age brackets were 18-29, 30-39, 40-49, 50-59, 60-69, 70-79. 80 and greater; Deployment – have you ever deployed to a combat zone?; Combat Exposure – exposure to guns, battle, artillery, explosive devices, trucks, friendly fire, etc.; TBI – traumatic brain injury. [1]Hearing – hearing loss by either audiogram, self-report, or clinical diagnosis; blast exposure – includes improvised explosive devices, land and underwater mines.

Table S3. Interaction of Gender and Combat Exposure

	Estimate	95% CI low	95% CI high	ρ-value
GenderF:few times	1.0061843	.9252087	1.0061843	.8854809
GenderF:few times/month	0.9822718	.8824770	.9822718	.7434861
GenderF:few times/week	1.0500573	.9559653	1.0500573	.3078311
GenderF:daily	1.0632029	.9830208	1.0632029	.1255384

Table S4. Tinnitus and Hearing Loss[a] in US Million Veteran Program, 2001-2020

	Tinnitus (%)	No Tinnitus (%)
Hearing Loss (%)	231,260 (30.5)	157,779 (20.8)
No Hearing Loss (%)	52,813 (7.0)	316,153 (41.7)

[a]Tinnitus and hearing loss measured by self-report, ICD-9 or ICD-10 in the electronic health record, or audiogram.

Table S5. Comparison of all participants in US Million Veteran Program, 2001-2020. Tinnitus versus no tinnitus including age-adjustments at standard audiologic frequencies.

Sex	Ear	Freq	No Tinnitus			Tinnitus			t_score	*P* value
			Ave.	n	SE	Ave.	n	SE		
Female	Best Ear	0.25	14.97	5,238	0.0041	15.02	7,591	0.00393	-13.13	4.14E-39
Female	Best Ear	0.5	14.96	5,238	0.0044	14.99	7,591	0.00423	-5.74	9.90E-09
Female	Best Ear	1	15.81	5,238	0.0050	15.76	7,591	0.00472	11.68	2.46E-31
Female	Best Ear	2	17.65	5,238	0.0060	17.59	7,591	0.00564	9.66	5.56E-22
Female	Best Ear	3	20.55	5,238	0.0067	20.92	7,591	0.00638	-55.34	< 0.001
Female	Best Ear	4	22.40	5,238	0.0074	22.93	7,591	0.00703	-74.36	< 0.001
Female	Best Ear	6	28.12	5,238	0.0082	29.18	7,591	0.00786	-133.18	< 0.001
Female	Best Ear	8	30.10	5,238	0.0095	30.43	7,591	0.00888	-35.57	1.92E-264
Female	Best Ear Age-Adj.	0.25	10.78	5,238	0.0036	11.24	7,591	0.00368	-127.59	< 0.001
Female	Best Ear Age-Adj.	0.5	10.10	5,238	0.0038	10.58	7,591	0.00387	-126.87	< 0.001
Female	Best Ear Age-Adj.	1	10.29	5,238	0.0042	10.76	7,591	0.00425	-110.49	< 0.001
Female	Best Ear Age-Adj.	2	9.29	5,238	0.0047	10.04	7,591	0.00486	-158.67	< 0.001
Female	Best Ear Age-Adj.	3	10.23	5,238	0.0050	11.53	7,591	0.0053	-250.07	< 0.001
Female	Best Ear Age-Adj.	4	9.86	5,238	0.0053	11.61	7,591	0.00567	-318.25	< 0.001
Female	Best Ear Age-Adj.	6	11.58	5,238	0.0057	14.13	7,591	0.0062	-428.33	< 0.001
Female	Best Ear Age-Adj.	8	9.27	5,238	0.0064	11.61	7,591	0.00675	-357.93	< 0.001
Female	Worst Ear	0.25	17.43	5,238	0.0049	18.02	7,591	0.00508	-117.38	< 0.001
Female	Worst Ear	0.5	18.37	5,238	0.0052	18.93	7,591	0.00541	-104.90	< 0.001
Female	Worst Ear	1	19.59	5,238	0.0058	20.18	7,591	0.00587	-102.17	< 0.001
Female	Worst Ear	2	22.01	5,238	0.0068	22.67	7,591	0.00672	-97.32	< 0.001
Female	Worst Ear	3	24.12	5,238	0.0075	25.35	7,591	0.00736	-165.74	< 0.001
Female	Worst Ear	4	27.50	5,238	0.0081	28.96	7,591	0.00803	-181.69	< 0.001
Female	Worst Ear	6	31.77	5,238	0.0090	33.63	7,591	0.00892	-207.64	< 0.001
Female	Worst Ear	8	33.49	5,238	0.0100	35.19	7,591	0.00982	-172.05	< 0.001
Female	Worst Ear Age-Adj.	0.25	13.16	5,238	0.0044	14.18	7,591	0.00481	-221.61	< 0.001
Female	Worst Ear Age-Adj.	0.5	13.42	5,238	0.0046	14.46	7,591	0.00505	-217.11	< 0.001
Female	Worst Ear Age-Adj.	1	13.96	5,238	0.0050	15.11	7,591	0.00542	-221.27	< 0.001
Female	Worst Ear Age-Adj.	2	13.49	5,238	0.0055	15.00	7,591	0.00596	-262.81	< 0.001
Female	Worst Ear Age-Adj.	3	13.59	5,238	0.0058	15.83	7,591	0.0063	-369.53	< 0.001
Female	Worst Ear Age-Adj.	4	14.73	5,238	0.0060	17.46	7,591	0.00671	-427.43	< 0.001
Female	Worst Ear Age-Adj.	6	14.89	5,238	0.0065	18.37	7,591	0.00728	-503.47	< 0.001
Female	Worst Ear Age-Adj.	8	12.27	5,238	0.0069	16.09	7,591	0.00775	-521.90	< 0.001
Male	Best Ear	0.25	19.22	79,439	0.0046	18.62	140,860	0.00442	132.74	< 0.001
Male	Best Ear	0.5	20.39	79,439	0.0051	19.49	140,860	0.00479	181.85	< 0.001
Male	Best Ear	1	23.83	79,439	0.0060	22.49	140,860	0.00567	228.18	< 0.001
Male	Best Ear	2	32.82	79,439	0.0080	31.31	140,860	0.00781	190.65	< 0.001
Male	Best Ear	3	43.87	79,439	0.0088	43.55	140,860	0.00874	35.81	5.66E-280
Male	Best Ear	4	49.52	79,439	0.0093	49.59	140,860	0.00908	-7.40	1.32E-13
Male	Best Ear	6	52.66	79,439	0.0099	52.74	140,860	0.00954	-8.56	1.13E-17
Male	Best Ear	8	56.50	79,439	0.0104	55.44	140,860	0.01004	103.57	< 0.001
Male	Best Ear Age-Adj.	0.25	11.79	79,439	0.0042	12.15	140,860	0.00413	-84.77	< 0.001

