***Estimated Prevalence and Incidence of Amyotrophic Lateral Sclerosis and SOD1 and C9orf72 Genetic Variants***

Carolyn A. Browna,b, Cathy Lallya, Varant Kupelianc, W. Dana Flandersa,b

a Epidemiologic Research and Methods LLC, Atlanta, GA, USA

b Rollins School of Public Health, Department of Epidemiology, Atlanta, GA, USA

c Biogen, Cambridge, MA, USA

# Supplemental Material

**Supplemental Table 1.** Included incidence studies by region and country

|  |  |  |
| --- | --- | --- |
| **Region/country** | **Author and year** | **Incidence per 100,000** |
| China | Fong 2005 [1] | 0.60 |
| China | Zhou 2018 [2] | 0.77 |
| China | Xu 2020 [3] | 1.65 |
| South Korea | Kim 2018 [4] | 1.68 |
| Taiwan | Tsai 2015 [5] | 0.54 |
| *Regional estimate* |  | *0.93* |
| **Europe** |  |  |
| France | Marin 2014 [6] | 3.24 |
| France | Marin 2009 [7] | 3.09 |
| France | Masseret 2013 [8] | 2.53 |
| France | Preux 2000 [9] | 4.90 |
| Germany | Rosenbohm 2017 [10] | 2.40 |
| Germany | Wolf 2014 [11] | 1.80 |
| Germany | Uenal 2014 [12] | 2.60 |
| Ireland | Otoole 2008 [13] | 1.90 |
| Ireland | Traynor 1999 [14] | 2.10 |
| Italy | Chio 2008 [15] | 2.90 |
| Italy | Chio 2017 [16] | 3.50 |
| Italy | Cima 2009 [17] | 1.54 |
| Italy | Georgoulopoulou 2011 [18] | 2.90 |
| Italy | Mandrioli 2014 [19] | 2.68 |
| Italy | Palese 2019 [20] | 2.81 |
| Italy | Piemonte 2001 [21] | 2.50 |
| Italy | Ragonese 2012 [22] | 1.95 |
| Italy | Scialo 2016 [23] | 3.11 |
| Italy | Nicoletti 2016 [24] | 2.00 |
| Italy | Tesauro 2017 [25] | 4.17 |
| Italy | Bandettini di Poggio 2013 [26] | 3.22 |
| Italy | Pugliatti 2013 [27] | 2.50 |
| Italy | Mandrioli 2003 [28] | 2.16 |
| Italy | Logroscino 2005 [29] | 1.60 |
| Italy | Drigo 2013 [30] | 2.72 |
| Italy | Beghi 2007 [32] | 2.20 |
| Italy | Giagheddu 2013 [33]{Giagheddu, 2013 #515} | 1.45 |
| Netherlands | Huisman 2011 [35] | 2.27 |
| Norway | Benjaminsen 2018 [36] | 2.00 |
| Norway | Gundersen 2011 [37] | 2.13 |
| Russia | Brylev 2020 [38] | 1.25 |
| Spain | Pradas 2013 [39] | 1.40 |
| Spain | Aragones 2016 [40] | 2.74 |
| Sweden | Fang 2009 [41] | 3.73 |
| UK | Abhinav 2007 [42] | 1.06 |
| UK | Johnston 2006 [43] | 1.20 |
| UK | Forbes 2007 [44] | 2.44 |
| UK (Ireland) | Logroscino 2010 [45] | 1.97 |
| UK (England and Scotland) | Logroscino 2010 [45] | 2.13 |
| *Regional estimate* |  | *2.31* |
| **North America** |  |  |
| Canada | Golby 2016 [46] | 3.29 |
| Canada | Lareau-Trudel 2013 [47] | 3.01 |
| Canada | Bonaparte 2007 [48] | 2.24 |
| USA | Harper 2015 [49] | 2.20 |
| USA | Wagner 2016 [50] | 1.52 |
| *Regional estimate* |  | *2.35* |
| **Latin America** |  |  |
| Argentina | Bettini 2013 [51] | 3.17 |
| Brazil | Dietrich-Neto 2000 [52] | 0.40 |
| Uruguay | Vazquez 2008 [53] | 1.42 |
| Colombia | Zapata 2019 [54] | 1.40 |
| *Regional estimate* |  | *1.25* |
| Japan | Doi 2014 [55] | 1.76 |
| *Country estimate* |  | 1.76 |

**Supplemental Table 2.** Included prevalence studies by region and country

|  |  |  |
| --- | --- | --- |
| **Region/country** | **Author and year** | **Prevalence per 100,000** |
| China | Fong 2005 [1] | 3.07 |
| China | Xu 2020 [3] | 2.91 |
| South Korea | Kim 2018 [4] | 6.49 |
| Taiwan | Tsai 2015 [5] | 2.09 |
| Taiwan | Hsu 2018 [58] | 2.04 |
|  |  |  |
| *Regional estimate* |  | *3.01* |
| **Region Europe** |  |  |
| Belgium | Roy 2015 [59] | 3.20 |
| Ireland | Lefter 2017 [60] | 7.20 |
| Ireland | Otoole 2008 [13] | 6.40 |
| Ireland | Traynor 1999 [14] | 4.70 |
| Italy | Chio 2017 [16] | 12.26 |
| Italy | Palese 2019 [20] | 7.97 |
| Italy | Scialo 2016 [23] | 7.85 |
| Italy | Pugliatti 2013 [27] | 10.80 |
| Italy | Mandrioli 2003 [28] | 4.63 |
| Italy | Drigo 2013 [30] | 5.27 |
| Italy | Chio 2009 [31] | 7.89 |
| Netherlands | Huisman 2011 [35] | 8.51 |
| Norway | Benjaminsen 2018 [36] | 3.69 |
| Norway | Gundersen 2011 [37] | 4.05 |
| Norway | Nakken 2018 [61] | 7.63 |
| Spain | Pradas 2013 [39] | 5.40 |
| Spain | Aragones 2016 [40] | 8.38 |
| UK | Abhinav 2007 [42] | 3.99 |
| UK | Johnston 2006 [43] | 4.06 |
|  |  |  |
| *Region estimate* |  | *6.23* |
| **Single study** |  |  |
| USA | Mehta 2018 [62] | 5.20 |
| Canada |
| **Region Latin America** |  |  |
| Argentina | Bettini 2013 [51] | 8.86 |
| Brazil | Dietrich-Neto 2000 [52] | 1.20 |
| Brazil | Linden-Junior 2013 [63] | 5.00 |
| Uruguay | Vazquez 2008 [53] | 2.01 |
| Colombia | Zapata 2019 [54] | 4.90 |
|  |  |  |
| *Region estimate* |  | *3.41* |
| **No region assigned** |  |
| Japan | Doi 2014 [55] | 7.96 |
|  |  |  |

**Supplemental Table 3.** ALS prevalence and incidence by country

**Argentina**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **2020** | **2021** | **2022** | **2023** | **2024** |
| Total prevalent cases | 1,542  | 1,556  | 1,569  | 1,583  | 1,596  |
| Total incident cases | 564 | 569 | 574 | 579 | 584 |
| Persons living with fALS | 79 | 79 | 80 | 81 | 81 |
| Persons living with sALS | 1,463  | 1,477  | 1,489  | 1,502  | 1,515  |
| Incident cases fALS | 29 | 29 | 29 | 30 | 30 |
| Incident cases sALS | 535 | 540 | 545 | 549 | 554 |
| ALS cases due to SOD1 |   |   |   |   |   |
| Persons living with SOD1 from fALS | 12 | 12 | 12 | 12 | 12 |
| Persons living with SOD1 from sALS | 18 | 18 | 18 | 18 | 18 |
| Incident cases SOD1 from fALS | 4 | 4 | 4 | 4 | 4 |
| Incident cases SOD1 from sALS | 6 | 6 | 7 | 7 | 7 |
| ALS cases due to C9orf72 |   |   |   |   |   |
| Persons living with C9orf72 from fALS | 27 | 27 | 27 | 27 | 27 |
| Persons living with C9orf72 from sALS | 75 | 75 | 76 | 77 | 77 |
| Incident cases C9orf72 from fALS | 10 | 10 | 10 | 10 | 10 |
| Incident cases C9orf72 from sALS | 27 | 28 | 28 | 28 | 28 |

ALS, amyotrophic lateral sclerosis; fALS, familial amyotrophic lateral sclerosis; sALS, sporadic amyotrophic lateral sclerosis; SOD1, superoxide dismutase 1.

