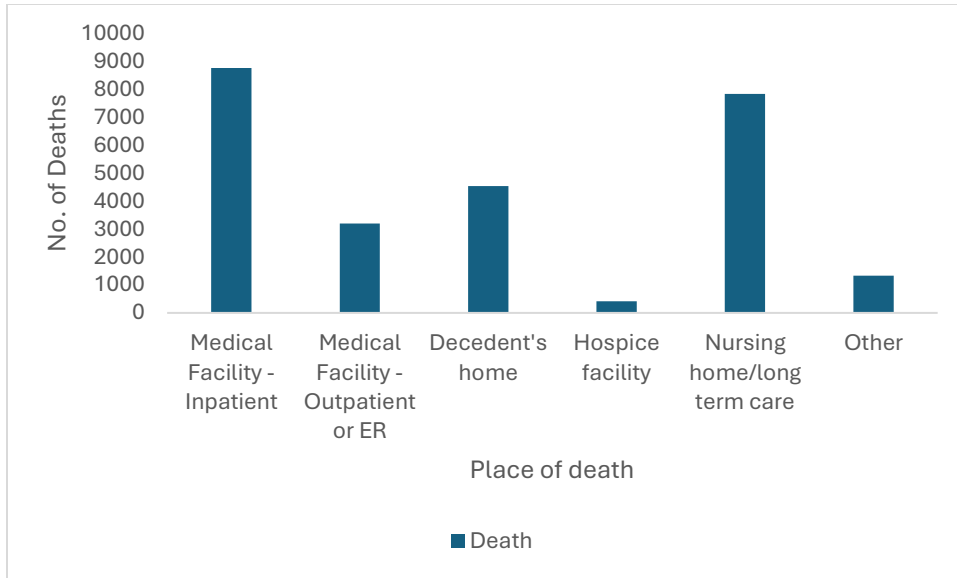


Supplementary Table SI. Absolute number of CVD-related deaths among individuals with intellectual disability and developmental disorders, and percentage of total deaths by place of death, 10-year age groups, gender, race, census region, and 2013 urbanization in the United States, 1999–2023

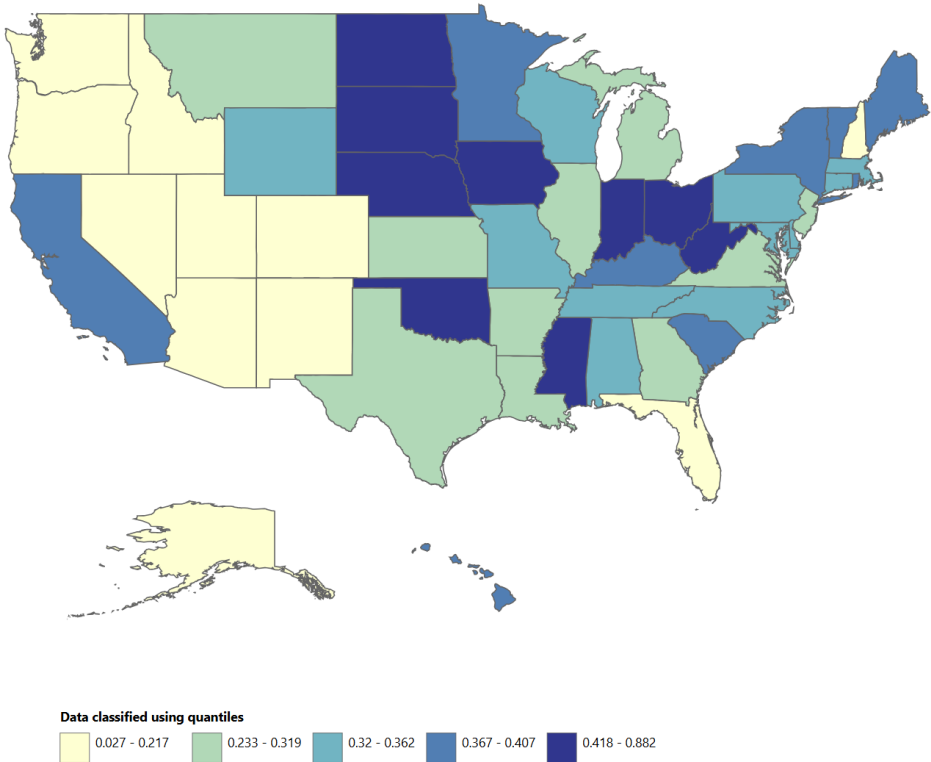
Variables	Death	Total %
Overall	26463	100
Gender		
Male	14704	55.6
Female	11759	44.4
Race		
NH American Indian or Alaska Native (till 2020)	104	
NH Asian or Pacific Islander (till 2020)	299	
NH Black or African American	3638	24.7
NH White	20422	77.2
Hispanic	1665	6.3
Census Region		
Northeast	5430	20.5
Midwest	7194	27.2
South	8815	33.3
West	5024	19.0
2013 Urbanization		
Urban	19561	
Rural	6902	
Age Groups		
5-14 years	553	2.1
15-24 years	1063	4.0
25-34 years	1251	4.7
35-44 years	1940	7.3
45-54 years	3660	13.8
55-64 years	5805	21.9
65-74 years	5692	21.5
75-84 years	5692	21.5
85+ years	1907	7.2
Place of Death		
Medical Facility - Inpatient	8756	0.3
Medical Facility - Outpatient or ER	3194	12.1
Decedent's home	4536	17.1
Hospice facility	421	1.6
Nursing home/long term care	7838	29.6
Other	1336	5.0