Male	Best Ear Age-Adj.	0.5	11.75	79,439	0.0045	11.96	140,860	0.00441	-46.14	< 0.001
Male	Best Ear Age-Adj.	1	13.98	79,439	0.0052	13.89	140,860	0.00512	16.32	7.82E-60
Male	Best Ear Age-Adj.	2	15.52	79,439	0.0065	16.21	140,860	0.00668	-103.52	< 0.001
Male	Best Ear Age-Adj.	3	15.66	79,439	0.0069	18.88	140,860	0.00713	-460.28	< 0.001
Male	Best Ear Age-Adj.	4	9.93	79,439	0.0073	15.06	140,860	0.00735	-698.85	< 0.001
Male	Best Ear Age-Adj.	6	8.85	79,439	0.0078	14.23	140,860	0.00773	-694.62	< 0.001
Male	Best Ear Age-Adj.	8	1.97	79,439	0.0084	7.88	140,860	0.00815	-715.13	< 0.001
Male	Worst Ear	0.25	22.24	79,439	0.0057	21.88	140,860	0.00566	62.78	< 0.001
Male	Worst Ear	0.5	24.56	79,439	0.0061	23.91	140,860	0.00609	107.47	< 0.001
Male	Worst Ear	1	29.05	79,439	0.0071	27.97	140,860	0.00693	154.18	< 0.001
Male	Worst Ear	2	40.08	79,439	0.0088	39.31	140,860	0.00876	87.97	< 0.001
Male	Worst Ear	3	50.49	79,439	0.0093	51.08	140,860	0.00915	-63.40	< 0.001
Male	Worst Ear	4	57.33	79,439	0.0095	58.38	140,860	0.00923	-112.22	< 0.001
Male	Worst Ear	6	58.90	79,439	0.0102	59.91	140,860	0.00985	-101.37	< 0.001
Male	Worst Ear	8	61.92	79,439	0.0105	61.68	140,860	0.01012	23.18	9.99E-119
Male	Worst Ear Age-Adj.	0.25	14.61	79,439	0.0053	15.24	140,860	0.00535	-118.02	< 0.001
Male	Worst Ear Age-Adj.	0.5	15.70	79,439	0.0056	16.18	140,860	0.00569	-84.06	< 0.001
Male	Worst Ear Age-Adj.	1	18.94	79,439	0.0062	19.15	140,860	0.00635	-32.72	2.83E-234
Male	Worst Ear Age-Adj.	2	22.33	79,439	0.0073	23.81	140,860	0.00759	-199.60	< 0.001
Male	Worst Ear Age-Adj.	3	21.54	79,439	0.0073	25.77	140,860	0.00757	-568.82	< 0.001
Male	Worst Ear Age-Adj.	4	16.70	79,439	0.0077	22.94	140,860	0.00771	-809.81	< 0.001
Male	Worst Ear Age-Adj.	6	13.90	79,439	0.0082	20.39	140,860	0.00817	-792.39	< 0.001
Male	Worst Ear Age-Adj.	8	5.95	79,439	0.0088	12.90	140,860	0.00851	-803.22	< 0.001

Abbr.: freq – frequencies. Standard audiogram frequencies are .25, .50, 1, 2, 3, 4, 6, and 8 kiloHerz; age_adj – adjusted for age and sex according to International Standard Organization (ISO 7029:2000E) formulae (27).

Table S6. Comparison of young Veterans (<= 40 years of age) in US Million Veteran Program, 2001-2020 with and without tinnitus versus no tinnitus at standard audiologic frequencies. Audiograms were performed 1991-2020 at audiology clinics at the VA.

Sex	Ear	freq	No Tinnitus			Tinnitus			t_score	*P* value
			Ave.	n	SE	Ave.	n	SE		
Female	Best Ear	0.25	10.03	1,272	0.0124	11.04	1,721	0.0143	75.42	< 0.001
Female	Best Ear	0.5	8.88	1,272	0.0126	9.98	1,721	0.0141	81.72	< 0.001
Female	Best Ear	1	8.64	1,272	0.0134	9.69	1,721	0.0148	74.72	< 0.001
Female	Best Ear	2	8.03	1,272	0.0148	9.39	1,721	0.0160	88.34	< 0.001
Female	Best Ear	3	8.81	1,272	0.0159	10.53	1,721	0.0170	104.36	< 0.001
Female	Best Ear	4	8.62	1,272	0.0158	10.28	1,721	0.0182	97.78	< 0.001
Female	Best Ear	6	12.46	1,272	0.0192	14.67	1,721	0.0220	107.70	< 0.001
Female	Best Ear	8	11.67	1,272	0.0200	13.29	1,721	0.0227	76.04	< 0.001
Female	Worst Ear	0.25	11.62	1,272	0.0147	13.15	1,721	0.0176	94.99	< 0.001
Female	Worst Ear	0.5	11.28	1,272	0.0144	12.79	1,721	0.0185	91.55	< 0.001
Female	Worst Ear	1	11.38	1,272	0.0160	12.65	1,721	0.0184	74.35	< 0.001
Female	Worst Ear	2	11.28	1,272	0.0179	12.87	1,721	0.0201	83.73	< 0.001
Female	Worst Ear	3	11.08	1,272	0.0190	12.88	1,721	0.0210	89.91	< 0.001
Female	Worst Ear	4	12.54	1,272	0.0208	14.30	1,721	0.0228	80.65	< 0.001
Female	Worst Ear	6	14.76	1,272	0.0243	16.73	1,721	0.0261	78.08	< 0.001
Female	Worst Ear	8	13.67	1,272	0.0247	15.97	1,721	0.0278	87.78	< 0.001
Male	Best Ear	0.25	11.14	5,360	0.0137	11.91	9,969	0.0140	55.42	< 0.001
Male	Best Ear	0.5	10.34	5,360	0.0139	11.20	9,969	0.0140	61.12	< 0.001
Male	Best Ear	1	10.15	5,360	0.0142	11.02	9,969	0.0146	60.73	< 0.001
Male	Best Ear	2	9.92	5,360	0.0167	11.21	9,969	0.0173	75.78	< 0.001
Male	Best Ear	3	12.38	5,360	0.0190	14.32	9,969	0.0222	94.41	< 0.001
Male	Best Ear	4	13.34	5,360	0.0221	15.88	9,969	0.0258	105.62	< 0.001
Male	Best Ear	6	15.60	5,360	0.0240	18.32	9,969	0.0282	104.33	< 0.001
Male	Best Ear	8	14.47	5,360	0.0251	16.51	9,969	0.0288	76.00	< 0.001
Male	Worst Ear	0.25	12.66	5,360	0.0159	13.66	9,969	0.0170	60.95	< 0.001
Male	Worst Ear	0.5	12.64	5,360	0.0162	13.75	9,969	0.0172	66.30	< 0.001
Male	Worst Ear	1	12.85	5,360	0.0170	13.96	9,969	0.0181	63.36	< 0.001
Male	Worst Ear	2	13.38	5,360	0.0203	15.06	9,969	0.0221	79.27	< 0.001
Male	Worst Ear	3	15.86	5,360	0.0249	18.85	9,969	0.0288	111.31	< 0.001
Male	Worst Ear	4	19.03	5,360	0.0292	22.90	9,969	0.0340	122.31	< 0.001
Male	Worst Ear	6	19.27	5,360	0.0308	22.98	9,969	0.0355	112.17	< 0.001
Male	Worst Ear	8	17.83	5,360	0.0314	20.71	9,969	0.0356	86.10	< 0.001

Abbr.: freq – frequencies. Standard audiogram frequencies are .25, .50, 1, 2, 3, 4, 6, and 8 kiloHerz; age_adj – adjusted for age and sex according to International Standard Organization (ISO 7029:2000E) formulae (27).

Table S7. Comparison of older participants (over 40 years of age) in US Million Veteran Program, 2001-2020. Tinnitus versus no tinnitus at standard audiologic frequencies.