**Belgium**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **2020** | **2021** | **2022** | **2023** | **2024** |
| Total prevalent cases | 716 | 719 | 721 | 723 | 725 |
| Total incident cases | 265 | 266 | 267 | 268 | 268 |
| Persons living with fALS | 37 | 37 | 37 | 37 | 37 |
| Persons living with sALS | 679 | 682 | 684 | 686 | 688 |
| Incident cases fALS | 14 | 14 | 14 | 14 | 14 |
| Incident cases sALS | 251 | 252 | 253 | 254 | 254 |
| ALS cases due to SOD1 |  |  |  |  |  |
| Persons living with SOD1 from fALS | 5 | 5 | 5 | 5 | 5 |
| Persons living with SOD1 from sALS | 8 | 8 | 8 | 8 | 8 |
| Incident cases SOD1 from fALS | 2 | 2 | 2 | 2 | 2 |
| Incident cases SOD1 from sALS | 3 | 3 | 3 | 3 | 3 |
| ALS cases due to C9orf72 |  |  |  |  |  |
| Persons living with C9orf72 from fALS | 12 | 12 | 12 | 12 | 12 |
| Persons living with C9orf72 from sALS | 35 | 35 | 35 | 35 | 35 |
| Incident cases C9orf72 from fALS | 5 | 5 | 5 | 5 | 5 |
| Incident cases C9orf72 from sALS | 13 | 13 | 13 | 13 | 13 |

ALS, amyotrophic lateral sclerosis; fALS, familial amyotrophic lateral sclerosis; sALS, sporadic amyotrophic lateral sclerosis; SOD1, superoxide dismutase 1.

**Brazil**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **2020** | **2021** | **2022** | **2023** | **2024** |
| Total prevalent cases | 6,589 | 6,634 | 6,676 | 6,716 | 6,754 |
| Total incident cases | 2,653  | 2,671  | 2,688  | 2,704  | 2,719  |
| Persons living with fALS | 336 | 338 | 340 | 343 | 344 |
| Persons living with sALS | 6,253 | 6,296 | 6,336 | 6,373 | 6,410 |
| Incident cases fALS | 135 | 136 | 137 | 138 | 139 |
| Incident cases sALS | 2,518  | 2,535  | 2,551  | 2,566  | 2,580  |
| ALS cases due to SOD1 |   |   |   |   |   |
| Persons living with SOD1 from fALS | 50 | 50 | 50 | 51 | 51 |
| Persons living with SOD1 from sALS | 75 | 76 | 76 | 76 | 77 |
| Incident cases SOD1 from fALS | 20 | 20 | 20 | 20 | 21 |
| Incident cases SOD1 from sALS | 30 | 30 | 31 | 31 | 31 |
| ALS cases due to C9orf72 |   |   |   |   |   |
| Persons living with C9orf72 from fALS | 113 | 114 | 115 | 116 | 116 |
| Persons living with C9orf72 from sALS | 319 | 321 | 323 | 325 | 327 |
| Incident cases C9orf72 from fALS | 45 | 46 | 46 | 47 | 47 |
| Incident cases C9orf72 from sALS | 128 | 129 | 130 | 131 | 132 |

ALS, amyotrophic lateral sclerosis; fALS, familial amyotrophic lateral sclerosis; sALS, sporadic amyotrophic lateral sclerosis; SOD1, superoxide dismutase 1.**Canada**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **2020** | **2021** | **2022** | **2023** | **2024** |
| Total prevalent cases | 1,969 | 1,991 | 2,012 | 2,033 | 2,054 |
| Total incident cases | 1,165  | 1,178  | 1,191  | 1,203  | 1,216  |
| Persons living with fALS | 100 | 102 | 103 | 104 | 105 |
| Persons living with sALS | 1,869 | 1,889 | 1,909 | 1,929 | 1,949 |
| Incident cases fALS | 59 | 60 | 61 | 61 | 62 |
| Incident cases sALS | 1,106  | 1,118  | 1,130  | 1,142  | 1,154  |
| ALS cases due to SOD1 |   |   |   |   |   |
| Persons living with SOD1 from fALS | 15 | 15 | 15 | 15 | 16 |
| Persons living with SOD1 from sALS | 22 | 23 | 23 | 23 | 23 |
| Incident cases SOD1 from fALS | 9 | 9 | 9 | 9 | 9 |
| Incident cases SOD1 from sALS | 13 | 13 | 14 | 14 | 14 |
| ALS cases due to C9orf72 |   |   |   |   |   |
| Persons living with C9orf72 from fALS | 34 | 34 | 35 | 35 | 35 |
| Persons living with C9orf72 from sALS | 95 | 96 | 97 | 98 | 99 |
| Incident cases C9orf72 from fALS | 20 | 20 | 21 | 21 | 21 |
| Incident cases C9orf72 from sALS | 56 | 57 | 58 | 58 | 59 |

ALS, amyotrophic lateral sclerosis; fALS, familial amyotrophic lateral sclerosis; sALS, sporadic amyotrophic lateral sclerosis; SOD1, superoxide dismutase 1.

**China**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **2020** | **2021** | **2022** | **2023** | **2024** |
| Total prevalent cases | 43,036 | 43,182 | 43,309 | 43,419 | 43,512 |
| Total incident cases | 13,184  | 13,229  | 13,268  | 13,301  | 13,330  |
| Persons living with fALS | 2,195 | 2,202 | 2,209 | 2,214 | 2,219 |
| Persons living with sALS | 40,841 | 40,980 | 41,100 | 41,205 | 41,293 |
| Incident cases fALS | 672 | 675 | 677 | 678 | 680 |
| Incident cases sALS | 12,512  | 12,554  | 12,591  | 12,623  | 12,650  |
| ALS cases due to SOD1 |   |   |   |   |   |
| Persons living with SOD1 from fALS | 659 | 661 | 663 | 664 | 666 |
| Persons living with SOD1 from sALS | 613 | 615 | 617 | 618 | 619 |
| Incident cases SOD1 from fALS | 202 | 203 | 203 | 203 | 204 |
| Incident cases SOD1 from sALS | 188 | 188 | 189 | 189 | 190 |
| ALS cases due to C9orf72 |   |   |   |   |   |
| Persons living with C9orf72 from fALS | 50 | 51 | 51 | 51 | 51 |
| Persons living with C9orf72 from sALS | 123 | 123 | 123 | 124 | 124 |
| Incident cases C9orf72 from fALS | 15 | 16 | 16 | 16 | 16 |
| Incident cases C9orf72 from sALS | 38 | 38 | 38 | 38 | 38 |

ALS, amyotrophic lateral sclerosis; fALS, familial amyotrophic lateral sclerosis; sALS, sporadic amyotrophic lateral sclerosis; SOD1, superoxide dismutase 1.