Supplementary Figure S1. Absolute number of cardiovascular disease (CVD)-related deaths among individuals with intellectual disability and developmental disorders, and percentage of total deaths by place of death in the United States, 1999–2023



Supplementary Figure S2. Map for AAMR by state for CVD-related deaths among individuals with intellectual disability and developmental disorders in the United States, 1999–2023

Age Adjusted Rate for The United States



Supplementary Table SII. AAMR for CVD-related deaths among individuals with intellectual disability and developmental disorders in the United States, 1999–2023 stratified by Gender

Year	Age-Adjusted Rate (Confidence Intervals)		
	Overall	Female	Male
1999	0.419 (0.395, 0.443)	0.398 (0.366, 0.431)	0.505 (0.465, 0.545)
2000	0.419 (0.395, 0.444)	0.360 (0.329, 0.391)	0.492 (0.452, 0.532)
2001	0.387 (0.364, 0.410)	0.315 (0.286, 0.343)	0.502 (0.461, 0.542)
2002	0.404 (0.380, 0.427)	0.361 (0.332, 0.391)	0.443 (0.406, 0.479)
2003	0.386 (0.363, 0.408)	0.344 (0.314, 0.374)	0.447 (0.410, 0.483)
2004	0.377 (0.355, 0.399)	0.323 (0.295, 0.350)	0.445 (0.409, 0.481)
2005	0.371 (0.349, 0.392)	0.331 (0.303, 0.360)	0.447 (0.411, 0.484)
2006	0.360 (0.339, 0.382)	0.308 (0.280, 0.335)	0.435 (0.399, 0.470)
2007	0.351 (0.330, 0.371)	0.288 (0.263, 0.313)	0.408 (0.375, 0.442)
2008	0.351 (0.330, 0.372)	0.301 (0.274, 0.327)	0.432 (0.397, 0.466)
2009	0.315 (0.296, 0.334)	0.271 (0.245, 0.296)	0.382 (0.351, 0.414)
2010	0.305 (0.285, 0.324)	0.284 (0.258, 0.311)	0.342 (0.313, 0.372)
2011	0.318 (0.299, 0.338)	0.283 (0.258, 0.309)	0.365 (0.334, 0.395)