Sex	Ear	freq.	No Tinnitus			Tinnitus			t_score	*P* value
			Ave.	n	SE	Ave.	n	SE		
Female	Best Ear	0.25	16.57	3,966	0.0064	16.23	5870	0.0060	54.53	< 0.001
Female	Best Ear	0.5	16.98	3,966	0.0068	16.52	5870	0.0065	68.88	< 0.001
Female	Best Ear	1	18.19	3,966	0.0077	17.61	5870	0.0073	77.47	< 0.001
Female	Best Ear	2	20.83	3,966	0.0092	20.10	5870	0.0086	82.42	< 0.001
Female	Best Ear	3	24.56	3,966	0.0102	24.15	5870	0.0097	41.55	< 0.001
Female	Best Ear	4	26.95	3,966	0.0111	26.80	5870	0.0105	13.79	7.10E-43
Female	Best Ear	6	33.49	3,966	0.0122	33.64	5870	0.0116	13.21	1.76E-39
Female	Best Ear	8	36.14	3,966	0.0141	35.66	5870	0.0131	35.61	2.34E-261
Female	Worst Ear	0.25	19.27	3,966	0.0077	19.46	5870	0.0078	23.99	1.15E-123
Female	Worst Ear	0.5	20.67	3,966	0.0081	20.77	5870	0.0083	11.03	4.13E-28
Female	Worst Ear	1	22.25	3,966	0.0090	22.42	5870	0.0090	19.69	1.14E-84
Female	Worst Ear	2	25.49	3,966	0.0104	25.59	5870	0.0102	9.31	1.49E-20
Female	Worst Ear	3	28.46	3,966	0.0113	29.15	5870	0.0110	61.33	< 0.001
Female	Worst Ear	4	32.35	3,966	0.0120	33.33	5870	0.0119	81.98	< 0.002
Female	Worst Ear	6	37.46	3,966	0.0133	38.71	5870	0.0131	94.61	< 0.003
Female	Worst Ear	8	39.84	3,966	0.0147	40.92	5870	0.0143	74.49	< 0.004
Male	Best Ear	0.25	19.84	74,079	0.0069	19.18	130891	0.0066	98.83	< 0.005
Male	Best Ear	0.5	21.18	74,079	0.0075	20.18	130891	0.0071	137.67	< 0.006
Male	Best Ear	1	24.91	74,079	0.0089	23.44	130891	0.0084	170.04	< 0.007
Male	Best Ear	2	34.64	74,079	0.0116	32.97	130891	0.0114	144.23	< 0.008
Male	Best Ear	3	46.43	74,079	0.0124	46.00	130891	0.0123	34.72	2.59E-263
Male	Best Ear	4	52.39	74,079	0.0127	52.38	130891	0.0125	0.50	0.61389719
Male	Best Ear	6	55.88	74,079	0.0136	55.71	130891	0.0132	12.75	3.23E-37
Male	Best Ear	8	59.77	74,079	0.0142	58.67	130891	0.0137	78.80	< 0.001
Male	Worst Ear	0.25	22.91	74,079	0.0085	22.51	130891	0.0084	47.70	< 0.002
Male	Worst Ear	0.5	25.43	74,079	0.0091	24.68	130891	0.0091	82.73	< 0.003
Male	Worst Ear	1	30.23	74,079	0.0104	29.04	130891	0.0103	115.22	< 0.004
Male	Worst Ear	2	42.03	74,079	0.0126	41.16	130891	0.0127	68.44	< 0.005
Male	Worst Ear	3	53.08	74,079	0.0129	53.56	130891	0.0128	37.54	2.24E-307
Male	Worst Ear	4	60.13	74,079	0.0129	61.09	130891	0.0126	76.08	< 0.001
Male	Worst Ear	6	62.09	74,079	0.0140	62.87	130891	0.0135	56.82	< 0.002
Male	Worst Ear	8	65.08	74,079	0.0143	64.82	130891	0.0136	18.39	1.99E-75

Abbr.: freq – frequencies. Standard audiogram frequencies are .25, .50, 1, 2, 3, 4, 6, and 8 kiloHerz; age_adj – adjusted for age and sex according to International Standard Organization (ISO 7029:2000E) formulae (27).

Table 8a. Time Interval from Tinnitus to Hearing Loss by ICD Diagnosis

time	n.risk	n.event	survival	std.err	lower	upper 95%		gender	age
1	1444	126	0.913	0.00743	0.898	0.927	tin -> hl_icd	F	< = 40
2	1085	52	0.869	0.00922	0.851	0.887	tin -> hl_icd	F	< = 40
3	850	55	0.813	0.01132	0.791	0.835	tin -> hl_icd	F	< = 40
4	654	38	0.766	0.013	0.74	0.791	tin -> hl_icd	F	< = 40
5	504	21	0.734	0.0142	0.706	0.762	tin -> hl_icd	F	< = 40
6	408	31	0.678	0.01627	0.647	0.711	tin -> hl_icd	F	< = 40
7	316	19	0.637	0.01778	0.603	0.673	tin -> hl_icd	F	< = 40
8	239	19	0.586	0.0198	0.549	0.627	tin -> hl_icd	F	< = 40
9	182	15	0.538	0.02175	0.497	0.583	tin -> hl_icd	F	< = 40
10	134	15	0.478	0.02425	0.433	0.528	tin -> hl_icd	F	< = 40
11	93	8	0.437	0.02616	0.388	0.491	tin -> hl_icd	F	< = 40
12	64	7	0.389	0.02886	0.336	0.45	tin -> hl_icd	F	< = 40
13	41	4	0.351	0.03168	0.294	0.419	tin -> hl_icd	F	< = 40
14	22	5	0.271	0.03979	0.204	0.362	tin -> hl_icd	F	< = 40
15	9	2	0.211	0.04869	0.134	0.332	tin -> hl_icd	F	< = 40
16	7	1	0.181	0.05021	0.105	0.312	tin -> hl_icd	F	< = 40
19	1	1	0	NaN	NA	NA	tin -> hl_icd	F	< = 40
1	5316	720	0.86456	0.00469	0.85541	0.8738	tin -> hl_icd	F	> 40
2	4329	432	0.77828	0.00578	0.76704	0.7897	tin -> hl_icd	F	> 40
3	3695	363	0.70182	0.00645	0.68929	0.7146	tin -> hl_icd	F	> 40
4	3128	302	0.63407	0.00691	0.62067	0.6478	tin -> hl_icd	F	> 40
5	2675	285	0.56651	0.00724	0.5525	0.5809	tin -> hl_icd	F	> 40
6	2252	191	0.51846	0.00741	0.50413	0.5332	tin -> hl_icd	F	> 40
7	1935	202	0.46434	0.00755	0.44977	0.4794	tin -> hl_icd	F	> 40
8	1630	168	0.41648	0.00763	0.4018	0.4317	tin -> hl_icd	F	> 40
9	1367	180	0.36164	0.00764	0.34698	0.3769	tin -> hl_icd	F	> 40
10	1100	150	0.31233	0.00758	0.29781	0.3276	tin -> hl_icd	F	> 40
11	863	119	0.26926	0.0075	0.25496	0.2844	tin -> hl_icd	F	> 40
12	677	99	0.22988	0.00737	0.21588	0.2448	tin -> hl_icd	F	> 40
13	536	92	0.19043	0.00716	0.17689	0.205	tin -> hl_icd	F	> 40
14	395	87	0.14848	0.00685	0.13564	0.1625	tin -> hl_icd	F	> 40
15	276	64	0.11405	0.00648	0.10204	0.1275	tin -> hl_icd	F	> 40
16	182	55	0.07959	0.00596	0.06873	0.0922	tin -> hl_icd	F	> 40
17	119	38	0.05417	0.00529	0.04473	0.0656	tin -> hl_icd	F	> 40
18	68	26	0.03346	0.00457	0.0256	0.0437	tin -> hl_icd	F	> 40
19	32	12	0.02091	0.00404	0.01431	0.0305	tin -> hl_icd	F	> 40
20	16	12	0.00523	0.00248	0.00206	0.0132	tin -> hl_icd	F	> 40
21	3	3	0	NaN	NA	NA	tin -> hl_icd	F	> 40
1	8386	927	0.8895	0.00342	0.88277	0.8962	tin -> hl_icd	M	< = 40
2	6403	523	0.8168	0.00438	0.80827	0.8254	tin -> hl_icd	M	< = 40