**Colombia**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **2020** | **2021** | **2022** | **2023** | **2024** |
| Total prevalent cases | 1,736  | 1,749  | 1,757  | 1,763  | 1,768  |
| Total incident cases | 635 | 640 | 643 | 645 | 647 |
| Persons living with fALS | 89 | 89 | 90 | 90 | 90 |
| Persons living with sALS | 1,647  | 1,660  | 1,667  | 1,673  | 1,678  |
| Incident cases fALS | 32 | 33 | 33 | 33 | 33 |
| Incident cases sALS | 603 | 607 | 610 | 612 | 614 |
| ALS cases due to SOD1 |   |   |   |   |   |
| Persons living with SOD1 from fALS | 13 | 13 | 13 | 13 | 13 |
| Persons living with SOD1 from sALS | 20 | 20 | 20 | 20 | 20 |
| Incident cases SOD1 from fALS | 5 | 5 | 5 | 5 | 5 |
| Incident cases SOD1 from sALS | 7 | 7 | 7 | 7 | 7 |
| ALS cases due to C9orf72 |   |   |   |   |   |
| Persons living with C9orf72 from fALS | 30 | 30 | 30 | 30 | 30 |
| Persons living with C9orf72 from sALS | 84 | 85 | 85 | 85 | 86 |
| Incident cases C9orf72 from fALS | 11 | 11 | 11 | 11 | 11 |
| Incident cases C9orf72 from sALS | 31 | 31 | 31 | 31 | 31 |

ALS, amyotrophic lateral sclerosis; fALS, familial amyotrophic lateral sclerosis; sALS, sporadic amyotrophic lateral sclerosis; SOD1, superoxide dismutase 1.

**France**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **2020** | **2021** | **2022** | **2023** | **2024** |
| Total prevalent cases | 4,183  | 4,195  | 4,207  | 4,218  | 4,230  |
| Total incident cases | 2,229  | 2,235  | 2,241  | 2,247  | 2,253  |
| Persons living with fALS | 213 | 214 | 215 | 215 | 216 |
| Persons living with sALS | 3,970  | 3,981  | 3,992  | 4,003  | 4,014  |
| Incident cases fALS | 114 | 114 | 114 | 115 | 115 |
| Incident cases sALS | 2,115  | 2,121  | 2,127  | 2,132  | 2,138  |
| ALS cases due to SOD1 |   |   |   |   |   |
| Persons living with SOD1 from fALS | 32 | 32 | 32 | 32 | 32 |
| Persons living with SOD1 from sALS | 48 | 48 | 48 | 48 | 48 |
| Incident cases SOD1 from fALS | 17 | 17 | 17 | 17 | 17 |
| Incident cases SOD1 from sALS | 25 | 25 | 26 | 26 | 26 |
| ALS cases due to C9orf72 |   |   |   |   |   |
| Persons living with C9orf72 from fALS | 72 | 72 | 72 | 72 | 73 |
| Persons living with C9orf72 from sALS | 202 | 203 | 204 | 204 | 205 |
| Incident cases C9orf72 from fALS | 38 | 38 | 38 | 39 | 39 |
| Incident cases C9orf72 from sALS | 108 | 108 | 108 | 109 | 109 |

ALS, amyotrophic lateral sclerosis; fALS, familial amyotrophic lateral sclerosis; sALS, sporadic amyotrophic lateral sclerosis; SOD1, superoxide dismutase 1.

**Germany**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **2020** | **2021** | **2022** | **2023** | **2024** |
| Total prevalent cases | 5,177  | 5,185  | 5,192  | 5,197  | 5,202  |
| Total incident cases | 1,881  | 1,884  | 1,887  | 1,889  | 1,890  |
| Persons living with fALS | 264 | 264 | 265 | 265 | 265 |
| Persons living with sALS | 4,913  | 4,921  | 4,927  | 4,932  | 4,937  |
| Incident cases fALS | 96 | 96 | 96 | 96 | 96 |
| Incident cases sALS | 1,785  | 1,788  | 1,791  | 1,793  | 1,794  |
| ALS cases due to SOD1 |   |   |   |   |   |
| Persons living with SOD1 from fALS | 39 | 39 | 39 | 39 | 39 |
| Persons living with SOD1 from sALS | 59 | 59 | 59 | 59 | 59 |
| Incident cases SOD1 from fALS | 14 | 14 | 14 | 14 | 14 |
| Incident cases SOD1 from sALS | 21 | 21 | 21 | 22 | 22 |
| ALS cases due to C9orf72 |   |   |   |   |   |
| Persons living with C9orf72 from fALS | 89 | 89 | 89 | 89 | 89 |
| Persons living with C9orf72 from sALS | 251 | 251 | 251 | 252 | 252 |
| Incident cases C9orf72 from fALS | 32 | 32 | 32 | 32 | 32 |
| Incident cases C9orf72 from sALS | 91 | 91 | 91 | 91 | 91 |

ALS, amyotrophic lateral sclerosis; fALS, familial amyotrophic lateral sclerosis; sALS, sporadic amyotrophic lateral sclerosis; SOD1, superoxide dismutase 1.

**Ireland**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **2020** | **2021** | **2022** | **2023** | **2024** |
| Total prevalent cases | 299 | 304 | 308 | 311 | 315 |
| Total incident cases | 99 | 100 | 102 | 103 | 104 |
| Persons living with fALS | 15 | 16 | 16 | 16 | 16 |
| Persons living with sALS | 284 | 288 | 292 | 295 | 299 |
| Incident cases fALS | 5 | 5 | 5 | 5 | 5 |
| Incident cases sALS | 94 | 95 | 97 | 98 | 99 |
| ALS cases due to SOD1 |  |  |  |  |  |
| Persons living with SOD1 from fALS | 2 | 2 | 2 | 2 | 2 |
| Persons living with SOD1 from sALS | 3 | 3 | 4 | 4 | 4 |
| Incident cases SOD1 from fALS | 1 | 1 | 1 | 1 | 1 |
| Incident cases SOD1 from sALS | 1 | 1 | 1 | 1 | 1 |
| ALS cases due to C9orf72 |  |  |  |  |  |
| Persons living with C9orf72 from fALS | 5 | 5 | 5 | 5 | 5 |
| Persons living with C9orf72 from sALS | 14 | 15 | 15 | 15 | 15 |
| Incident cases C9orf72 from fALS | 2 | 2 | 2 | 2 | 2 |
| Incident cases C9orf72 from sALS | 5 | 5 | 5 | 5 | 5 |

ALS, amyotrophic lateral sclerosis; fALS, familial amyotrophic lateral sclerosis; sALS, sporadic amyotrophic lateral sclerosis; SOD1, superoxide dismutase 1.

**Italy**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **2020** | **2021** | **2022** | **2023** | **2024** |
| Total prevalent cases | 4,729  | 4,719  | 4,709  | 4,699  | 4,688  |
| Total incident cases | 1,476  | 1,473  | 1,470  | 1,467  | 1,464  |
| Persons living with fALS | 241 | 241 | 240 | 240 | 239 |
| Persons living with sALS | 4,488  | 4,478  | 4,469  | 4,459  | 4,449  |
| Incident cases fALS | 75 | 75 | 75 | 75 | 75 |
| Incident cases sALS | 1,401  | 1,398  | 1,395  | 1,392  | 1,389  |
| ALS cases due to SOD1 |   |   |   |   |   |
| Persons living with SOD1 from fALS | 36 | 36 | 36 | 36 | 35 |
| Persons living with SOD1 from sALS | 54 | 54 | 54 | 54 | 53 |
| Incident cases SOD1 from fALS | 11 | 11 | 11 | 11 | 11 |
| Incident cases SOD1 from sALS | 17 | 17 | 17 | 17 | 17 |
| ALS cases due to C9orf72 |   |   |   |   |   |
| Persons living with C9orf72 from fALS | 81 | 81 | 81 | 81 | 81 |
| Persons living with C9orf72 from sALS | 229 | 228 | 228 | 227 | 227 |
| Incident cases C9orf72 from fALS | 25 | 25 | 25 | 25 | 25 |
| Incident cases C9orf72 from sALS | 71 | 71 | 71 | 71 | 71 |

ALS, amyotrophic lateral sclerosis; fALS, familial amyotrophic lateral sclerosis; sALS, sporadic amyotrophic lateral sclerosis; SOD1, superoxide dismutase 1.