2012	0.304 (0.285, 0.322)	0.266 (0.241, 0.291)	0.365 (0.335, 0.394)
2013	0.288 (0.269, 0.306)	0.239 (0.216, 0.261)	0.349 (0.319, 0.378)
2014	0.262 (0.245, 0.280)	0.223 (0.201, 0.245)	0.324 (0.296, 0.353)
2015	0.264 (0.247, 0.282)	0.213 (0.192, 0.234)	0.301 (0.275, 0.328)
2016	0.271 (0.253, 0.289)	0.200 (0.180, 0.221)	0.320 (0.293, 0.348)
2017	0.249 (0.232, 0.265)	0.211 (0.189, 0.233)	0.313 (0.285, 0.340)
2018	0.231 (0.215, 0.248)	0.166 (0.148, 0.184)	0.263 (0.238, 0.287)
2019	0.227 (0.211, 0.243)	0.152 (0.134, 0.171)	0.302 (0.276, 0.329)
2020	0.303 (0.285, 0.322)	0.221 (0.199, 0.242)	0.371 (0.342, 0.400)
2021	0.279 (0.262, 0.297)	0.198 (0.178, 0.218)	0.365 (0.336, 0.394)
2022	0.241 (0.225, 0.258)	0.207 (0.185, 0.228)	0.295 (0.270, 0.320)
2023	0.221 (0.207, 0.236)	0.183 (0.162, 0.203)	0.314 (0.288, 0.341)

Supplementary Table SIII. AAMR for CVD-related deaths among individuals with intellectual disability and developmental disorders in the United States, 1999–2023 stratified by Race.

Year	Age-Adjusted Rate (Confidence Intervals)				
	NH American Indian or Alaska Native	NH Asian or Pacific Islander	NH Black or African American	NH White	Hispanics or Latino
1999	Suppressed	0.203 (0.121 - 0.321)	0.495 (0.411 - 0.578)	0.442 (0.414 - 0.470)	0.229 (0.161 - 0.315)
2000	Suppressed	Suppressed	0.493 (0.409 - 0.577)	0.428 (0.400 - 0.455)	0.193 (0.134 - 0.270)
2001	Suppressed	Unreliable (0.062 - 0.239)	0.507 (0.422 - 0.592)	0.396 (0.369 - 0.422)	0.151 (0.096 - 0.226)
2002	Suppressed	Unreliable (0.081 - 0.260)	0.428 (0.351 - 0.506)	0.430 (0.402 - 0.457)	0.194 (0.138 - 0.264)
2003	Suppressed	Unreliable (0.055 - 0.197)	0.526 (0.440 - 0.612)	0.385 (0.359 - 0.411)	0.184 (0.135 - 0.245)
2004	Suppressed	Unreliable (0.052 - 0.199)	0.443 (0.366 - 0.519)	0.402 (0.375 - 0.428)	0.218 (0.161 - 0.288)
2005	Suppressed	Unreliable (0.025 - 0.128)	0.420 (0.346 - 0.494)	0.402 (0.376 - 0.428)	0.219 (0.163 - 0.289)
2006	Suppressed	Unreliable (0.066 - 0.194)	0.441 (0.367 - 0.515)	0.378 (0.352 - 0.405)	0.202 (0.155 - 0.258)
2007	Suppressed	0.180 (0.108 - 0.281)	0.449 (0.374 - 0.523)	0.373 (0.348 - 0.398)	0.192 (0.143 - 0.252)

