

Urinary Glyphosate (N-(Phosphonomethyl)glycine) (2013 - 2018)†

CAS Number 1071-83-6

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	13-14	.411 (.376-.450)	.392 (.359-.436)	.656 (.573-.751)	1.11 (.961-1.32)	1.58 (1.35-1.83)	2310
Total population	15-16	.354 (.327-.383)	.328 (.296-.364)	.612 (.547-.682)	1.10 (.997-1.22)	1.60 (1.43-1.90)	2428
Total population	17-18	.263 (.237-.293)	.263 (.225-.298)	.501 (.425-.566)	.940 (.781-1.14)	1.35 (1.14-1.66)	2329
Age 3-5 years	15-16	.399 (.353-.452)	.392 (.299-.473)	.773 (.666-.902)	1.42 (1.11-1.61)	1.82 (1.58-2.32)	352
Age 3-5 years	17-18	.311 (.278-.348)	.318 (.260-.376)	.622 (.501-.778)	1.06 (.893-1.28)	1.43 (1.05-3.00)	325
Age 6-11 years	13-14	.515 (.437-.606)	.526 (.441-.602)	.891 (.620-1.18)	1.38 (1.15-1.78)	1.78 (1.39-2.30)	337
Age 6-11 years	15-16	.509 (.436-.595)	.518 (.432-.589)	.891 (.729-1.13)	1.61 (1.16-2.31)	2.31 (1.68-3.55)	324
Age 6-11 years	17-18	.405 (.341-.482)	.408 (.343-.525)	.828 (.545-1.08)	1.34 (1.04-1.74)	1.95 (1.32-2.93)	245
Age 12-19 years	13-14	.481 (.422-.547)	.456 (.387-.506)	.804 (.670-.963)	1.32 (1.02-1.65)	1.70 (1.32-2.06)	348
Age 12-19 years	15-16	.414 (.378-.454)	.410 (.348-.497)	.709 (.627-.747)	1.09 (.886-1.35)	1.46 (1.06-2.04)	309
Age 12-19 years	17-18	.289 (.256-.326)	.289 (.255-.338)	.547 (.416-.718)	.928 (.723-1.14)	1.35 (.928-1.90)	297
Age 20+ years	13-14	.392 (.358-.429)	.375 (.350-.410)	.613 (.527-.718)	1.03 (.907-1.25)	1.54 (1.18-1.86)	1625
Age 20+ years	15-16	.331 (.304-.360)	.296 (.265-.335)	.538 (.493-.630)	1.03 (.887-1.19)	1.54 (1.28-1.90)	1443
Age 20+ years	17-18	.246 (.218-.278)	.240 (.203-.282)	.456 (.370-.546)	.884 (.701-1.11)	1.30 (.961-1.82)	1462
Male	13-14	.421 (.380-.466)	.409 (.363-.468)	.680 (.595-.788)	1.15 (.974-1.36)	1.62 (1.27-1.97)	1153
Male	15-16	.372 (.337-.411)	.363 (.316-.408)	.654 (.551-.750)	1.10 (.970-1.26)	1.54 (1.36-1.89)	1208
Male	17-18	.277 (.247-.310)	.287 (.236-.323)	.501 (.436-.590)	.940 (.768-1.16)	1.34 (1.11-1.65)	1160
Female	13-14	.402 (.364-.445)	.379 (.347-.418)	.622 (.532-.744)	1.07 (.930-1.29)	1.56 (1.28-1.82)	1157
Female	15-16	.338 (.311-.367)	.302 (.256-.338)	.572 (.513-.630)	1.09 (.930-1.36)	1.66 (1.34-2.14)	1220
Female	17-18	.251 (.222-.283)	.241 (.204-.278)	.495 (.412-.566)	.956 (.757-1.14)	1.39 (1.06-1.96)	1169
Mexican American	13-14	.359 (.329-.391)	.358 (.327-.405)	.545 (.501-.606)	.815 (.742-.929)	1.07 (.916-1.37)	381
Mexican American	15-16	.340 (.312-.371)	.340 (.307-.375)	.547 (.477-.623)	.918 (.797-1.13)	1.41 (1.12-1.62)	493
Mexican American	17-18	.225 (.196-.257)	.212 (.175-.238)	.407 (.346-.496)	.761 (.598-.908)	.986 (.869-1.48)	367
Non-Hispanic black	13-14	.461 (.427-.498)	.446 (.389-.514)	.706 (.631-.780)	1.21 (.994-1.50)	1.64 (1.36-2.21)	464
Non-Hispanic black	15-16	.393 (.355-.434)	.384 (.317-.440)	.716 (.602-.861)	1.27 (1.02-1.55)	1.66 (1.36-2.19)	523
Non-Hispanic black	17-18	.297 (.247-.357)	.305 (.244-.372)	.560 (.435-.723)	1.00 (.838-1.18)	1.36 (1.11-1.74)	485
Non-Hispanic white	13-14	.417 (.374-.466)	.392 (.356-.449)	.662 (.573-.781)	1.17 (.926-1.54)	1.70 (1.35-1.90)	930
Non-Hispanic white	15-16	.353 (.315-.397)	.317 (.271-.368)	.610 (.523-.720)	1.12 (.961-1.44)	1.74 (1.41-2.27)	758
Non-Hispanic white	17-18	.281 (.247-.319)	.282 (.236-.328)	.536 (.423-.628)	1.01 (.793-1.28)	1.50 (1.11-1.90)	839
All Hispanic	13-14	.374 (.333-.419)	.364 (.320-.434)	.600 (.499-.703)	.920 (.787-1.08)	1.26 (1.07-1.39)	586
All Hispanic	15-16	.346 (.319-.375)	.341 (.301-.385)	.567 (.497-.638)	1.01 (.880-1.11)	1.42 (1.23-1.54)	804
All Hispanic	17-18	.232 (.210-.255)	.219 (.196-.238)	.429 (.364-.527)	.804 (.664-.981)	1.14 (.968-1.38)	577
Non-Hispanic Asian	13-14	.352 (.303-.409)	.349 (.295-.400)	.563 (.479-.707)	1.03 (.880-1.17)	1.34 (.997-2.28)	238
Non-Hispanic Asian	15-16	*	.218 (<LOD-.273)	.452 (.352-.529)	.794 (.638-.939)	1.26 (.830-1.86)	219
Non-Hispanic Asian	17-18	*	.139 (.110-.159)	.348 (.275-.406)	.727 (.619-.991)	1.14 (.853-1.47)	271