**Japan**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **2020** | **2021** | **2022** | **2023** | **2024** |
| Total prevalent cases | 10,071  | 10,037  | 10,000  | 9,960  | 9,917  |
| Total incident cases | 2,227  | 2,220  | 2,212  | 2,203  | 2,193  |
| Persons living with fALS | 514 | 512 | 510 | 508 | 506 |
| Persons living with sALS | 9,557  | 9,525  | 9,490  | 9,452  | 9,411  |
| Incident cases fALS | 114 | 113 | 113 | 112 | 112 |
| Incident cases sALS | 2,113  | 2,107  | 2,099  | 2,091  | 2,081  |
| ALS cases due to SOD1 |   |   |   |   |   |
| Persons living with SOD1 from fALS | 154 | 154 | 153 | 152 | 152 |
| Persons living with SOD1 from sALS | 143 | 143 | 142 | 142 | 141 |
| Incident cases SOD1 from fALS | 34 | 34 | 34 | 34 | 34 |
| Incident cases SOD1 from sALS | 32 | 32 | 31 | 31 | 31 |
| ALS cases due to C9orf72 |   |   |   |   |   |
| Persons living with C9orf72 from fALS | 12 | 12 | 12 | 12 | 12 |
| Persons living with C9orf72 from sALS | 29 | 29 | 28 | 28 | 28 |
| Incident cases C9orf72 from fALS | 3 | 3 | 3 | 3 | 3 |
| Incident cases C9orf72 from sALS | 6 | 6 | 6 | 6 | 6 |

ALS, amyotrophic lateral sclerosis; fALS, familial amyotrophic lateral sclerosis; sALS, sporadic amyotrophic lateral sclerosis; SOD1, superoxide dismutase 1.

**Mexico**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **2020** | **2021** | **2022** | **2023** | **2024** |
| Total prevalent cases | 4,398  | 4,443  | 4,488  | 4,531  | 4,573  |
| Total incident cases | 1,609  | 1,626  | 1,642  | 1,658  | 1,673  |
| Persons living with fALS | 224 | 227 | 229 | 231 | 233 |
| Persons living with sALS | 4,174  | 4,216  | 4,259  | 4,300  | 4,340  |
| Incident cases fALS | 82 | 83 | 84 | 85 | 85 |
| Incident cases sALS | 1,527  | 1,543  | 1,558  | 1,573  | 1,588  |
| ALS cases due to SOD1 |   |   |   |   |   |
| Persons living with SOD1 from fALS | 33 | 34 | 34 | 34 | 34 |
| Persons living with SOD1 from sALS | 50 | 51 | 51 | 52 | 52 |
| Incident cases SOD1 from fALS | 12 | 12 | 12 | 13 | 13 |
| Incident cases SOD1 from sALS | 18 | 19 | 19 | 19 | 19 |
| ALS cases due to C9orf72 |   |   |   |   |   |
| Persons living with C9orf72 from fALS | 75 | 76 | 77 | 78 | 79 |
| Persons living with C9orf72 from sALS | 213 | 215 | 217 | 219 | 221 |
| Incident cases C9orf72 from fALS | 28 | 28 | 28 | 29 | 29 |
| Incident cases C9orf72 from sALS | 78 | 79 | 79 | 80 | 81 |

ALS, amyotrophic lateral sclerosis; fALS, familial amyotrophic lateral sclerosis; sALS, sporadic amyotrophic lateral sclerosis; SOD1, superoxide dismutase 1.

**Netherlands**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **2020** | **2021** | **2022** | **2023** | **2024** |
| Total prevalent cases | 1,083 | 1,089 | 1,094 | 1,098 | 1,102 |
| Total incident cases | 401 | 403 | 405 | 407 | 408 |
| Persons living with fALS | 55 | 56 | 56 | 56 | 56 |
| Persons living with sALS | 1,028 | 1,033 | 1,038 | 1,042 | 1,046 |
| Incident cases fALS | 20 | 21 | 21 | 21 | 21 |
| Incident cases sALS | 381 | 382 | 384 | 386 | 387 |
| ALS cases due to SOD1 |  |  |  |  |  |
| Persons living with SOD1 from fALS | 8 | 8 | 8 | 8 | 8 |
| Persons living with SOD1 from sALS | 12 | 12 | 12 | 13 | 13 |
| Incident cases SOD1 from fALS | 3 | 3 | 3 | 3 | 3 |
| Incident cases SOD1 from sALS | 5 | 5 | 5 | 5 | 5 |
| ALS cases due to C9orf72 |  |  |  |  |  |
| Persons living with C9orf72 from fALS | 19 | 19 | 19 | 19 | 19 |
| Persons living with C9orf72 from sALS | 52 | 53 | 53 | 53 | 53 |
| Incident cases C9orf72 from fALS | 7 | 7 | 7 | 7 | 7 |
| Incident cases C9orf72 from sALS | 19 | 19 | 20 | 20 | 20 |

ALS, amyotrophic lateral sclerosis; fALS, familial amyotrophic lateral sclerosis; sALS, sporadic amyotrophic lateral sclerosis; SOD1, superoxide dismutase 1.

**Norway**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **2020** | **2021** | **2022** | **2023** | **2024** |
| Total prevalent cases | 284 | 286 | 288 | 290 | 292 |
| Total incident cases | 111 | 112 | 112 | 113 | 114 |
| Persons living with fALS | 14 | 15 | 15 | 15 | 15 |
| Persons living with sALS | 270 | 271 | 273 | 275 | 277 |
| Incident cases fALS | 6 | 6 | 6 | 6 | 6 |
| Incident cases sALS | 105 | 106 | 106 | 107 | 108 |
| ALS cases due to SOD1 |  |  |  |  |  |
| Persons living with SOD1 from fALS | 2 | 2 | 2 | 2 | 2 |
| Persons living with SOD1 from sALS | 3 | 3 | 3 | 3 | 3 |
| Incident cases SOD1 from fALS | 1 | 1 | 1 | 1 | 1 |
| Incident cases SOD1 from sALS | 1 | 1 | 1 | 1 | 1 |
| ALS cases due to C9orf72 |  |  |  |  |  |
| Persons living with C9orf72 from fALS | 5 | 5 | 5 | 5 | 5 |
| Persons living with C9orf72 from sALS | 14 | 14 | 14 | 14 | 14 |
| Incident cases C9orf72 from fALS | 2 | 2 | 2 | 2 | 2 |
| Incident cases C9orf72 from sALS | 5 | 5 | 5 | 5 | 6 |

ALS, amyotrophic lateral sclerosis; fALS, familial amyotrophic lateral sclerosis; sALS, sporadic amyotrophic lateral sclerosis; SOD1, superoxide dismutase 1.