2008	Suppressed	Unreliable (0.080 - 0.227)	0.437 (0.365 - 0.509)	0.370 (0.345 - 0.395)	0.197 (0.148 - 0.256)
2009	Suppressed	0.135 (0.081 - 0.210)	0.425 (0.355 - 0.495)	0.328 (0.305 - 0.351)	0.130 (0.095 - 0.174)
2010	Suppressed	Unreliable (0.060 - 0.183)	0.408 (0.338 - 0.478)	0.310 (0.287 - 0.332)	0.178 (0.136 - 0.230)
2011	Suppressed	0.103 (0.060 - 0.165)	0.439 (0.368 - 0.509)	0.340 (0.316 - 0.364)	0.200 (0.153 - 0.257)
2012	Suppressed	Unreliable (0.023 - 0.107)	0.443 (0.374 - 0.513)	0.319 (0.297 - 0.342)	0.139 (0.102 - 0.184)
2013	Suppressed	Unreliable (0.067 - 0.178)	0.452 (0.382 - 0.522)	0.275 (0.254 - 0.296)	0.188 (0.143 - 0.242)
2014	Suppressed	0.109 (0.065 - 0.173)	0.385 (0.321 - 0.449)	0.271 (0.249 - 0.292)	0.151 (0.116 - 0.194)
2015	Suppressed	Unreliable (0.039 - 0.131)	0.353 (0.294 - 0.411)	0.278 (0.256 - 0.299)	0.152 (0.115 - 0.197)
2016	Suppressed	Unreliable (0.052 - 0.152)	0.367 (0.306 - 0.428)	0.259 (0.239 - 0.279)	0.147 (0.111 - 0.190)
2017		Unreliable (0.206 - 0.697)	0.108 (0.067 - 0.164)	0.289 (0.234 - 0.344)	0.260 (0.240 - 0.280)
2018	Suppressed	0.114 (0.072 - 0.171)	0.278 (0.227 - 0.330)	0.251 (0.229 - 0.273)	0.129 (0.097 - 0.167)
					0.134 (0.102 - 0.174)

2019	Suppressed	Unreliable (0.025 - 0.095)	0.245 (0.196 - 0.293)	0.233 (0.214 - 0.253)	0.128 (0.097 - 0.165)
2020	Suppressed	Unreliable (0.056 - 0.150)	0.420 (0.358 - 0.482)	0.308 (0.286 - 0.331)	0.190 (0.153 - 0.233)
2021	Suppressed	Suppressed	0.418 (0.354 - 0.482)	0.272 (0.251 - 0.292)	0.194 (0.156 - 0.232)
2022	Suppressed	Suppressed	0.310 (0.256 - 0.363)	0.261 (0.241 - 0.281)	0.105 (0.079 - 0.137)
2023	Suppressed	Suppressed	0.338 (0.283 - 0.393)	0.254 (0.233 - 0.275)	0.119 (0.090 - 0.153)

Supplementary Table SIV. AAMR for CVD-related deaths among individuals with intellectual disability and developmental disorders in the United States, 1999–2023 stratified by Census Region

Age-Adjusted Rate (Confidence Intervals)				
Year	Northeast	Midwest	South	West
1999	0.453 (0.397 - 0.51)	0.521 (0.465 - 0.577)	0.427 (0.386 - 0.468)	0.339 (0.292 - 0.386)
2000	0.463 (0.406 - 0.52)	0.500 (0.446 - 0.555)	0.386 (0.347 - 0.425)	0.332 (0.284 - 0.38)
2001	0.443 (0.388 - 0.499)	0.521 (0.464 - 0.577)	0.328 (0.293 - 0.363)	0.273 (0.232 - 0.314)
2002	0.478 (0.421 - 0.534)	0.499 (0.444 - 0.554)	0.360 (0.323 - 0.397)	0.309 (0.266 - 0.353)
2003	0.429 (0.374 - 0.483)	0.451 (0.399 - 0.504)	0.365 (0.328 - 0.402)	0.318 (0.272 - 0.363)
2004	0.391 (0.339 - 0.442)	0.478 (0.426 - 0.531)	0.350 (0.315 - 0.386)	0.324 (0.280 - 0.369)
2005	0.384 (0.335 - 0.433)	0.498 (0.445 - 0.551)	0.314 (0.281 - 0.347)	0.322 (0.279 - 0.366)
2006	0.366 (0.317 - 0.416)	0.438 (0.388 - 0.488)	0.322 (0.288 - 0.355)	0.323 (0.280 - 0.365)
2007	0.326 (0.280 - 0.371)	0.470 (0.419 - 0.520)	0.304 (0.272 - 0.336)	0.338 (0.293 - 0.384)
2008	0.356 (0.307 - 0.405)	0.478 (0.428 - 0.528)	0.316 (0.283 - 0.349)	0.288 (0.247 - 0.328)

