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Drug and chemical blood-level data 2001

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Abstract

Current blood-level data are presented for drugs and chemicals of toxicologic interest. The data represent an update of previously published compilations of therapeutic, toxic and lethal blood-levels.

Keywords: Drug blood-levels; Therapeutic drug levels; Toxic blood-levels; Lethal blood-levels

1. Introduction

Since first publishing a tabulation of therapeutic, toxic or lethal drug and chemical blood-level concentrations in the early 1970s [1], the data has been published in revised form numerous times in journals and in reference books [2–12]. The first published form was done by Fisher Scientific and consisted of one page of levels. There have been other authors that have published tables dealing with drug levels, but these have disappeared and have not been updated [13–15]. With the addition of new drug entities on an annual basis, it is now necessary to update and revise the blood-level data more frequently.

The same cautions that have been indicated in earlier publications still apply to the interpretation of the information of blood-levels contained in Table 1. Post-mortem redistribution is a more recent factor that must be taken into consideration. The first published paper dealing with post-mortem redistribution was published in 1971 [16]. At the time, the authors referred to post-mortem redistribution as post-mortem diffusion.

It should also be noted that this table does not apply to infants and children. The levels for infants and children can be calculated from the data using any one of the rules for calculation of dosage such as Young's, Cowling's, Fried's or Clark's. The method based on surface area as related to weight can also be used [17]. The surface area calculation is the one generally used.

The values in the table are not considered absolute, but are to be used as a guideline in evaluating a given case. The values can be affected by dose, route of administration, absorption differences, age, sex, tolerance, pathology or disease state, method of analysis, post-mortem redistribution, protein binding, active metabolites, total or free drug, etc. Users of the table are referred to Winek's Toxicology Annual [7] or Chapter 72 in Forensic Medicine [8]. For other tissue levels and pharmacokinetic data users are referred to Baselt's reference [18]. An important caution is that antemortem pharmacokinetics does not apply to the post-mortem state. There have been attempts to apply pharmacokinetics using a one compartment or two compartment system to consider the dose taken. Such pharmacokinetic methods do not apply to the morbid state.

2. Definition of blood-levels

2.1. Therapeutic blood-level

Winek defines a therapeutic blood-level as that concentration of drug and/or its active metabolite(s) present in the blood (serum or plasma) following therapeutically effective dosage in humans.

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Table 1
Drug and chemical blood-level data 2001