**Russia**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **2020** | **2021** | **2022** | **2023** | **2024** |
| Total prevalent cases | 9,084 | 9,083 | 9,076 | 9,065 | 9,051 |
| Total incident cases | 3,365 | 3,365 | 3,362 | 3,358 | 3,353 |
| Persons living with fALS | 463 | 463 | 463 | 462 | 462 |
| Persons living with sALS | 8,621 | 8,620 | 8,613 | 8,603 | 8,589 |
| Incident cases fALS | 172 | 172 | 171 | 171 | 171 |
| Incident cases sALS | 3,193 | 3,193 | 3,191 | 3,187 | 3,182 |
| ALS cases due to SOD1 |  |  |  |  |  |
| Persons living with SOD1 from fALS | 69 | 69 | 69 | 68 | 68 |
| Persons living with SOD1 from sALS | 103 | 103 | 103 | 103 | 103 |
| Incident cases SOD1 from fALS | 25 | 25 | 25 | 25 | 25 |
| Incident cases SOD1 from sALS | 38 | 38 | 38 | 38 | 38 |
| ALS cases due to C9orf72 |  |  |  |  |  |
| Persons living with C9orf72 from fALS | 156 | 156 | 156 | 156 | 156 |
| Persons living with C9orf72 from sALS | 440 | 440 | 439 | 439 | 438 |
| Incident cases C9orf72 from fALS | 58 | 58 | 58 | 58 | 58 |
| Incident cases C9orf72 from sALS | 163 | 163 | 163 | 163 | 162 |

ALS, amyotrophic lateral sclerosis; fALS, familial amyotrophic lateral sclerosis; sALS, sporadic amyotrophic lateral sclerosis; SOD1, superoxide dismutase 1.

**South Korea**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **2020** | **2021** | **2022** | **2023** | **2024** |
| Total prevalent cases | 1,544 | 1,545 | 1,546 | 1,546 | 1,547 |
| Total incident cases | 478 | 478 | 478 | 479 | 479 |
| Persons living with fALS | 79 | 79 | 79 | 79 | 79 |
| Persons living with sALS | 1,465 | 1,466 | 1,467 | 1,467 | 1,468 |
| Incident cases fALS | 24 | 24 | 24 | 24 | 24 |
| Incident cases sALS | 454 | 454 | 454 | 455 | 455 |
| ALS cases due to SOD1 |  |  |  |  |  |
| Persons living with SOD1 from fALS | 24 | 24 | 24 | 24 | 24 |
| Persons living with SOD1 from sALS | 22 | 22 | 22 | 22 | 22 |
| Incident cases SOD1 from fALS | 7 | 7 | 7 | 7 | 7 |
| Incident cases SOD1 from sALS | 7 | 7 | 7 | 7 | 7 |
| ALS cases due to C9orf72 |  |  |  |  |  |
| Persons living with C9orf72 from fALS | 2 | 2 | 2 | 2 | 2 |
| Persons living with C9orf72 from sALS | 4 | 4 | 4 | 4 | 4 |
| Incident cases C9orf72 from fALS | 1 | 1 | 1 | 1 | 1 |
| Incident cases C9orf72 from sALS | 1 | 1 | 1 | 1 | 1 |

ALS, amyotrophic lateral sclerosis; fALS, familial amyotrophic lateral sclerosis; sALS, sporadic amyotrophic lateral sclerosis; SOD1, superoxide dismutase 1.

**Spain**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **2020** | **2021** | **2022** | **2023** | **2024** |
| Total prevalent cases | 3,242 | 3,250 | 3,257 | 3,264 | 3,271 |
| Total incident cases | 974 | 976 | 979 | 981 | 983 |
| Persons living with fALS | 165 | 166 | 166 | 166 | 167 |
| Persons living with sALS | 3,077 | 3,084 | 3,091 | 3,098 | 3,104 |
| Incident cases fALS | 50 | 50 | 50 | 50 | 50 |
| Incident cases sALS | 924 | 926 | 929 | 931 | 933 |
| ALS cases due to SOD1 |   |   |   |   |   |
| Persons living with SOD1 from fALS | 24 | 25 | 25 | 25 | 25 |
| Persons living with SOD1 from sALS | 37 | 37 | 37 | 37 | 37 |
| Incident cases SOD1 from fALS | 7 | 7 | 7 | 7 | 7 |
| Incident cases SOD1 from sALS | 11 | 11 | 11 | 11 | 11 |
| ALS cases due to C9orf72 |   |   |   |   |   |
| Persons living with C9orf72 from fALS | 56 | 56 | 56 | 56 | 56 |
| Persons living with C9orf72 from sALS | 157 | 157 | 158 | 158 | 158 |
| Incident cases C9orf72 from fALS | 17 | 17 | 17 | 17 | 17 |
| Incident cases C9orf72 from sALS | 47 | 47 | 47 | 47 | 48 |

ALS, amyotrophic lateral sclerosis; fALS, familial amyotrophic lateral sclerosis; sALS, sporadic amyotrophic lateral sclerosis; SOD1, superoxide dismutase 1.

**Sweden**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **2020** | **2021** | **2022** | **2023** | **2024** |
| Total prevalent cases | 643 | 648 | 654 | 659 | 664 |
| Total incident cases | 238 | 240 | 242 | 244 | 246 |
| Persons living with fALS | 33 | 33 | 33 | 34 | 34 |
| Persons living with sALS | 610 | 615 | 621 | 625 | 630 |
| Incident cases fALS | 12 | 12 | 12 | 12 | 13 |
| Incident cases sALS | 226 | 228 | 230 | 232 | 233 |
| ALS cases due to SOD1 |  |  |  |  |  |
| Persons living with SOD1 from fALS | 5 | 5 | 5 | 5 | 5 |
| Persons living with SOD1 from sALS | 7 | 7 | 7 | 8 | 8 |
| Incident cases SOD1 from fALS | 2 | 2 | 2 | 2 | 2 |
| Incident cases SOD1 from sALS | 3 | 3 | 3 | 3 | 3 |
| ALS cases due to C9orf72 |  |  |  |  |  |
| Persons living with C9orf72 from fALS | 11 | 11 | 11 | 11 | 11 |
| Persons living with C9orf72 from sALS | 31 | 31 | 32 | 32 | 32 |
| Incident cases C9orf72 from fALS | 4 | 4 | 4 | 4 | 4 |
| Incident cases C9orf72 from sALS | 12 | 12 | 12 | 12 | 12 |

ALS, amyotrophic lateral sclerosis; fALS, familial amyotrophic lateral sclerosis; sALS, sporadic amyotrophic lateral sclerosis; SOD1, superoxide dismutase 1.

**Taiwan**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **2020** | **2021** | **2022** | **2023** | **2024** |
| Total prevalent cases | 491 | 492 | 493 | 493 | 494 |
| Total incident cases | 222 | 222 | 223 | 223 | 223 |
| Persons living with fALS | 25 | 25 | 25 | 25 | 25 |
| Persons living with sALS | 466 | 467 | 468 | 468 | 469 |
| Incident cases fALS | 11 | 11 | 11 | 11 | 11 |
| Incident cases sALS | 211 | 211 | 212 | 212 | 212 |
| ALS cases due to SOD1 |  |  |  |  |  |
| Persons living with SOD1 from fALS | 8 | 8 | 8 | 8 | 8 |
| Persons living with SOD1 from sALS | 7 | 7 | 7 | 7 | 7 |
| Incident cases SOD1 from fALS | 3 | 3 | 3 | 3 | 3 |
| Incident cases SOD1 from sALS | 3 | 3 | 3 | 3 | 3 |
| ALS cases due to C9orf72 |  |  |  |  |  |
| Persons living with C9orf72 from fALS | 1 | 1 | 1 | 1 | 1 |
| Persons living with C9orf72 from sALS | 1 | 1 | 1 | 1 | 1 |
| Incident cases C9orf72 from fALS | 0 | 0 | 0 | 0 | 0 |
| Incident cases C9orf72 from sALS | 1 | 1 | 1 | 1 | 1 |

ALS, amyotrophic lateral sclerosis; fALS, familial amyotrophic lateral sclerosis; sALS, sporadic amyotrophic lateral sclerosis; SOD1, superoxide dismutase 1.