2009	0.337 (0.291 - 0.383)	0.364 (0.319 - 0.408)	0.286 (0.256 - 0.316)	0.284 (0.245 - 0.323)
2010	0.343 (0.295 - 0.392)	0.387 (0.340 - 0.433)	0.287 (0.256 - 0.319)	0.244 (0.208 - 0.281)
2011	0.339 (0.294 - 0.384)	0.405 (0.360 - 0.451)	0.306 (0.274 - 0.339)	0.282 (0.242 - 0.322)
2012	0.347 (0.299 - 0.396)	0.389 (0.343 - 0.435)	0.304 (0.272 - 0.336)	0.282 (0.242 - 0.321)
2013	0.327 (0.282 - 0.372)	0.354 (0.310 - 0.399)	0.276 (0.246 - 0.306)	0.236 (0.201 - 0.272)
2014	0.316 (0.270 - 0.362)	0.336 (0.294 - 0.379)	0.227 (0.201 - 0.253)	0.237 (0.202 - 0.272)
2015	0.309 (0.265 - 0.353)	0.293 (0.252 - 0.333)	0.252 (0.224 - 0.280)	0.214 (0.183 - 0.246)
2016	0.276 (0.234 - 0.317)	0.309 (0.268 - 0.349)	0.239 (0.212 - 0.266)	0.239 (0.204 - 0.275)
2017	0.263 (0.223 - 0.303)	0.325 (0.285 - 0.366)	0.188 (0.165 - 0.211)	0.254 (0.219 - 0.289)
2018	0.248 (0.208 - 0.288)	0.291 (0.251 - 0.331)	0.183 (0.161 - 0.206)	0.213 (0.181 - 0.246)
2019	0.237 (0.198 - 0.277)	0.276 (0.240 - 0.313)	0.187 (0.165 - 0.210)	0.191 (0.161 - 0.220)

	0.331	0.314	0.277	0.276
2020	(0.287 -	(0.274 -	(0.249 -	(0.240
	0.375)	0.354)	0.305)	-
				0.311)
	0.305	0.326	0.248	0.263
2021	(0.264 -	(0.285 -	(0.221 -	(0.228
	0.347)	0.368)	0.274)	-
				0.298)
	0.250	0.314	0.199	0.238
2022	(0.214 -	(0.273 -	(0.177 -	(0.202
	0.285)	0.355)	0.222)	-
				0.274)
	0.263	0.226	0.212	0.222
2023	(0.225 -	(0.194 -	(0.188 -	(0.190
	0.302)	0.259)	0.236)	-
				0.253)

Supplementary Table SV. AAMR for CVD-related deaths among individuals with intellectual disability and developmental disorders in the United States, 1999–2023 stratified by 2013 urbanization.