Drug	Therapeutic or normal		Toxic		Lethal	
	(mg%)	(μg/ml)	(mg%)	(μg/ml)	(mg%)	(μg/ml)
A						
Acebutolol (spectral)	0.05–0.12	0.5–1.2	–	–	–	–
Acetaminophen (tylenol)	1–2	10–20	15	150	>16	>160
Acetazolamide (diamox)	1.0–1.5	10–15	–	–	–	–
Acetohexamide (dymelor)	2.1–5.6	21–56	–	–	–	–
Acetone	–	–	20–30	200–300	55	550
Acetonitrile (met: to cyanide)	–	–	–	–	0.077	0.77
Acetylsalicylic acid (as met: salicylate — for analgesic use)	2–10	20–100	15–30	150–300	50	500
Acetylsalicylic acid (as met: salicylate — for rheumatoid arthritis)	2–25	20–250	–	–	–	–
Actidil (triprolidine)	0.0004–0.0044	0.004–0.044	–	–	–	–
Actifed (pseudoephedrine)	0.050–0.077	0.50–0.77	–	–	1.9	19
Actifed (triprolidine)	0.0004–0.0044	0.004–0.044	–	–	–	–
Actron (ketoprofen)	0.5–0.15	5–1.5	–	–	–	–
Adalat (nifedipine, procardia)	0.0015–0162	0.015–0.162	–	–	–	–
Alcaine (proparacaine)	–	–	–	–	1.5	1.5
Aldrin	0.00015	0.0015	0.00035	0.0035	–	–
Alfenta (alfentanil)	0.010–0.12	0.10–1.2	–	–	–	–
Alfentanil (alfenta)	0.010–0.12	0.10–1.2	–	–	–	–
Allegra (fexofenadine)	0.018–0.021	0.18–0.210	–	–	–	–
Alphaprodine (nisentil)	0.087–0.100	0.87–1.00	–	–	0.33	3.3
Alprazolam (xanax)	0.0025–0.0102	0.025–0.102	–	–	0.0122–0.039	0.122–0.39
Aluminum	0.013	0.13	–	–	–	–
Amantadine (symmetrel)	0.006–0.031	0.06–0.31	0.1–0.05	1–0.5	0.21–0.48	2.1–4.8
Ambien (zolpidem)	0.0029–0.0272	0.029–0.272	–	–	0.05–0.112	0.5–1.12
Aminophylline (theophylline)	1–2	10–20	3–4	30–40	5–25	50–250
Amitriptyline (elavil)	0.012–0.025	0.12–0.25	>0.05	>0.5	0.2–2.0	2–20
Amitriptyline (elavil) (+met: nortriptyline)	0.012–0.025	0.12–0.25	>0.05	>0.5	–	–
Ammonia	0.05–0.17	0.5–1.7	–	–	–	–
Amobarbital (amytal)	0.1–0.5	1–5	1–3	10–30	1.3–9.6	13–96
Amoxapine (asendin)	0.0017–0.021	0.017–0.21	–	–	0.295–2.0	2.95–20
Amoxapine (asendin) (+met: 8-OH-amoxapine)	0.02–0.04	0.2–0.4	–	–	–	–
Amphetamine	0.003–0.011	0.03–0.11	>0.05	>0.5	>0.1	>1
Amytal (amobarbital)	0.1–0.5	1–5	1–3	10–30	1.3–9.6	13–96
Anafranil (clomipramine)	0.01–0.045	0.1–0.45	–	–	–	–
Anaprox (naproxen)	3.1–12	31–120	40	400	–	–
Analeridine (leritine)	<0.05	<0.5	–	–	0.09–0.70	0.9–7.0
Aniline	–	–	–	–	0.63	
Ansaid (flubiprofen)	1–2.2	10–22	–	–	–	–
Antabuse (disulfiram)	0.038–0.25	0.38–2.5	–	–	37–58	370–580
Anti-pyrine	0.5–2.5	5–25	–	–	11	110
Aralen (chloroquine)	0.002–0.040	0.02–0.40	–	–	0.3–9.9	3–99
Arsenic	0.002–0.0062	0.02–0.062	0.1	1	0.9–1.5	9–15
Asendin (amoxapine)	0.0017–0.021	0.017–0.21	–	–	0.295–2.0	2.95–20
Asendin (amoxapine) (+met: 8-OH-amoxapine)	0.02–0.04	0.2–0.4	–	–	–	–
Astemizole (hismanal)	0.00004	0.0004				
Atarax (hydroxyzine, vistaril)	0.0022–0.008	0.022–0.08	–	–	0.4–3.9	4.2–39
Atenolol (tenorim)	0.02–0.07	0.20–0.70	3.5	35	–	–
Ativan (lorazepam)	0.001–0.024	0.01–0.24	0.03–0.06	0.3–0.6	–	–
Atromid (clofibrate)	12.2	122	–	–	–	–
Atropine	0.0035–0.0200	0.035–0.200	–	–	0.02	0.2

Table 1 (*Continued*)