**UK**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **2020** | **2021** | **2022** | **2023** | **2024** |
| Total prevalent cases | 2,683  | 2,700  | 2,718  | 2,736  | 2,754  |
| Total incident cases | 1,080  | 1,087  | 1,094  | 1,101  | 1,109  |
| Persons living with fALS | 137 | 138 | 139 | 140 | 140 |
| Persons living with sALS | 2,546  | 2,562  | 2,579  | 2,596  | 2,614  |
| Incident cases fALS | 55 | 55 | 56 | 56 | 57 |
| Incident cases sALS | 1,025  | 1,032  | 1,038  | 1,045  | 1,052  |
| ALS cases due to SOD1 |   |   |   |   |   |
| Persons living with SOD1 from fALS | 20 | 20 | 21 | 21 | 21 |
| Persons living with SOD1 from sALS | 31 | 31 | 31 | 31 | 31 |
| Incident cases SOD1 from fALS | 8 | 8 | 8 | 8 | 8 |
| Incident cases SOD1 from sALS | 12 | 12 | 12 | 13 | 13 |
| ALS cases due to C9orf72 |   |   |   |   |   |
| Persons living with C9orf72 from fALS | 46 | 47 | 47 | 47 | 47 |
| Persons living with C9orf72 from sALS | 130 | 131 | 132 | 132 | 133 |
| Incident cases C9orf72 from fALS | 19 | 19 | 19 | 19 | 19 |
| Incident cases C9orf72 from sALS | 52 | 53 | 53 | 53 | 54 |

ALS, amyotrophic lateral sclerosis; fALS, familial amyotrophic lateral sclerosis; sALS, sporadic amyotrophic lateral sclerosis; SOD1, superoxide dismutase 1.

**Uruguay**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **2020** | **2021** | **2022** | **2023** | **2024** |
| Total prevalent cases | 118 | 119 | 119 | 120 | 120 |
| Total incident cases | 43 | 43 | 44 | 44 | 44 |
| Persons living with fALS | 6 | 6 | 6 | 6 | 6 |
| Persons living with sALS | 112 | 113 | 113 | 114 | 114 |
| Incident cases fALS | 2 | 2 | 2 | 2 | 2 |
| Incident cases sALS | 41 | 41 | 42 | 42 | 42 |
| ALS cases due to SOD1 |  |  |  |  |  |
| Persons living with SOD1 from fALS | 1 | 1 | 1 | 1 | 1 |
| Persons living with SOD1 from sALS | 1 | 1 | 1 | 1 | 1 |
| Incident cases SOD1 from fALS | 0 | 0 | 0 | 0 | 0 |
| Incident cases SOD1 from sALS | 0 | 0 | 1 | 1 | 1 |
| ALS cases due to C9orf72 |  |  |  |  |  |
| Persons living with C9orf72 from fALS | 2 | 2 | 2 | 2 | 2 |
| Persons living with C9orf72 from sALS | 6 | 6 | 6 | 6 | 6 |
| Incident cases C9orf72 from fALS | 1 | 1 | 1 | 1 | 1 |
| Incident cases C9orf72 from sALS | 2 | 2 | 2 | 2 | 2 |

ALS, amyotrophic lateral sclerosis; fALS, familial amyotrophic lateral sclerosis; sALS, sporadic amyotrophic lateral sclerosis; SOD1, superoxide dismutase 1.

**USA**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **2020** | **2021** | **2022** | **2023** | **2024** |
| Total prevalent cases | 17,394 | 17,530 | 17,664 | 17,798 | 17,930 |
| Total incident cases | 6,222 | 6,270 | 6,318 | 6,366 | 6,414 |
| Persons living with fALS | 887 | 894 | 901 | 908 | 914 |
| Persons living with sALS | 16,507 | 16,636 | 16,763 | 16,890 | 17,016 |
| Incident cases fALS | 317 | 320 | 322 | 325 | 327 |
| Incident cases sALS | 5,905 | 5,950 | 5,996 | 6,041 | 6,087 |
| ALS cases due to SOD1 |   |   |   |   |   |
| Persons living with SOD1 from fALS | 131 | 132 | 133 | 134 | 135 |
| Persons living with SOD1 from sALS | 198 | 200 | 201 | 203 | 204 |
| Incident cases SOD1 from fALS | 47 | 47 | 48 | 48 | 48 |
| Incident cases SOD1 from sALS | 71 | 71 | 72 | 72 | 73 |
| ALS cases due to C9orf72 |   |   |   |   |   |
| Persons living with C9orf72 from fALS | 299 | 301 | 304 | 306 | 308 |
| Persons living with C9orf72 from sALS | 842 | 848 | 855 | 861 | 868 |
| Incident cases C9orf72 from fALS | 107 | 108 | 109 | 110 | 110 |
| Incident cases C9orf72 from sALS | 301 | 303 | 306 | 308 | 310 |

ALS, amyotrophic lateral sclerosis; fALS, familial amyotrophic lateral sclerosis; sALS, sporadic amyotrophic lateral sclerosis; SOD1, superoxide dismutase 1.

References

1. Fong GC, Cheng TS, Lam K, Cheng WK, Mok KY, Cheung CM, et al. An epidemiological study of motor neuron disease in Hong Kong. Amyotrophic lateral sclerosis and other motor neuron disorders : official publication of the World Federation of Neurology, Research Group on Motor Neuron Diseases. 2005 Sep;6(3):164–8.

2. Zhou S, Qian S, Li X, Zheng L, Chang W, Wang L. Using the capture-recapture method to estimate the incidence of amyotrophic lateral sclerosis in Beijing, China. Neuroepidemiology. 2018;50(1-2):29–34.

3. Xu L, Chen L, Wang S, Feng J, Liu L, Liu G, et al. Incidence and prevalence of amyotrophic lateral sclerosis in urban China: a national population-based study. J Neurol Neurosurg Psychiatry. 2020 May;91(5):520–5.

4. Kim JM, Park JH, Kim HS, Lee JW, Lim HS, Choi WA, et al. Epidemiology and diagnostic process of amyotrophic lateral sclerosis as distinct from myelopathy: 5-year cohort study of whole-population in South Korea. Amyotroph Lateral Scler Frontotemporal Degener. 2018 Nov;19(7-8):547-54.

5. Tsai CP, Wang KC, Hwang CS, Lee IT, Lee CT. Incidence, prevalence, and medical expenditures of classical amyotrophic lateral sclerosis in Taiwan, 1999-2008. J Formos Med Assoc. 2015 Jul;114(7):612-9.

6. Marin B, Hamidou B, Couratier P, Nicol M, Delzor A, Raymondeau M, et al. Population-based epidemiology of amyotrophic lateral sclerosis (ALS) in an ageing Europe--the French register of ALS in Limousin (FRALim register). European journal of neurology. 2014 Oct;21(10):1292–300, e78–9.

7. Marin B, Gil J, Preux PM, Funalot B, Couratier P. Incidence of amyotrophic lateral sclerosis in the Limousin region of France, 1997-2007. Amyotroph Lateral Scler. 2009 Aug;10(4):216–20.