3	5046	385	0.7545	0.00507	0.74462	0.7645	tin -> hl_icd	M	< = 40
4	3948	317	0.6939	0.00569	0.68285	0.7051	tin -> hl_icd	M	< = 40
5	3043	255	0.6358	0.00627	0.62359	0.6482	tin -> hl_icd	M	< = 40
6	2304	230	0.5723	0.0069	0.55893	0.586	tin -> hl_icd	M	< = 40
7	1681	168	0.5151	0.00749	0.50062	0.53	tin -> hl_icd	M	< = 40
8	1224	112	0.468	0.00802	0.45251	0.4839	tin -> hl_icd	M	< = 40
9	865	108	0.4095	0.00877	0.3927	0.4271	tin -> hl_icd	M	< = 40
10	593	86	0.3501	0.00956	0.33191	0.3694	tin -> hl_icd	M	< = 40
11	366	35	0.3167	0.01018	0.29732	0.3373	tin -> hl_icd	M	< = 40
12	245	48	0.2546	0.01147	0.23311	0.2781	tin -> hl_icd	M	< = 40
13	135	26	0.2056	0.01266	0.1822	0.232	tin -> hl_icd	M	< = 40
14	79	13	0.1718	0.01362	0.14703	0.2006	tin -> hl_icd	M	< = 40
15	44	16	0.1093	0.01517	0.08326	0.1435	tin -> hl_icd	M	< = 40
16	17	7	0.0643	0.01581	0.03971	0.1041	tin -> hl_icd	M	< = 40
17	8	3	0.0402	0.01479	0.01953	0.0827	tin -> hl_icd	M	< = 40
18	4	3	0.01	0.00945	0.00159	0.0635	tin -> hl_icd	M	< = 40
20	1	1	0	NaN	NA	NA	tin -> hl_icd	M	< = 40
1	97813	15252	8.44E-01	1.16E-03	0.842000	0.846346	tin -> hl_icd	M	> 40
2	81013	9547	7.45E-01	1.40E-03	0.742000	0.74735	tin -> hl_icd	M	> 40
3	70289	8849	6.51E-01	1.54E-03	0.648000	0.653881	tin -> hl_icd	M	> 40
4	60392	8245	5.62E-01	1.61E-03	0.559000	0.565165	tin -> hl_icd	M	> 40
5	51227	7063	4.85E-01	1.63E-03	0.481000	0.487721	tin -> hl_icd	M	> 40
6	43419	5970	4.18E-01	1.62E-03	0.415000	0.421079	tin -> hl_icd	M	> 40
7	36758	5343	3.57E-01	1.58E-03	0.354000	0.360266	tin -> hl_icd	M	> 40
8	30808	4619	3.04E-01	1.53E-03	0.301000	0.306615	tin -> hl_icd	M	> 40
9	25646	4320	2.52E-01	1.46E-03	0.250000	0.255332	tin -> hl_icd	M	> 40
10	20850	3735	2.07E-01	1.37E-03	0.205000	0.20994	tin -> hl_icd	M	> 40
11	16726	3322	1.66E-01	1.27E-03	0.164000	0.168586	tin -> hl_icd	M	> 40
12	13064	2877	1.30E-01	1.16E-03	0.127000	0.131796	tin -> hl_icd	M	> 40
13	9878	2375	9.84E-02	1.04E-03	0.096300	0.10043	tin -> hl_icd	M	> 40
14	7308	2003	7.14E-02	9.14E-04	0.069600	0.07322	tin -> hl_icd	M	> 40
15	5121	1617	4.89E-02	7.79E-04	0.047400	0.050409	tin -> hl_icd	M	> 40
16	3357	1121	3.25E-02	6.54E-04	0.031300	0.03385	tin -> hl_icd	M	> 40
17	2124	788	2.05E-02	5.34E-04	0.019400	0.021544	tin -> hl_icd	M	> 40
18	1262	524	1.20E-02	4.22E-04	0.011200	0.012827	tin -> hl_icd	M	> 40
19	690	402	5.00E-03	2.86E-04	0.004470	0.005589	tin -> hl_icd	M	> 40
20	261	216	8.61E-04	1.27E-04	0.000646	0.001149	tin -> hl_icd	M	> 40
21	35	29	1.48E-04	5.90E-05	0.000068	0.000323	tin -> hl_icd	M	> 40
22	4	2	7.38E-05	4.73E-05	0.000021	0.000259	tin -> hl_icd	M	> 40
23	2	2	0.00E+00	NaN	NA	NA	tin -> hl_icd	M	> 40

Table 8b. Interval from Hearing Loss to Tinnitus by ICD Diagnosis

time	n.risk	n.event	survival	std.err	lower	upper 95%		gender	age
1	992	53	0.947	0.00714	0.933	0.961	hl -> tin_icd	F	< = 40
2	794	28	0.913	0.00926	0.895	0.932	hl -> tin_icd	F	< = 40
3	657	22	0.883	0.01101	0.861	0.904	hl -> tin_icd	F	< = 40
4	543	30	0.834	0.01353	0.808	0.861	hl -> tin_icd	F	< = 40
5	417	27	0.78	0.01616	0.749	0.812	hl -> tin_icd	F	< = 40
6	322	12	0.751	0.0176	0.717	0.786	hl -> tin_icd	F	< = 40
7	249	9	0.724	0.01915	0.687	0.762	hl -> tin_icd	F	< = 40
8	199	8	0.695	0.02096	0.655	0.737	hl -> tin_icd	F	< = 40
9	142	5	0.67	0.0229	0.627	0.717	hl -> tin_icd	F	< = 40
10	108	3	0.651	0.02466	0.605	0.702	hl -> tin_icd	F	< = 40
11	79	2	0.635	0.02665	0.585	0.689	hl -> tin_icd	F	< = 40
12	55	3	0.6	0.03183	0.541	0.666	hl -> tin_icd	F	< = 40
13	40	2	0.57	0.03663	0.503	0.647	hl -> tin_icd	F	< = 40
14	28	3	0.509	0.0467	0.425	0.61	hl -> tin_icd	F	< = 40
15	19	5	0.375	0.06189	0.272	0.518	hl -> tin_icd	F	< = 40
16	10	2	0.3	0.06859	0.192	0.47	hl -> tin_icd	F	< = 40
17	4	1	0.225	0.08289	0.109	0.463	hl -> tin_icd	F	< = 40
1	6418	225	0.965	0.0023	0.96	0.969	hl -> tin_icd	F	> 40
2	5289	141	0.939	0.00309	0.933	0.945	hl -> tin_icd	F	> 40
3	4459	140	0.91	0.00387	0.902	0.917	hl -> tin_icd	F	> 40
4	3681	130	0.878	0.00465	0.869	0.887	hl -> tin_icd	F	> 40
5	3058	112	0.845	0.00538	0.835	0.856	hl -> tin_icd	F	> 40
6	2529	101	0.812	0.00612	0.8	0.824	hl -> tin_icd	F	> 40
7	2062	53	0.791	0.0066	0.778	0.804	hl -> tin_icd	F	> 40
8	1705	46	0.769	0.00714	0.756	0.784	hl -> tin_icd	F	> 40
9	1393	47	0.744	0.00784	0.728	0.759	hl -> tin_icd	F	> 40
10	1129	38	0.719	0.00856	0.702	0.735	hl -> tin_icd	F	> 40
11	876	27	0.696	0.0093	0.678	0.715	hl -> tin_icd	F	> 40
12	676	13	0.683	0.00983	0.664	0.703	hl -> tin_icd	F	> 40
13	496	21	0.654	0.01126	0.632	0.676	hl -> tin_icd	F	> 40
14	372	13	0.631	0.01252	0.607	0.656	hl -> tin_icd	F	> 40
15	256	10	0.607	0.01426	0.579	0.635	hl -> tin_icd	F	> 40
16	175	6	0.586	0.0161	0.555	0.618	hl -> tin_icd	F	> 40
17	98	3	0.568	0.01864	0.532	0.606	hl -> tin_icd	F	> 40
18	65	4	0.533	0.02434	0.487	0.583	hl -> tin_icd	F	> 40
19	26	3	0.471	0.03973	0.4	0.556	hl -> tin_icd	F	> 40
21	3	1	0.314	0.131	0.139	0.711	hl -> tin_icd	F	> 40
23	1	1	0	NaN	NA	NA	hl -> tin_icd	F	> 40
1	5080	339	0.933	0.0035	0.926	0.94	hl -> tin_icd	M	<= 40
2	4145	209	0.886	0.0046	0.877	0.895	hl -> tin_icd	M	<= 40