Drug	Therapeutic or normal		Toxic		Lethal	
	(mg%)	(μg/ml)	(mg%)	(μg/ml)	(mg%)	(μg/ml)
Avelox (moxifluxacin)	0.45–1.44	4.5–14.4	–	–	–	–
Aventyl (nortriptyline) (met: amitriptyline (elavil))	0.005–0.0375	0.05–0.375	0.05	0.5	1.3	13
AZT (retrovir, zidovadine)	0.027–0.08	0.27–0.8	–	–	–	–
B						
Baclofen (lioresal)	0.01–0.06	0.1–0.6	0.11–0.35	1.1–3.5	–	–
Barbital	1–2.6	10–26	6–8	60–80	>10	>100
Barbiturates (intermediate acting)	0.1–0.5	1–5	1–3	10–30	>3	>30
Barbiturates (long acting)	1–4	10–40	4–6	40–60	>8	>80
Barbiturates (short acting)	0.1	1	0.7	7	1	10
Benadryl (diphenhydramine)	0.0025–0.0112	0.025–0.112	0.5	5	>0.8	>8
Benemid (probenecid)	10–20	100–200	–	–	–	–
Bentyl (dicyclomine)	0.002–0.008	0.02–0.08	–	–	–	–
Benzedrex (propylhexedrine)	0.001	0.01	–	–	0.2–0.3	2–3
Benzene	–	–	>0	>0	0.090–0.12	0.90–1.2
Benzphetamine (didrex)	0.0025–0.0500	0.025–0.500	>0.05	>0.5	1.4	14
Benztropine (cogentin)	0.008–0.0126	0.08–0.126	0.0048	0.048	0.02–0.07	0.2–0.7
Bethanid (bethanidine)	0.002–0.050	0.02–0.50	–	–	–	–
Bethanidine (bethanid)	0.002–0.050	0.02–0.50	–	–	–	–
Bismuth	0.004–0.008	0.04–0.08				
Blocadren (timolol)	0.004–0.023	0.04–0.23	–	–	–	–
Boron	0.08	0.8	4	40	5	50
Brethine (terbutaline)	0.0002–0.0006	0.002–0.006	–	–	0.004	0.04
Brevibloc (esmolol)	0.11–0.159	1.1–1.59	–	–	–	–
Bromide	0.30–23	3–230	50–150	500–1500	200	2000
Bromide (met: carbromal (carbital))	0.6	6	40–125	400–1250	128.5–245.0	1285–2450
Bropheniramine (dimetane)	0.0008–0.0015	0.008–0.015	–	–	–	–
Bupivacaine (marcaine)	0.022–0.345	0.22–3.45	1	10	–	–
Buprenex (buprenorphine)	0.0014–0.011	0.014–0.11	–	–	–	–
Buprenorphine (buprenex)	0.0014–0.011	0.014–0.11	–	–	–	–
Bupropion (wellbutrin)	0.0025–0.0100	0.025–0.100	–	–	0.73	7.3
Buspar (buspirone)	0.0088–0.0147	0.088–0.147	–	–	–	–
Buspirone (buspar)	0.0088–0.0147	0.088–0.147	–	–	0.73	7.3
Butabarbital (butisol)	0.76–1.69	7.6–16.9	–	–	>3	>30
Butalbital (sandoptal, fioricet, fiorinal)	0.17–0.26	1.7–2.6	0.7–4	7–40	1.3–2.6	13–26
Butanediol	–	–	–	–	28	280
Butaperazine (repoise)	0.002–0.069	0.02–0.69	–	–	–	–
Butazolidin (phenylbutazone)	1.6–15.0	16–150	20	200	40	400
Butisol (butabarbital)	0.76–1.69	7.6–16.9	–	–	>3	>30
Butorphanol (stadol)	0.00011–0.00017	0.0011–0.0017	–	–	–	–
Butyl nitrite (nitrite)	0.05–0.40	0.50–4	–	–	2.2	22
C						
Cadmium	0.00005–0.00040	0.0005–0.0040	0.005	0.05	0.11	1.1
Caffeine	0.2–1.0	2–10	–	–	>10	>100
Calan (isoptin, verapamil)	0.0055–0.0355	0.055–0.355	0.09	0.9	0.09–8.5	0.9–85
Captopril (capoten)	0.051–0.131	0.51–1.31	–	–	2–6	20–60
Capoten (captopril)	0.051–0.131	0.51–1.31	–	–	2–6	20–60
Carbamazepine (tegretol)	0.14–1.2	1.4–12	>1.5	>15	>5	>50
Carbital (carbromal) (as met: bromide)	0.6	6	40–125	400–1250	128.5–245.0	1285–2450
Carbocaine (mepivacaine)	0.028–0.550	0.28–5.50	1	10	5	50
Carbon monoxide (% hemoglobin as carboxyhemoglobin)	1–2%	–	15–35%	–	48–95%	–
Carbon tetrachloride	–	–	2–5	20–50	10–20	100–200
Carbromal (carbital) (as met: bromide)	0.6	6	40–125	400–1250	128.5–245.0	1285–2450