8. Masseret E, Banack S, Boumédiène F, Abadie E, Brient L, Pernet F, et al. Dietary BMAA exposure in an amyotrophic lateral sclerosis cluster from southern France. PLoS One. 2013;8(12):e83406.

9. Preux PM, Druet-Cabanac M, Couratier P, Debrock C, Truong T, Marcharia W, et al. Estimation of the amyotrophic lateral sclerosis incidence by capture-recapture method in the Limousin region of France. J Clin Epidemiol. 2000 Oct;53(10):1025–9.

10. Rosenbohm A, Peter RS, Erhardt S, Lulé D, Rothenbacher D, Ludolph AC, et al. Epidemiology of amyotrophic lateral sclerosis in Southern Germany. Journal of neurology. 2017 Apr;264(4):749–57.

11. Wolf J, Wöhrle JC, Palm F, Nix WA, Maschke M, Safer A, et al. Incidence of amyotrophic lateral sclerosis in Rhineland-Palatinate, Germany. Amyotroph Lateral Scler Frontotemporal Degener. 2014 Jun;15(3-4):269–74.

12. Uenal H, Rosenbohm A, Kufeldt J, Weydt P, Goder K, Ludolph A, et al. Incidence and geographical variation of amyotrophic lateral sclerosis (ALS) in Southern Germany--completeness of the ALS registry Swabia. PLoS One. 2014;9(4):e93932.

13. O'Toole O, Traynor BJ, Brennan P, Sheehan C, Frost E, Corr B, et al. Epidemiology and clinical features of amyotrophic lateral sclerosis in Ireland between 1995 and 2004. J Neurol Neurosurg Psychiatry. 2008 Jan;79(1):30-2.

14. Traynor BJ, Codd MB, Corr B, Forde C, Frost E, Hardiman O. Incidence and prevalence of ALS in Ireland, 1995-1997: a population-based study. Neurology. 1999 Feb;52(3):504-9.

15. Chiò A, Traynor BJ, Lombardo F, Fimognari M, Calvo A, Ghiglione P, et al. Prevalence of SOD1 mutations in the Italian ALS population. Neurology. 2008 Feb 12;70(7):533–7.

16. Chiò A, Mora G, Moglia C, Manera U, Canosa A, Cammarosano S, et al. Secular trends of amyotrophic lateral sclerosis: the Piemonte and Valle d'Aosta Register. JAMA neurology. 2017 Sep 1;74(9):1097–104.

17. Cima V, Logroscino G, D'Ascenzo C, Palmieri A, Volpe M, Briani C, et al. Epidemiology of ALS in Padova district, Italy, from 1992 to 2005. European journal of neurology. 2009 Aug;16(8):920–4.

18. Georgoulopoulou E, Vinceti M, Bonvicini F, Sola P, Goldoni CA, De Girolamo G, et al. Changing incidence and subtypes of ALS in Modena, Italy: a 10-years prospective study. Amyotroph Lateral Scler. 2011 Nov;12(6):451–7.

19. Mandrioli J, Biguzzi S, Guidi C, Venturini E, Sette E, Terlizzi E, et al. Epidemiology of amyotrophic lateral sclerosis in Emilia Romagna Region (Italy): a population based study. Amyotroph Lateral Scler Frontotemporal Degener. 2014 Jun;15(3-4):262–8.

20. Palese F, Sartori A, Verriello L, Ros S, Passadore P, Manganotti P, et al. Epidemiology of amyotrophic lateral sclerosis in Friuli-Venezia Giulia, North-Eastern Italy, 2002-2014: a retrospective population-based study. Amyotroph Lateral Scler Frontotemporal Degener. 2019 Feb;20(1-2):90–9.

21. Piemonte and Valle d'Aosta Register for ALS (PARALS). Incidence of ALS in Italy: evidence for a uniform frequency in Western countries. Neurology. 2001 Jan 23;56(2):239–44.

22. Ragonese P, Cellura E, Aridon P, D'Amelio M, Spataro R, Taiello AC, et al. Incidence of amyotrophic lateral sclerosis in Sicily: a population based study. Amyotroph Lateral Scler. 2012 May;13(3):284–7.

23. Scialò C, Novi G, Bandettini di Poggio M, Canosa A, Sormani MP, Mandich P, et al. Clinical epidemiology of amyotrophic lateral sclerosis in Liguria, Italy: an update of LIGALS register. Amyotroph Lateral Scler Frontotemporal Degener. 2016 Oct-Nov;17(7-8):535–42.

24. Nicoletti A, Vasta R, Venti V, Mostile G, Lo Fermo S, Patti F, et al. The epidemiology of amyotrophic lateral sclerosis in the Mount Etna region: a possible pathogenic role of volcanogenic metals. European journal of neurology. 2016 May;23(5):964–72.

25. Tesauro M, Consonni M, Filippini T, Mazzini L, Pisano F, Chiò A, et al. Incidence of amyotrophic lateral sclerosis in the province of Novara, Italy, and possible role of environmental pollution. Amyotroph Lateral Scler Frontotemporal Degener. 2017 May;18(3-4):284–90.

26. Bandettini di Poggio M, Sormani MP, Truffelli R, Mandich P, Origone P, Verdiani S, et al. Clinical epidemiology of ALS in Liguria, Italy. Amyotroph Lateral Scler Frontotemporal Degener. 2013 Jan;14(1):52–7.

27. Pugliatti M, Parish LD, Cossu P, Leoni S, Ticca A, Saddi MV, et al. Amyotrophic lateral sclerosis in Sardinia, insular Italy, 1995-2009. Journal of neurology. 2013 Feb;260(2):572–9.

28. Mandrioli J, Faglioni P, Merelli E, Sola P. The epidemiology of ALS in Modena, Italy. Neurology. 2003 Feb 25;60(4):683–9.

29. Logroscino G, Beghi E, Zoccolella S, Palagano R, Fraddosio A, Simone IL, et al. Incidence of amyotrophic lateral sclerosis in southern Italy: a population based study. J Neurol Neurosurg Psychiatry. 2005 Aug;76(8):1094–8.

30. Drigo D, Verriello L, Clagnan E, Eleopra R, Pizzolato G, Bratina A, et al. The incidence of amyotrophic lateral sclerosis in Friuli Venezia Giulia, Italy, from 2002 to 2009: a retrospective population-based study. Neuroepidemiology. 2013;41(1):54–61.

31. Chiò A, Mora G, Calvo A, Mazzini L, Bottacchi E, Mutani R, et al. Epidemiology of ALS in Italy: a 10-year prospective population-based study. Neurology. 2009 Feb 24;72(8):725–31.

32. Beghi E, Millul A, Micheli A, Vitelli E, Logroscino G, SLALOM Group. Incidence of ALS in Lombardy, Italy. Neurology. 2007 Jan 9;68(2):141–5.

33. Giagheddu M, Puggioni G, Tacconi P, Pirastru MI, Cannas A, Tamburini G, et al. Amyotrophic lateral sclerosis in Sardinia (Italy): epidemiologic features from 1957 to 2000. Acta Neurol Scand. 2013 Apr;127(4):251–9.

34. Migliaretti G, Berchialla P, Dalmasso P, Cavallo F, Chiò A. Amyotrophic lateral sclerosis in Piedmont (Italy): a Bayesian spatial analysis of the incident cases. Amyotroph Lateral Scler Frontotemporal Degener. 2013 Jan;14(1):58–65.

35. Huisman MH, de Jong SW, van Doormaal PT, Weinreich SS, Schelhaas HJ, van der Kooi AJ, et al. Population based epidemiology of amyotrophic lateral sclerosis using capture-recapture methodology. J Neurol Neurosurg Psychiatry. 2011 Oct;82(10):1165-70.