3	3413	142	0.849	0.00535	0.839	0.86	hl -> tin_icd	M	<= 40
4	2739	160	0.8	0.00631	0.787	0.812	hl -> tin_icd	M	<= 40
5	2163	113	0.758	0.0071	0.744	0.772	hl -> tin_icd	M	<= 40
6	1641	90	0.716	0.00795	0.701	0.732	hl -> tin_icd	M	<= 40
7	1222	63	0.679	0.0088	0.662	0.697	hl -> tin_icd	M	<= 40
8	931	61	0.635	0.0099	0.616	0.655	hl -> tin_icd	M	<= 40
9	683	39	0.599	0.0109	0.578	0.62	hl -> tin_icd	M	<= 40
10	505	38	0.554	0.01229	0.53	0.578	hl -> tin_icd	M	<= 40
11	338	25	0.513	0.01384	0.486	0.541	hl -> tin_icd	M	<= 40
12	208	12	0.483	0.01545	0.454	0.514	hl -> tin_icd	M	<= 40
13	117	6	0.458	0.01766	0.425	0.494	hl -> tin_icd	M	<= 40
14	68	4	0.431	0.02115	0.392	0.475	hl -> tin_icd	M	<= 40
15	41	5	0.379	0.02883	0.326	0.44	hl -> tin_icd	M	<= 40
16	22	1	0.362	0.03225	0.304	0.431	hl -> tin_icd	M	<= 40
17	13	2	0.306	0.04532	0.229	0.409	hl -> tin_icd	M	<= 40
18	7	1	0.262	0.05609	0.172	0.399	hl -> tin_icd	M	<= 40
1	1E+05	4299	0.964	0.00053	0.963	0.965	hl -> tin_icd	M	> 40
2	96291	3085	0.933	0.00075	0.932	0.935	hl -> tin_icd	M	> 40
3	77449	3196	0.895	0.00098	0.893	0.897	hl -> tin_icd	M	> 40
4	60824	3282	0.847	0.00124	0.844	0.849	hl -> tin_icd	M	> 40
5	47387	2785	0.797	0.00148	0.794	0.8	hl -> tin_icd	M	> 40
6	36946	1955	0.755	0.00168	0.751	0.758	hl -> tin_icd	M	> 40
7	28816	1430	0.717	0.00187	0.714	0.721	hl -> tin_icd	M	> 40
8	22574	1020	0.685	0.00204	0.681	0.689	hl -> tin_icd	M	> 40
9	17592	742	0.656	0.00221	0.652	0.66	hl -> tin_icd	M	> 40
10	13565	557	0.629	0.0024	0.624	0.634	hl -> tin_icd	M	> 40
11	10356	434	0.603	0.00261	0.598	0.608	hl -> tin_icd	M	> 40
12	7565	302	0.579	0.00285	0.573	0.584	hl -> tin_icd	M	> 40
13	5334	189	0.558	0.00312	0.552	0.564	hl -> tin_icd	M	> 40
14	3664	129	0.538	0.00345	0.532	0.545	hl -> tin_icd	M	> 40
15	2456	87	0.519	0.00389	0.512	0.527	hl -> tin_icd	M	> 40
16	1531	68	0.496	0.00461	0.487	0.505	hl -> tin_icd	M	> 40
17	892	41	0.474	0.00561	0.463	0.485	hl -> tin_icd	M	> 40
18	476	28	0.446	0.00735	0.431	0.46	hl -> tin_icd	M	> 40
19	234	18	0.411	0.01031	0.392	0.432	hl -> tin_icd	M	> 40
20	75	10	0.357	0.01845	0.322	0.395	hl -> tin_icd	M	> 40
21	23	2	0.326	0.02688	0.277	0.383	hl -> tin_icd	M	> 40
22	12	2	0.271	0.04157	0.201	0.366	hl -> tin_icd	M	> 40

Table 8c. Interval Tinnitus to Hearing Loss by self-report

time	n.risk	n.event	survival	std.err	lower 95%	upper	test	gender	age
1	1097	7	0.994	0.0024	0.989	0.998	tin->hl_self	F	< = 40
3	757	3	0.99	0.0033	0.983	0.996	tin->hl_self	F	< = 40
5	503	2	0.986	0.0043	0.977	0.994	tin->hl_self	F	< = 40
8	277	1	0.982	0.00557	0.971	0.993	tin->hl_self	F	< = 40
9	227	2	0.974	0.00822	0.958	0.99	tin->hl_self	F	< = 40
10	181	1	0.968	0.00978	0.949	0.988	tin->hl_self	F	< = 40
11	134	2	0.954	0.01399	0.927	0.982	tin->hl_self	F	< = 40
12	97	3	0.924	0.02156	0.883	0.967	tin->hl_self	F	< = 40
14	57	1	0.908	0.02659	0.857	0.962	tin->hl_self	F	< = 40
1	4540	76	0.983	0.0019	0.9795	0.987	tin->hl_self	F	> 40
2	4044	41	0.973	0.00244	0.9685	0.978	tin->hl_self	F	> 40
3	3641	31	0.965	0.00284	0.9595	0.971	tin->hl_self	F	> 40
4	3318	22	0.959	0.00313	0.9525	0.965	tin->hl_self	F	> 40
5	3066	23	0.951	0.00345	0.9447	0.958	tin->hl_self	F	> 40
6	2819	13	0.947	0.00364	0.9399	0.954	tin->hl_self	F	> 40
7	2637	16	0.941	0.00389	0.9337	0.949	tin->hl_self	F	> 40
8	2459	26	0.931	0.00431	0.9229	0.94	tin->hl_self	F	> 40
9	2279	18	0.924	0.00461	0.915	0.933	tin->hl_self	F	> 40
10	2127	16	0.917	0.00489	0.9075	0.927	tin->hl_self	F	> 40
11	1991	13	0.911	0.00514	0.901	0.921	tin->hl_self	F	> 40
12	1877	13	0.905	0.00539	0.8942	0.915	tin->hl_self	F	> 40
13	1729	10	0.899	0.00561	0.8886	0.911	tin->hl_self	F	> 40
14	1590	11	0.893	0.00587	0.8818	0.905	tin->hl_self	F	> 40
15	1460	14	0.885	0.00625	0.8725	0.897	tin->hl_self	F	> 40
16	1342	17	0.873	0.00673	0.8604	0.887	tin->hl_self	F	> 40
17	1248	10	0.866	0.00703	0.8528	0.88	tin->hl_self	F	> 40
18	1148	10	0.859	0.00737	0.8446	0.874	tin->hl_self	F	> 40
19	1068	4	0.856	0.00751	0.8411	0.871	tin->hl_self	F	> 40
20	997	12	0.845	0.00799	0.8299	0.861	tin->hl_self	F	> 40
21	915	6	0.84	0.00825	0.8239	0.856	tin->hl_self	F	> 40
22	845	13	0.827	0.00887	0.8098	0.845	tin->hl_self	F	> 40
23	772	8	0.818	0.00928	0.8004	0.837	tin->hl_self	F	> 40
24	707	6	0.811	0.00962	0.7928	0.831	tin->hl_self	F	> 40
25	647	6	0.804	0.01001	0.7845	0.824	tin->hl_self	F	> 40
26	601	6	0.796	0.01044	0.7757	0.817	tin->hl_self	F	> 40
27	560	3	0.792	0.01067	0.771	0.813	tin->hl_self	F	> 40
28	513	5	0.784	0.01111	0.7625	0.806	tin->hl_self	F	> 40
29	459	6	0.774	0.01172	0.751	0.797	tin->hl_self	F	> 40
30	420	3	0.768	0.01207	0.7449	0.792	tin->hl_self	F	> 40
31	382	7	0.754	0.01296	0.7291	0.78	tin->hl_self	F	> 40