Table 1 (*Continued*)

Drug	Therapeutic or normal		Toxic		Lethal	
	(mg%)	(μg/ml)	(mg%)	(μg/ml)	(mg%)	(μg/ml)
Cardene (nicardipine)	0.0036–0.015	0.036–0.150	–	–	–	–
Cardizem (diltiazem)	0.005–0.04	0.05–0.40	0.37–0.61	3.7–6.1	0.67	6.7
Carisoprodol (soma)	1–4	10–40	3–5	30–50	11	110
Cataflam (voltaren, diclofenac)	0.075–0.20	0.75–2.0	0.6	6	–	–
Catapres (clonidine)	0.00003–0.00015	0.0003–0.0015	0.0006	0.006	0.023	0.23
Celexa (citalopram)	0.0081–0.016	0.081–0.16	–	–	0.024–0.13	0.24–1.3
Celontin (methsuximide) (as met: desmethylmethsuximide)	1.0–4	10–40	4.4	>44	–	–
Centrax (prazepam)	0.001–0.004	0.01–0.04	–	–	–	–
China white (methylfentanyl)	–	–	–	–	0.0002–0.0011	0.002–0.011
Chlor-trimeton (chlorpheniramine)	0.0017	0.017	2–3	20–30	–	–
Chloral hydrate (noctec) (as met: trichloroethanol)	0.2–1.2	2–12	10	100	25	250
Chloramphenicol (chloromycetin)	1–2	10–20	–	–	20	200
Chlorcyclizine	0.005–0.010	0.05–0.10				
Chlormepramine (plus metabolite — norchlormepramine)	–	–	–	–	0.015–0.055	0.15–0.55
Chlordane	0.0001	0.001	0.00025	0.0025	0.17–0.49	1.7–4.9
Chlordiazepoxide (librium)	0.067–0.31	0.67–3.1	0.5	5	2	20
Chlormezanone (trancopal)	0.25–0.88	2.5–8.8	–	–	–	–
Chloromycetin (chloramphenicol)	1–2	10–20	–	–	20	200
Chloroform	2–50	20–500	7–25	70–250	39	390
Chlorophen (chlorphentermine)	0.032	0.32	–	–	–	–
Chloroprocaine (nesacaine)	0.2–0.4	2–4	–	–	–	–
Chloroquine (aralen)	0.002–0.040	0.02–0.40	–	–	0.3–9.9	3–99
Chlorothiazide	0.6	6	–	–	–	–
Chlorpheniramine (chlor-trimeton)	0.001–0.0017	0.01–0.017	–	–	0.05–0.11	0.5–1.1
Chlorphentermine (chlorophen)	0.032	0.32	–	–	–	–
Chlorpromazine (thorazine)	0.001–0.050	0.01–0.50	0.1–0.2	1–2	0.3–1.2	3–12