36. Benjaminsen E, Alstadhaug KB, Gulsvik M, Baloch FK, Odeh F. Amyotrophic lateral sclerosis in Nordland county, Norway, 2000-2015: prevalence, incidence, and clinical features. Amyotroph Lateral Scler Frontotemporal Degener. 2018 Nov;19(7-8):522-27.

37. Gundersen MD, Yaseen R, Midgard R. Incidence and clinical features of amyotrophic lateral sclerosis in Møre and Romsdal County, Norway. Neuroepidemiology. 2011;37(1):58-63.

38. Brylev L, Ataulina A, Fominykh V, Parshikov V, Vorobyeva A, Istomina E, et al. The epidemiology of amyotrophic lateral sclerosis in Moscow (Russia). Amyotroph Lateral Scler Frontotemporal Degener. 2020 Aug;21(5-6):410-15.

39. Pradas J, Puig T, Rojas-García R, Viguera ML, Gich I, Logroscino G, et al. Amyotrophic lateral sclerosis in Catalonia: a population based study. Amyotroph Lateral Scler Frontotemporal Degener. 2013 May;14(4):278–83.

40. Aragones JM, Altimiras J, Roura-Poch P, Homs E, Bajo L, Povedano M, et al. Amyotrophic lateral sclerosis: a higher than expected incidence in people over 80 years of age. Amyotroph Lateral Scler Frontotemporal Degener. 2016 Oct-Nov;17(7-8):522–7.

41. Fang F, Valdimarsdottir U, Bellocco R, Ronnevi LO, Sparen P, Fall K, et al. Amyotrophic lateral sclerosis in Sweden, 1991-2005. Archives of Neurology. 2009;66(4):515-19.

42. Abhinav K, Stanton B, Johnston C, Hardstaff J, Orrell RW, Howard R, et al. Amyotrophic lateral sclerosis in South-East England: a population-based study. The South-East England register for amyotrophic lateral sclerosis (SEALS Registry). Neuroepidemiology. 2007;29(1-2):44–8.

43. Johnston CA, Stanton BR, Turner MR, Gray R, Blunt AH, Butt D, et al. Amyotrophic lateral sclerosis in an urban setting: a population based study of inner city London. Journal of neurology. 2006 Dec;253(12):1642–3.

44. Forbes RB, Colville S, Parratt J, Swingler RJ. The incidence of motor neuron disease in Scotland. Journal of neurology. 2007 Jul;254(7):866–9.

45. Logroscino G, Traynor BJ, Hardiman O, Chiò A, Mitchell D, Swingler RJ, et al. Incidence of amyotrophic lateral sclerosis in Europe. J Neurol Neurosurg Psychiatry. 2010 Apr;81(4):385–90.

46. Golby R, Poirier B, Fabros M, Cragg JJ, Yousefi M, Cashman N. Five-year incidence of amyotrophic lateral sclerosis in British Columbia (2010-2015). Can J Neurol Sci. 2016 Nov;43(6):791–5.

47. Lareau-Trudel E, Fortin E, Gauthier M, Lavoie S, Morissette E, Mathieu J. Epidemiological surveillance of amyotrophic lateral sclerosis in Saguenay region. Can J Neurol Sci. 2013 Sep;40(5):705–9.

48. Bonaparte JP, Grant IA, Benstead TJ, Murray TJ, Smith M. ALS incidence in Nova Scotia over a 20-year-period: a prospective study. Can J Neurol Sci. 2007 Feb;34(1):69–73.

49. Harper CJ, Sorenson EJ, Mandrekar J. Epidemiology of amyotrophic lateral sclerosis in Minnesota: a year-long population based study. Amyotroph Lateral Scler Frontotemporal Degener. 2015;16(7-8):520–3.

50. Wagner L, Rechtman L, Jordan H, Ritsick M, Sanchez M, Sorenson E, et al. State and metropolitan area-based amyotrophic lateral sclerosis (ALS) surveillance. Amyotroph Lateral Scler Frontotemporal Degener. 2015;17(1-2):128–34.

51. Bettini M, Vicens J, Giunta DH, Rugiero M, Cristiano E. Incidence and prevalence of amyotrophic lateral sclerosis in an HMO of Buenos Aires, Argentina. Amyotroph Lateral Scler Frontotemporal Degener. 2013 Dec;14(7-8):598–603.

52. Dietrich-Neto F, Callegaro D, Dias-Tosta E, Silva HA, Ferraz ME, Lima JM, et al. Amyotrophic lateral sclerosis in Brazil: 1998 national survey. Arq Neuropsiquiatr. 2000 Sep;58(3A):607–15.

53. Vázquez MC, Ketzoián C, Legnani C, Rega I, Sánchez N, Perna A, et al. Incidence and prevalence of amyotrophic lateral sclerosis in Uruguay: a population-based study. Neuroepidemiology. 2008;30(2):105–11.

54. Zapata-Zapata CH, Franco Dáger E, Aguirre-Acevedo DC, de Carvalho M, Solano-Atehortúa J. Prevalence, incidence, and clinical-epidemiological characterization of amyotrophic lateral sclerosis in Antioquia: Colombia. Neuroepidemiology. 2020;54(3):251–7.

55. Doi Y, Atsuta N, Sobue G, Morita M, Nakano I. Prevalence and incidence of amyotrophic lateral sclerosis in Japan. J Epidemiol. 2014 Aug 23;24(6):494–9.

56. Kihira T, Yoshida S, Hironishi M, Miwa H, Okamato K, Kondo T. Changes in the incidence of amyotrophic lateral sclerosis in Wakayama, Japan. Amyotrophic lateral sclerosis and other motor neuron disorders : official publication of the World Federation of Neurology, Research Group on Motor Neuron Diseases. 2005 Sep;6(3):155–63.

57. Kihira T, Yoshida S, Kondo T, Iwai K, Wada S, Morinaga S, et al. An increase in ALS incidence on the Kii Peninsula, 1960-2009: a possible link to change in drinking water source. Amyotroph Lateral Scler. 2012 Jun;13(4):347–50.

58. Hsu JC, Wu HC, Feng WC, Chou CH, Lai ECC, Lu CY. Disease and economic burden for rare diseases in Taiwan: A longitudinal study using Taiwan’s National Health Insurance Research Database. PLoS ONE. 2018;13(9).

59. Roy AJ, Van den Bergh P, Van Damme P, Doggen K, Van Casteren V. Early stages of building a rare disease registry, methods and 2010 data from the Belgian Neuromuscular Disease Registry (BNMDR). Acta Neurol Belg. 2015 Jun;115(2):97-104.

60. Lefter S, Hardiman O, Ryan AM. A population-based epidemiologic study of adult neuromuscular disease in the Republic of Ireland. Neurology. 2017 Jan 17;88(3):304-13.

61. Nakken O, Lindstrøm JC, Tysnes OB, Holmøy T. Assessing amyotrophic lateral sclerosis prevalence in Norway from 2009 to 2015 from compulsory nationwide health registers. Amyotroph Lateral Scler Frontotemporal Degener. 2018 May;19(3-4):303-10.

62. Mehta P, Kaye W, Raymond J, Punjani R, Larson T, Cohen J, et al. Prevalence of amyotrophic lateral sclerosis—United States, 2015. MMWR Morb Mortal Wkly Rep. 2018 Nov 23;67(46):1285–9.

63. Linden-Junior E, Becker J, Schestatsky P, Rotta FT, Marrone CD, Gomes I. Prevalence of amyotrophic lateral sclerosis in the city of Porto Alegre, in Southern Brazil. Arq Neuropsiquiatr. 2013 Dec;71(12):959–62.