32	352	5	0.743	0.01364	0.7171	0.771	tin->hl_self	F	> 40
33	315	4	0.734	0.01426	0.7065	0.762	tin->hl_self	F	> 40
34	286	4	0.724	0.01495	0.6949	0.754	tin->hl_self	F	> 40
35	260	2	0.718	0.01535	0.6886	0.749	tin->hl_self	F	> 40
36	235	2	0.712	0.01581	0.6817	0.744	tin->hl_self	F	> 40
37	212	5	0.695	0.01713	0.6624	0.73	tin->hl_self	F	> 40
38	178	2	0.687	0.01781	0.6533	0.723	tin->hl_self	F	> 40
39	161	1	0.683	0.0182	0.6484	0.72	tin->hl_self	F	> 40
40	143	1	0.678	0.01869	0.6427	0.716	tin->hl_self	F	> 40
41	121	3	0.662	0.02059	0.6224	0.703	tin->hl_self	F	> 40
42	108	2	0.649	0.02196	0.6076	0.694	tin->hl_self	F	> 40
43	97	1	0.643	0.02273	0.5995	0.689	tin->hl_self	F	> 40
44	87	1	0.635	0.02364	0.5905	0.683	tin->hl_self	F	> 40
45	75	4	0.601	0.02779	0.5492	0.658	tin->hl_self	F	> 40
46	66	3	0.574	0.03068	0.5169	0.637	tin->hl_self	F	> 40
48	43	2	0.547	0.03458	0.4835	0.619	tin->hl_self	F	> 40
51	28	1	0.528	0.03847	0.4575	0.609	tin->hl_self	F	> 40
53	21	1	0.503	0.04409	0.4232	0.597	tin->hl_self	F	> 40
59	12	2	0.419	0.06537	0.3084	0.569	tin->hl_self	F	> 40
62	6	1	0.349	0.08384	0.218	0.559	tin->hl_self	F	> 40
66	2	1	0.175	0.13033	0.0404	0.754	tin->hl_self	F	> 40
1	3916	42	0.989	0.00165	0.986	0.993	tin->hl_self	M	< = 40
2	3271	20	0.983	0.00212	0.979	0.987	tin->hl_self	M	< = 40
3	2771	12	0.979	0.00244	0.974	0.984	tin->hl_self	M	< = 40
4	2379	16	0.972	0.00293	0.967	0.978	tin->hl_self	M	< = 40
5	1968	9	0.968	0.00327	0.962	0.974	tin->hl_self	M	< = 40
6	1615	14	0.96	0.00393	0.952	0.967	tin->hl_self	M	< = 40
7	1282	6	0.955	0.00432	0.947	0.964	tin->hl_self	M	< = 40
8	1011	6	0.949	0.00488	0.94	0.959	tin->hl_self	M	< = 40
9	774	3	0.946	0.0053	0.935	0.956	tin->hl_self	M	< = 40
10	586	4	0.939	0.00617	0.927	0.951	tin->hl_self	M	< = 40
11	430	3	0.933	0.00719	0.919	0.947	tin->hl_self	M	< = 40
12	308	3	0.924	0.00883	0.906	0.941	tin->hl_self	M	< = 40
14	139	2	0.91	0.01276	0.886	0.936	tin->hl_self	M	< = 40
15	94	2	0.891	0.01843	0.856	0.928	tin->hl_self	M	< = 40
16	61	1	0.876	0.0232	0.832	0.923	tin->hl_self	M	< = 40
22	5	1	0.701	0.15786	0.451	1	tin->hl_self	M	< = 40
1	78816	1927	0.976	0.00055	0.9745	0.977	tin->hl_self	M	> 40
2	72317	1349	0.957	0.00073	0.9559	0.959	tin->hl_self	M	> 40
3	66829	953	0.944	0.00084	0.9421	0.945	tin->hl_self	M	> 40
4	62268	869	0.931	0.00094	0.9287	0.932	tin->hl_self	M	> 40
5	58370	1072	0.913	0.00106	0.9114	0.916	tin->hl_self	M	> 40

6	54721	623	0.903	0.00113	0.9008	0.905	tin->hl_self	M	> 40
7	51904	578	0.893	0.00119	0.8907	0.895	tin->hl_self	M	> 40
8	49119	576	0.883	0.00125	0.8801	0.885	tin->hl_self	M	> 40
9	46635	516	0.873	0.00131	0.8702	0.875	tin->hl_self	M	> 40
10	44415	1029	0.853	0.00142	0.8497	0.855	tin->hl_self	M	> 40
11	41778	402	0.844	0.00147	0.8415	0.847	tin->hl_self	M	> 40
12	40005	453	0.835	0.00152	0.8318	0.838	tin->hl_self	M	> 40
13	37799	398	0.826	0.00157	0.8229	0.829	tin->hl_self	M	> 40
14	35955	419	0.816	0.00162	0.8132	0.82	tin->hl_self	M	> 40
15	34249	562	0.803	0.00169	0.7997	0.806	tin->hl_self	M	> 40
16	32490	378	0.794	0.00173	0.7902	0.797	tin->hl_self	M	> 40
17	31015	321	0.785	0.00177	0.7819	0.789	tin->hl_self	M	> 40
18	29433	354	0.776	0.00182	0.7724	0.78	tin->hl_self	M	> 40
19	27966	339	0.767	0.00187	0.7629	0.77	tin->hl_self	M	> 40
20	26727	583	0.75	0.00195	0.746	0.754	tin->hl_self	M	> 40
21	25324	281	0.742	0.00199	0.7376	0.745	tin->hl_self	M	> 40
22	24327	292	0.733	0.00204	0.7286	0.737	tin->hl_self	M	> 40
23	23099	233	0.725	0.00207	0.7212	0.729	tin->hl_self	M	> 40
24	22112	252	0.717	0.00211	0.7128	0.721	tin->hl_self	M	> 40
25	21210	336	0.706	0.00217	0.7014	0.71	tin->hl_self	M	> 40
26	20301	227	0.698	0.00221	0.6934	0.702	tin->hl_self	M	> 40
27	19523	217	0.69	0.00225	0.6856	0.694	tin->hl_self	M	> 40
28	18617	263	0.68	0.00229	0.6757	0.685	tin->hl_self	M	> 40
29	17822	231	0.671	0.00234	0.6668	0.676	tin->hl_self	M	> 40
30	17106	336	0.658	0.0024	0.6535	0.663	tin->hl_self	M	> 40
31	16377	259	0.648	0.00245	0.643	0.653	tin->hl_self	M	> 40
32	15760	253	0.637	0.00249	0.6325	0.642	tin->hl_self	M	> 40
33	14895	241	0.627	0.00254	0.6221	0.632	tin->hl_self	M	> 40
34	14178	252	0.616	0.00259	0.6109	0.621	tin->hl_self	M	> 40
35	13467	273	0.603	0.00264	0.5983	0.609	tin->hl_self	M	> 40
36	12777	232	0.592	0.00269	0.5872	0.598	tin->hl_self	M	> 40
37	12164	210	0.582	0.00274	0.5769	0.588	tin->hl_self	M	> 40
38	11480	227	0.571	0.00279	0.5653	0.576	tin->hl_self	M	> 40
39	10801	211	0.56	0.00284	0.5541	0.565	tin->hl_self	M	> 40
40	10110	279	0.544	0.00291	0.5385	0.55	tin->hl_self	M	> 40
41	9414	208	0.532	0.00296	0.5264	0.538	tin->hl_self	M	> 40
42	8773	215	0.519	0.00302	0.5132	0.525	tin->hl_self	M	> 40
43	7871	187	0.507	0.00308	0.5008	0.513	tin->hl_self	M	> 40
44	7010	180	0.494	0.00315	0.4876	0.5	tin->hl_self	M	> 40
45	6174	206	0.477	0.00324	0.471	0.484	tin->hl_self	M	> 40
46	5384	166	0.463	0.00334	0.4561	0.469	tin->hl_self	M	> 40
47	4649	122	0.45	0.00343	0.4437	0.457	tin->hl_self	M	> 40