Chlorpropamide (diabenese)	3.0–36.3	30–363	20–75	200–750	–	–
Chlorprothixene (taractan)	0.004–0.030	0.04–0.30	0.04–0.08	0.4–0.8	–	–
Chlor-trimeton (chlorpheniramine)	0.001–0.0017	0.01–0.017	–	–	0.05–0.11	0.5–1.1
Chlorthalidone (combipress)	0.021–0.140	0.21–1.40	–	–	–	–
Cimetidine (tagamet)	0.05–0.45	0.5–4.5	–	–	–	–
Citalopram (celexa)	0.0081–0.016	0.081–0.16	–	–	0.024–0.13	0.24–1.3
Citanest (prilocaine)	0.1–0.5	1–5	–	–	–	–
Claritin (loratidine)	0.0007–0.0028	0.007–0.028	0.046	0.46	–	–
(metabolite: descarboethoxyloratadine)	0.0007–0.0028	0.007–0.028	0.046	0.46	–	–
Clinoril (sulindac)	0.4–0.5	4–5	–	–	–	–
Clofibrate (atromid)	12.2	122	–	–	–	–
Clomipramine (anafranil)	0.01–0.045	0.1–0.45	–	–	–	–
Clonazepam (klonopin)	0.0007–0.0075	0.007–0.075	–	–	–	–
Clonidine (catepres)	0.00003–0.00015	0.0003–0.0015	0.0006	0.006	0.023	0.23
Clorazepate (tranxene) (as met: *N*-desmethyldiazepam)	0.01–0.16	0.1–1.6	>0.5	>5.0	–	–
Clozapine (clozaril)	0.0102–0.0771	0.102–0.771	–	–	–	–
Clozaril (clozapine)	0.0102–0.0771	0.102–0.771	–	–	–	–
Cocaine	0.005–0.093	0.05–0.930	0.09	0.9	0.1–2.0	1–20
Codeine	0.003–0.034	0.03–0.34	–	–	>0.16	>1.6
Cogentin (benztropine)	0.008–0.0126	0.08–0.126	0.0048	0.048	0.02–0.07	0.2–0.7
Colbenemid (colchicine)	0.00003–0.00300	0.0003–0.0300	–	–	0.0021–0.025	0.021–0.25
Colchicine (colbenemid)	0.00003–0.00300	0.0003–0.0300	–	–	0.0021–0.025	0.021–0.25
Combipress (chlorthalidone)	0.021–0.140	0.21–1.40	–	–	–	–
Compazine (prochlorperazine)	–	–	>0.1	>1	0.5	5
Copper	0.10–0.15	1.0–1.5	0.54	5.4	0.25–6.30	2.5–63.0
Coumadin (warfarin)	0.10–0.31	1.0–3.1	–	–	–	–
Cresol	–	–	–	–	0.90–1.90	9–19