Age-Adjusted Rate (Confidence Intervals)		
Year	Urban	Rural
1999	0.388 (0.362 - 0.414)	0.697 (0.622 - 0.772)
2000	0.345 (0.321 - 0.369)	0.711 (0.637 - 0.785)
2001	0.327 (0.304 - 0.351)	0.624 (0.556 - 0.693)
2002	0.347 (0.323 - 0.371)	0.701 (0.627 - 0.775)
2003	0.330 (0.308 - 0.353)	0.587 (0.520 - 0.654)
2004	0.343 (0.320 - 0.367)	0.620 (0.551 - 0.689)
2005	0.320 (0.298 - 0.342)	0.619 (0.551 - 0.688)
2006	0.312 (0.291 - 0.334)	0.549 (0.484 - 0.614)
2007	0.301 (0.280 - 0.322)	0.568 (0.504 - 0.633)
2008	0.313 (0.291 - 0.335)	0.601 (0.535 - 0.667)
2009	0.275 (0.255 - 0.294)	0.492 (0.432 - 0.552)
2010	0.263 (0.244 - 0.283)	0.513 (0.450 - 0.576)
2011	0.272 (0.252 - 0.291)	0.530 (0.468 - 0.593)
2012	0.282 (0.262 - 0.302)	0.492 (0.433 - 0.552)
2013	0.259 (0.240 - 0.278)	0.408 (0.355 - 0.460)
2014	0.255 (0.236 - 0.275)	0.411 (0.357 - 0.465)
2015	0.218 (0.201 - 0.234)	0.413 (0.358 - 0.468)
2016	0.245 (0.227 - 0.264)	0.408 (0.355 - 0.462)
2017	0.217 (0.200 - 0.233)	0.366 (0.314 - 0.418)
2018	0.209 (0.192 - 0.226)	0.321 (0.274 - 0.367)
2019	0.186 (0.171 - 0.201)	0.374 (0.321 - 0.427)
2020	0.269 (0.251 - 0.288)	0.436 (0.381 - 0.491)

Supplementary Table SVI. AAMR and total deaths for CVD-related deaths among individuals with intellectual disability and developmental disorders in the United States, 1999–2020 stratified by states.

State	Deaths	Age Adjusted Rate	% of Total Deaths
Alabama	366	0.328	1.56%
Alaska	24	0.155	0.10%
Arizona	135	0.104	0.58%
Arkansas	210	0.302	0.90%
California	3194	0.383	13.62%
Colorado	157	0.157	0.67%
Connecticut	300	0.341	1.28%
Delaware	64	0.32	0.27%
District of Columbia	55	0.424	0.24%
Florida	744	0.169	3.17%
Georgia	538	0.27	2.29%
Hawaii	134	0.407	0.57%
Idaho	53	0.135	0.23%
Illinois	957	0.319	4.08%
Indiana	612	0.418	2.61%
Iowa	448	0.556	1.91%
Kansas	213	0.315	0.91%
Kentucky	378	0.368	1.61%
Louisiana	279	0.263	1.19%
Maine	142	0.389	0.61%
Maryland	461	0.349	1.97%
Massachusetts	512	0.335	2.18%
Michigan	584	0.248	2.49%
Minnesota	534	0.395	2.28%
Mississippi	367	0.547	1.57%
Missouri	490	0.323	2.09%
Montana	58	0.233	0.25%
Nebraska	254	0.572	1.08%
Nevada	28	0.027	0.12%
New Hampshire	68	0.217	0.29%
New Jersey	572	0.261	2.44%
New Mexico	79	0.184	0.34%
New York	1827	0.406	7.79%
North Carolina	812	0.362	3.46%
North Dakota	150	0.882	0.64%
Ohio	1643	0.563	7.01%
Oklahoma	451	0.525	1.92%
Oregon	185	0.192	0.79%
Pennsylvania	1224	0.362	5.22%
Rhode Island	102	0.371	0.44%
South Carolina	400	0.367	1.71%
South Dakota	105	0.52	0.45%
Tennessee	520	0.343	2.22%
Texas	1369	0.252	5.84%
Utah	98	0.209	0.42%

Vermont	60	0.374	0.26%
Virginia	440	0.235	1.88%
Washington	215	0.147	0.92%
West Virginia	323	0.671	1.38%
Wisconsin	476	0.33	2.03%
Wyoming	40	0.326	0.17%