48	4002	109	0.438	0.00353	0.4313	0.445	tin->hl_self	M	> 40
49	3429	78	0.428	0.00363	0.4211	0.435	tin->hl_self	M	> 40
50	2942	113	0.412	0.0038	0.4044	0.419	tin->hl_self	M	> 40
51	2522	68	0.401	0.00393	0.393	0.408	tin->hl_self	M	> 40
52	2214	68	0.388	0.00408	0.3804	0.396	tin->hl_self	M	> 40
53	1912	48	0.379	0.00422	0.3704	0.387	tin->hl_self	M	> 40
54	1699	41	0.369	0.00435	0.361	0.378	tin->hl_self	M	> 40
55	1512	52	0.357	0.00454	0.3479	0.366	tin->hl_self	M	> 40
56	1314	35	0.347	0.0047	0.3382	0.357	tin->hl_self	M	> 40
57	1173	33	0.337	0.00486	0.3281	0.347	tin->hl_self	M	> 40
58	1013	25	0.329	0.00502	0.3194	0.339	tin->hl_self	M	> 40
59	883	32	0.317	0.00526	0.3071	0.328	tin->hl_self	M	> 40
60	755	24	0.307	0.00548	0.2966	0.318	tin->hl_self	M	> 40
61	644	32	0.292	0.00584	0.2806	0.304	tin->hl_self	M	> 40
62	554	20	0.281	0.00608	0.2697	0.294	tin->hl_self	M	> 40
63	444	16	0.271	0.00637	0.259	0.284	tin->hl_self	M	> 40
64	383	15	0.261	0.00669	0.2478	0.274	tin->hl_self	M	> 40
65	333	9	0.254	0.0069	0.2404	0.267	tin->hl_self	M	> 40
66	280	12	0.243	0.00729	0.2288	0.257	tin->hl_self	M	> 40
67	223	5	0.237	0.00752	0.2229	0.252	tin->hl_self	M	> 40
68	165	5	0.23	0.00795	0.215	0.246	tin->hl_self	M	> 40
69	125	4	0.223	0.0085	0.2066	0.24	tin->hl_self	M	> 40
70	87	5	0.21	0.00975	0.1916	0.23	tin->hl_self	M	> 40
72	57	1	0.206	0.01025	0.187	0.227	tin->hl_self	M	> 40
73	38	3	0.19	0.01306	0.166	0.217	tin->hl_self	M	> 40
74	32	3	0.172	0.01536	0.1445	0.205	tin->hl_self	M	> 40
76	20	1	0.164	0.01683	0.1336	0.2	tin->hl_self	M	> 40
80	9	1	0.145	0.02274	0.107	0.197	tin->hl_self	M	> 40
82	6	1	0.121	0.02912	0.0756	0.194	tin->hl_self	M	> 40

Table 8d. Interval from Hearing Loss to Tinnitus by Self-Report

time	n.risk	n.event	survival	std.err	lower 95%	upper 95%	test	gender	age
1	89	5	0.944	0.0244	0.897	0.993	hl -> tin_self	F	< = 40
2	76	3	0.907	0.0315	0.847	0.971	hl -> tin_self	F	< = 40
4	59	1	0.891	0.0345	0.826	0.962	hl -> tin_self	F	< = 40
6	44	1	0.871	0.0392	0.797	0.951	hl -> tin_self	F	< = 40
9	26	1	0.837	0.05	0.745	0.941	hl -> tin_self	F	< = 40
1	1741	24	0.986	0.00279	0.981	0.992	hl -> tin_self	F	> 40
2	1537	16	0.976	0.00376	0.969	0.983	hl -> tin_self	F	> 40
3	1372	16	0.965	0.00467	0.955	0.974	hl -> tin_self	F	> 40
4	1244	13	0.954	0.0054	0.944	0.965	hl -> tin_self	F	> 40
5	1151	10	0.946	0.00595	0.935	0.958	hl -> tin_self	F	> 40
6	1059	11	0.936	0.00659	0.924	0.949	hl -> tin_self	F	> 40
7	980	5	0.932	0.00689	0.918	0.945	hl -> tin_self	F	> 40
8	903	7	0.924	0.00736	0.91	0.939	hl -> tin_self	F	> 40
9	844	10	0.913	0.00805	0.898	0.929	hl -> tin_self	F	> 40
10	806	10	0.902	0.00871	0.885	0.919	hl -> tin_self	F	> 40
11	755	5	0.896	0.00905	0.879	0.914	hl -> tin_self	F	> 40
12	720	5	0.89	0.00941	0.872	0.909	hl -> tin_self	F	> 40
13	670	3	0.886	0.00964	0.867	0.905	hl -> tin_self	F	> 40
14	639	4	0.88	0.00997	0.861	0.9	hl -> tin_self	F	> 40
16	556	4	0.874	0.01039	0.854	0.895	hl -> tin_self	F	> 40
17	522	7	0.862	0.01116	0.841	0.884	hl -> tin_self	F	> 40
18	484	2	0.859	0.01139	0.837	0.881	hl -> tin_self	F	> 40
19	460	1	0.857	0.01152	0.835	0.88	hl -> tin_self	F	> 40
20	443	3	0.851	0.01192	0.828	0.875	hl -> tin_self	F	> 40
21	422	2	0.847	0.0122	0.823	0.871	hl -> tin_self	F	> 40
22	398	4	0.839	0.0128	0.814	0.864	hl -> tin_self	F	> 40
23	369	2	0.834	0.01312	0.809	0.86	hl -> tin_self	F	> 40
24	346	1	0.832	0.0133	0.806	0.858	hl -> tin_self	F	> 40
26	311	2	0.826	0.01375	0.8	0.854	hl -> tin_self	F	> 40
27	293	3	0.818	0.01445	0.79	0.847	hl -> tin_self	F	> 40
28	278	5	0.803	0.01561	0.773	0.834	hl -> tin_self	F	> 40
29	261	1	0.8	0.01585	0.769	0.832	hl -> tin_self	F	> 40
30	243	2	0.793	0.01639	0.762	0.826	hl -> tin_self	F	> 40
31	232	1	0.79	0.01667	0.758	0.823	hl -> tin_self	F	> 40
33	208	1	0.786	0.01702	0.754	0.82	hl -> tin_self	F	> 40
34	193	2	0.778	0.01779	0.744	0.814	hl -> tin_self	F	> 40
36	166	1	0.773	0.01829	0.738	0.81	hl -> tin_self	F	> 40
38	141	1	0.768	0.01897	0.732	0.806	hl -> tin_self	F	> 40
39	135	1	0.762	0.01966	0.725	0.802	hl -> tin_self	F	> 40