Limit of detection (LOD, see Data Analysis section) for Survey years 13-14, 15-16, and 17-18 are 0.2, 0.2, and 0.1, respectively.

<LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

† Participants are age 6+ years in Survey 13-14, beginning with Survey 15-16, participants include those age 3+ years.

Urinary Glyphosate (N-(Phosphonomethyl)glycine) (creatinine corrected) (2013 - 2018)†

CAS Number 1071-83-6

Geometric mean and selected percentiles of urine concentrations (in µg/g creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Demographic Categories	Survey (Years)	Geometric Mean (95% CI)	50th Percentile (95% CI)	75th Percentile (95% CI)	90th Percentile (95% CI)	95th Percentile (95% CI)	Sample Size
Total population	13-14	.443 (.406-.482)	.450 (.404-.486)	.753 (.689-.829)	1.17 (1.10-1.31)	1.60 (1.46-1.79)	2309
Total population	15-16	.373 (.351-.396)	.359 (.336-.380)	.613 (.561-.693)	1.01 (.952-1.09)	1.42 (1.30-1.52)	2427
Total population	17-18	.273 (.249-.299)	.265 (.244-.286)	.479 (.430-.533)	.874 (.710-1.01)	1.28 (1.03-1.58)	2329
Age 3-5 years	15-16	.900 (.804-1.01)	.876 (.722-1.01)	1.42 (1.19-1.86)	2.21 (1.89-2.64)	3.40 (2.45-4.18)	351
Age 3-5 years	17-18	.643 (.568-.729)	.635 (.533-.690)	.995 (.871-1.25)	1.74 (1.46-2.31)	2.46 (1.79-3.21)	325
Age 6-11 years	13-14	.653 (.579-.738)	.643 (.533-.775)	1.00 (.860-1.29)	1.70 (1.35-2.07)	2.26 (1.76-2.82)	337
Age 6-11 years	15-16	.640 (.553-.741)	.610 (.540-.729)	.983 (.821-1.16)	1.57 (1.32-2.16)	2.40 (1.61-4.63)	324
Age 6-11 years	17-18	.484 (.391-.600)	.550 (.367-.656)	.810 (.639-1.24)	1.46 (1.04-1.79)	1.79 (1.24-2.27)	245
Age 12-19 years	13-14	.414 (.372-.460)	.421 (.373-.472)	.676 (.626-.705)	.946 (.848-1.17)	1.34 (.976-2.09)	348
Age 12-19 years	15-16	.322 (.291-.357)	.314 (.288-.345)	.480 (.406-.557)	.716 (.564-.866)	.944 (.742-1.13)	309
Age 12-19 years	17-18	.245 (.223-.270)	.252 (.229-.286)	.412 (.340-.464)	.610 (.587-.705)	.751 (.635-.881)	297
Age 20+ years	13-14	.429 (.392-.469)	.428 (.391-.470)	.733 (.674-.802)	1.14 (1.10-1.27)	1.54 (1.38-1.69)	1624
Age 20+ years	15-16	.343 (.323-.366)	.336 (.307-.362)	.552 (.486-.639)	.940 (.848-.993)	1.20 (1.10-1.41)	1443
Age 20+ years	17-18	.250 (.226-.277)	.244 (.219-.267)	.427 (.371-.491)	.762 (.595-.949)	1.17 (.907-1.56)	1462
Male	13-14	.388 (.357-.421)	.397 (.353-.435)	.670 (.604-.738)	1.04 (.956-1.11)	1.26 (1.12-1.52)	1152