Table 1 (*Continued*)

Drug	Therapeutic or normal		Toxic		Lethal	
	(mg%)	(μg/ml)	(mg%)	(μg/ml)	(mg%)	(μg/ml)
Cyanide	0.0004–0.0041	0.004–0.041	–	–	0.11–5.3	1.1–53
Cylert (pemoline)	0.07–0.62	0.70–6.2	–	–	–	–
Cyclizine	0.003–0.030	0.03–0.30	0.076	0.76	1.5	15
Cyclobenzaprine (flexeril)	0.0015–0.0036	0.015–0.036	–	–	>0.04	>0.4
Cyclopropane	8–18	80–180	–	–	–	–
Cyclosporine (sandimmune)	0.005–0.0045	0.05–0.045	–	–	–	–
D						
Dalmane (flurazepam)	0.00005–0.00280	0.0005–0.0280	0.02	0.2	0.05–0.40	0.5–4.0
Dalmane (flurazepam) (+met: *N*-desalkylflurazepam)	0.0033–0.0144	0.033–0.144	–	–	–	–
Dantrium (dantrolene)	0.1–0.3	1–3	–	–	–	–
Dantrolene (dantrium)	0.1–0.3	1–3	–	–	–	–
Darvon (propoxyphene)	0.023–0.107	0.23–1.07	0.03–0.06	0.3–0.6	0.1–1.7	1–17
Darvon (propoxyphene) (+met: norpropoxyphene)	0.104–0.371	1.04–3.71	0.28–1.2	2.8–12	0.27–4.7	2.7–47
DDT	0.0013	0.013	–	–	–	–
Demerol (meperidine)	0.007–0.080	0.07–0.80	0.5	5	0.8–2.0	8–20
Depakene (valproic acid)	5–10	50–100	0.71–20.0	7.1–200	–	–
Desipramine (norpramin) (met: imipramine (tofranil))	0.005–0.0684	0.05–0.684	>0.05	>0.5	1–2	10–20
Desmethylmethsuximide (met: celontin (methsuximide))	1.6–4	16–40	4.4	>44	–	–
Desyrel (trazodone)	0.07–0.489	0.7–4.89	–	–	1.5	15
Dextromethorphan	0.038	0.38	–	–	>0.3	>3
Diabenese (chlorpropamide)	3.0–36.3	30–363	20–75	200–750	–	–
Diacetalol	0.063–0.433	0.63–4.33	–	–	–	–
Diamox (acetazolamide)	1.0–1.5	10–15	–	–	–	–
Diazepam (valium)	0.002–0.400	0.02–4.00	0.5–2.0	5–20	>3	>30
Diazepam (valium) (+met: *N*-desmethyldiazepam)	0.031–0.600	0.31–6.00	–	–	>3.4	>34
Diazoxide (hyperstat)	1.5–2.0	15–20	>10	>100	–	–
Diazinon	–	–	–	–	0.07–27.7	0.7–277
Dichloromethane (methylene chloride)	–	–	–	–	9.5–60	95–600
Diclofenac (voltaren, cataflam)	0.075–0.20	0.75–2.0	0.6	6	–	–
Dicumarol	0.8–5.9	8–59	7	70	–	–
Dicyclomine (bentyl)	0.002–0.008	0.02–0.08	–	–	–	–
Didrex (benzphetamine)	0.0025–0.0500	0.025–0.500	>0.05	>0.5	1.4	14
Dieldrin	0.00015–0.002	0.0015–0.02	0.015–0.0303	0.15–0.303	0.05–0.116	0.5–1.16
Diethylpropion (tenuate)	0.0007–0.0200	0.007–0.200	–	–	0.54	5.4
Difenoxin (motofen)	0.016	0.160	–	–	–	–
Diflucan (fluconazol)	0.5–1.5	5–15	–	–	–	–
Diflunisal (dolobid)	0.9–13	9–130	–	–	37–58	370–580
Digoxin	0.00007–0.0022	0.0007–0.022	0.00030–0.00040	0.0030–0.0040	0.0035–0.02	0.035–0.20
Dihydrocodeinone (hydrocodone)	0.003–0.025	0.03–0.25	0.05–0.2	0.5–2	0.07–1.2	0.7–12
Dilantin (phenytoin, diphenylhydantoin)	1–2	10–20	2–5	20–50	>10	>100
Dilaudid (hydromorphone)	0.0008–0.0049	0.008–0.049	–	–	0.03	0.3
Diltiazem (cardizem)	0.005–0.04	0.05–0.40	0.37–0.61	3.7–6.1	0.67	6.7
Dimetane (brompheniramine)	0.0008–0.0015	0.008–0.015	–	–	–	–
Dimethylsulfoxide (DMSO)	5.04–338	50.4–3380	–	–	160–300	1600–3000
Dimethyltryptamine	0.0001–0.0100	0.001–0.100	–	–	–	–
Dinitro-*O*-cresol	–	–	3–6	30–60	7.5	75
Diphenhydramine (benadryl)	0.0025–0.0112	0.025–0.112	0.5	5	>0.8	>8
Diphenoxylate (lomotil)	0.001–0.004	0.01–0.04	–	–	–	–
Diphenylhydantoin (phenytoin, dilantin)	1–2	10–20	2–5	20–50	>10	>100
Diprivan (propofol)	0.2–1.6	2–16	–	–	–	–
Disopyramide (norpace)	0.2–0.6	2–6	0.7	7	2.6	26

Table 1 (*Continued*)