41	113	1	0.755	0.02061	0.716	0.797	hl -> tin_self	F	> 40
42	105	1	0.748	0.02163	0.707	0.792	hl -> tin_self	F	> 40
44	91	2	0.732	0.02408	0.686	0.781	hl -> tin_self	F	> 40
49	62	1	0.72	0.02643	0.67	0.774	hl -> tin_self	F	> 40
54	38	1	0.701	0.03181	0.641	0.766	hl -> tin_self	F	> 40
55	33	1	0.68	0.03727	0.611	0.757	hl -> tin_self	F	> 40
63	12	1	0.623	0.0641	0.509	0.762	hl -> tin_self	F	> 40
1	297	17	0.943	0.0135	0.917	0.97	hl -> tin_self	M	< = 40
2	254	13	0.895	0.0183	0.859	0.931	hl -> tin_self	M	< = 40
3	215	7	0.865	0.0207	0.826	0.907	hl -> tin_self	M	< = 40
4	185	5	0.842	0.0226	0.799	0.888	hl -> tin_self	M	< = 40
5	163	5	0.816	0.0247	0.769	0.866	hl -> tin_self	M	< = 40
6	143	3	0.799	0.0261	0.749	0.852	hl -> tin_self	M	< = 40
7	120	3	0.779	0.0279	0.726	0.836	hl -> tin_self	M	< = 40
8	100	4	0.748	0.0308	0.69	0.811	hl -> tin_self	M	< = 40
9	88	2	0.731	0.0324	0.67	0.797	hl -> tin_self	M	< = 40
10	72	2	0.711	0.0345	0.646	0.782	hl -> tin_self	M	< = 40
11	64	1	0.7	0.0357	0.633	0.773	hl -> tin_self	M	< = 40
13	49	1	0.685	0.0377	0.615	0.763	hl -> tin_self	M	< = 40
16	25	1	0.658	0.0451	0.575	0.752	hl -> tin_self	M	< = 40
17	17	1	0.619	0.0567	0.517	0.741	hl -> tin_self	M	< = 40
19	14	1	0.575	0.0677	0.456	0.724	hl -> tin_self	M	< = 40
35	1	1	0	NaN	NA	NA	hl -> tin_self	M	< = 40
1	57698	1083	0.981	0.00057	0.98	0.982	hl -> tin_self	M	> 40
2	52007	749	0.967	0.00076	0.966	0.969	hl -> tin_self	M	> 40
3	47322	455	0.958	0.00087	0.956	0.959	hl -> tin_self	M	> 40
4	43751	376	0.95	0.00096	0.948	0.951	hl -> tin_self	M	> 40
5	40613	489	0.938	0.00108	0.936	0.94	hl -> tin_self	M	> 40
6	37740	245	0.932	0.00114	0.93	0.934	hl -> tin_self	M	> 40
7	35536	206	0.927	0.00119	0.924	0.929	hl -> tin_self	M	> 40
8	33391	222	0.92	0.00125	0.918	0.923	hl -> tin_self	M	> 40
9	31492	183	0.915	0.00131	0.913	0.918	hl -> tin_self	M	> 40
10	30037	401	0.903	0.00143	0.9	0.906	hl -> tin_self	M	> 40
11	28126	164	0.898	0.00147	0.895	0.901	hl -> tin_self	M	> 40
12	26747	156	0.892	0.00152	0.889	0.895	hl -> tin_self	M	> 40
13	25032	115	0.888	0.00157	0.885	0.891	hl -> tin_self	M	> 40
14	23666	120	0.884	0.00161	0.881	0.887	hl -> tin_self	M	> 40
15	22367	154	0.878	0.00167	0.874	0.881	hl -> tin_self	M	> 40
16	21167	123	0.873	0.00172	0.869	0.876	hl -> tin_self	M	> 40
17	20075	102	0.868	0.00177	0.865	0.872	hl -> tin_self	M	> 40
18	18919	100	0.864	0.00182	0.86	0.867	hl -> tin_self	M	> 40
19	17988	83	0.86	0.00186	0.856	0.863	hl -> tin_self	M	> 40

20	17221	171	0.851	0.00196	0.847	0.855	hl -> tin_self	M	> 40
21	16426	87	0.847	0.002	0.843	0.851	hl -> tin_self	M	> 40
22	15805	81	0.842	0.00205	0.838	0.846	hl -> tin_self	M	> 40
23	14950	78	0.838	0.0021	0.834	0.842	hl -> tin_self	M	> 40
24	14303	51	0.835	0.00213	0.831	0.839	hl -> tin_self	M	> 40
25	13694	95	0.829	0.0022	0.825	0.833	hl -> tin_self	M	> 40
26	13146	68	0.825	0.00225	0.82	0.829	hl -> tin_self	M	> 40
27	12675	75	0.82	0.00231	0.815	0.824	hl -> tin_self	M	> 40
28	12028	63	0.816	0.00236	0.811	0.82	hl -> tin_self	M	> 40
29	11567	75	0.81	0.00242	0.806	0.815	hl -> tin_self	M	> 40
30	11135	117	0.802	0.00252	0.797	0.807	hl -> tin_self	M	> 40
31	10684	75	0.796	0.00258	0.791	0.801	hl -> tin_self	M	> 40
32	10287	80	0.79	0.00265	0.785	0.795	hl -> tin_self	M	> 40
33	9684	63	0.785	0.00271	0.78	0.79	hl -> tin_self	M	> 40
34	9252	70	0.779	0.00279	0.773	0.784	hl -> tin_self	M	> 40
35	8829	73	0.772	0.00286	0.767	0.778	hl -> tin_self	M	> 40
36	8446	61	0.767	0.00293	0.761	0.773	hl -> tin_self	M	> 40
37	8108	62	0.761	0.003	0.755	0.767	hl -> tin_self	M	> 40
38	7656	60	0.755	0.00307	0.749	0.761	hl -> tin_self	M	> 40
39	7279	73	0.747	0.00317	0.741	0.754	hl -> tin_self	M	> 40
40	6881	71	0.74	0.00327	0.733	0.746	hl -> tin_self	M	> 40
41	6526	46	0.735	0.00333	0.728	0.741	hl -> tin_self	M	> 40
42	6157	65	0.727	0.00343	0.72	0.734	hl -> tin_self	M	> 40
43	5608	32	0.723	0.00349	0.716	0.73	hl -> tin_self	M	> 40
44	5130	45	0.716	0.00359	0.709	0.723	hl -> tin_self	M	> 40
45	4683	31	0.712	0.00366	0.704	0.719	hl -> tin_self	M	> 40
46	4264	22	0.708	0.00373	0.701	0.715	hl -> tin_self	M	> 40
47	3895	29	0.703	0.00382	0.695	0.71	hl -> tin_self	M	> 40
48	3515	24	0.698	0.00392	0.69	0.706	hl -> tin_self	M	> 40
49	3198	16	0.694	0.004	0.687	0.702	hl -> tin_self	M	> 40
50	2927	15	0.691	0.00408	0.683	0.699	hl -> tin_self	M	> 40
51	2709	10	0.688	0.00415	0.68	0.696	hl -> tin_self	M	> 40
52	2507	9	0.686	0.00421	0.678	0.694	hl -> tin_self	M	> 40
53	2296	10	0.683	0.0043	0.674	0.691	hl -> tin_self	M	> 40
54	2127	11	0.679	0.00441	0.671	0.688	hl -> tin_self	M	> 40
55	1954	13	0.675	0.00455	0.666	0.684	hl -> tin_self	M	> 40
56	1809	9	0.671	0.00466	0.662	0.681	hl -> tin_self	M	> 40
57	1669	4	0.67	0.00472	0.661	0.679	hl -> tin_self	M	> 40
58	1517	11	0.665	0.00491	0.655	0.675	hl -> tin_self	M	> 40
59	1364	4	0.663	0.00499	0.653	0.673	hl -> tin_self	M	> 40
60	1223	5	0.66	0.00512	0.65	0.67	hl -> tin_self	M	> 40
61	1075	5	0.657	0.00527	0.647	0.668	hl -> tin_self	M	> 40

62	955	4	0.654	0.00543	0.644	0.665	hl -> tin_self	M	> 40
63	850	3	0.652	0.00557	0.641	0.663	hl -> tin_self	M	> 40
64	736	4	0.649	0.00581	0.637	0.66	hl -> tin_self	M	> 40
65	654	2	0.647	0.00596	0.635	0.658	hl -> tin_self	M	> 40
66	581	1	0.645	0.00606	0.634	0.657	hl -> tin_self	M	> 40
67	484	1	0.644	0.00619	0.632	0.656	hl -> tin_self	M	> 40
68	395	1	0.643	0.00638	0.63	0.655	hl -> tin_self	M	> 40
71	200	1	0.639	0.00711	0.625	0.653	hl -> tin_self	M	> 40
78	57	1	0.628	0.01313	0.603	0.654	hl -> tin_self	M	> 40
80	45	2	0.6	0.02302	0.557	0.647	hl -> tin_self	M	> 40
86	12	1	0.55	0.05233	0.457	0.663	hl -> tin_self	M	> 40

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