Male	15-16	.338 (.311-.368)	.323 (.290-.344)	.564 (.504-.639)	.944 (.842-1.01)	1.29 (1.09-1.43)	1208
Male	17-18	.245 (.225-.268)	.244 (.213-.271)	.419 (.369-.476)	.752 (.632-.904)	1.01 (.938-1.18)	1160
Female	13-14	.502 (.450-.559)	.504 (.447-.576)	.858 (.732-.958)	1.40 (1.24-1.49)	1.81 (1.61-2.00)	1157
Female	15-16	.409 (.379-.441)	.387 (.362-.417)	.679 (.586-.758)	1.12 (1.00-1.29)	1.57 (1.34-2.20)	1219
Female	17-18	.303 (.272-.337)	.290 (.251-.326)	.542 (.491-.592)	.970 (.729-1.28)	1.47 (1.11-2.31)	1169
Mexican American	13-14	.378 (.333-.429)	.373 (.328-.418)	.635 (.571-.683)	1.01 (.849-1.12)	1.24 (1.05-1.60)	380
Mexican American	15-16	.379 (.333-.431)	.355 (.312-.400)	.628 (.504-.742)	1.01 (.807-1.28)	1.32 (1.09-1.57)	493
Mexican American	17-18	.247 (.222-.275)	.230 (.195-.255)	.417 (.343-.486)	.836 (.681-1.09)	1.38 (.967-1.84)	367
Non-Hispanic black	13-14	.362 (.309-.423)	.346 (.283-.469)	.610 (.508-.707)	.939 (.791-1.07)	1.24 (1.01-1.60)	464
Non-Hispanic black	15-16	.328 (.303-.356)	.319 (.288-.354)	.588 (.522-.664)	.982 (.829-1.14)	1.39 (1.17-1.64)	522
Non-Hispanic black	17-18	.223 (.193-.258)	.208 (.182-.248)	.395 (.335-.465)	.710 (.566-.771)	.914 (.760-1.17)	485
Non-Hispanic white	13-14	.476 (.431-.526)	.480 (.435-.533)	.810 (.722-.910)	1.30 (1.13-1.48)	1.69 (1.49-2.04)	930
Non-Hispanic white	15-16	.385 (.354-.419)	.366 (.338-.403)	.641 (.543-.731)	1.07 (.942-1.16)	1.44 (1.28-1.76)	758
Non-Hispanic white	17-18	.297 (.264-.333)	.288 (.263-.323)	.496 (.447-.570)	.921 (.683-1.22)	1.40 (1.00-1.70)	839
All Hispanic	13-14	.391 (.349-.439)	.385 (.327-.444)	.668 (.596-.710)	1.01 (.856-1.14)	1.29 (1.12-1.55)	585
All Hispanic	15-16	.369 (.338-.402)	.344 (.313-.375)	.613 (.549-.673)	1.01 (.844-1.14)	1.36 (1.14-1.59)	804
All Hispanic	17-18	.248 (.229-.270)	.239 (.216-.253)	.446 (.386-.538)	.798 (.710-.931)	1.24 (.902-1.56)	577
Non-Hispanic Asian	13-14	.444 (.384-.512)	.446 (.384-.512)	.773 (.633-.929)	1.17 (.974-1.55)	1.55 (1.18-1.97)	238
Non-Hispanic Asian	15-16	*	.318 (<LOD-.392)	.564 (.440-.705)	.993 (.705-1.30)	1.41 (1.01-2.11)	219
Non-Hispanic Asian	17-18	*	.245 (.203-.288)	.454 (.384-.546)	.817 (.659-1.05)	1.13 (.804-1.45)	271

<LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

† Participants are age 6+ years in Survey 13-14, beginning with Survey 15-16, participants include those age 3+ years.