Drug	Therapeutic or normal		Toxic		Lethal	
	(mg%)	(μg/ml)	(mg%)	(μg/ml)	(mg%)	(μg/ml)
Disulfiram (antabuse)	0.038–0.25	0.38–2.5	–	–	37–58	370–580
Divinyl oxide	–	–	–	–	70	700
DMSO (dimethylsulfoxide)	5.04–338	50.4–3380	–	–	160–300	1600–3000
Dolobid (diflunisal)	0.9–13	9–130	–	–	37–58	370–580
Dolophine (methadone)	0.0075–0.110	0.075–1.10	0.02–0.2	0.20–2.0	0.04–0.18	0.4–1.8
Dopram (doxapram)	0.27–0.52	2.7–5.2	–	0.04–0.8	–	–
Doral (quazepam)	1.1–14.8	11–148	–	–	–	–
Doriden (glutethimide)	0.2–1.2	2–12	1–8	10–80	3–10	30–100
Dothiepin (prothiaden)	0.0017–0.0420	0.017–0.420	–	–	0.03–0.25	0.3–2.5
Doxapram (dopram)	0.27–0.52	2.7–5.2	–	–	–	–
Doxepin (sinequan)	0.010–0.025	0.10–0.25	0.012–0.43	0.12–4.3	0.2–2.6	2–26
Doxepin (sinequan) (+met: *N*-desmethyldoxepin)	0.010–0.025	0.10–0.25	>0.05	>0.5	0.8–3.5	8–35
Doxylamine (unisom)	0.0069–0.0138	0.069–0.138	–	–	0.07–1.2	0.7–12
Duranest (etidocaine)	0.05–0.15	0.5–1.5	–	–	–	–
Dymelor (acetohexamide)	2.1–5.6	21–56	–	–	–	–
Dyphylline	0.65–1.43	6.5–14.3	3.6	36	–	–
E						
Effexor (venlafaxine)	0.007–0.393	0.07–3.93	–	–	–	–
(met: *O*-desmethylvenlafaxine)	0.0061–0.075	0.061–0.75	0.1–0.15	1–1.5	–	–
Elavil (amitriptyline)	0.012–0.025	0.12–0.25	>0.05	>0.5	0.2–2.0	2–20
Elavil (amitriptyline) (+met: nortriptyline)	0.012–0.025	0.12–0.25	>0.05	>0.5	0.2–2.0	2–20
Eldepryl (selegiline)	0.0009–0.0019	0.009–0.019	–	–	–	–
Emetine	0.005–0.0075	0.05–0.075	–	–	0.24	2.4
Enalapril (vasotec)	0.0063–0.007	0.063–0.070	–	–	–	–
Encainide (enkaid) (as met: *O*-demethylencainide)	0.01–0.03	0.1–0.3	–	–	–	–
Encainide (Enkaid) (as met: methoxy-*O*-demethylencainide)	0.006–0.028	0.06–0.28	–	–	–	–
Endrin	0.0003	0.003	0.0007–0.0032	0.007–0.032	0.045	0.45
Ephedrine	0.0068–0.01	0.068–0.10	–	–	0.35–2.1	3.5–21
Estazolam (prosom)	0.0042–0.0100	0.042–0.100	0.125	1.25	–	–
Ethanol (listed toxic concentration is legal intoxication for driving in most states)	–	–	80–100	800–1000	>350	>3500
Ethchlorvynol (placidyl)	0.05–0.88	0.5–8.8	–	–	2.2–21.3	22–213
Ethinamate (valmid)	0.4–1.1	4–11	–	–	10–20	100–200
Ethosuximide (zarontin)	4–10	40–100	–	–	25	250
Ethyl chloride	20–30	200–300	–	–	40	400
Ethyl ether	90–100	900–1000	–	–	140–189	1400–1890
Ethylene glycol	–	–	150.0	1500.0	200–400	2000–4000
Etidocaine (duranest)	0.05–0.15	0.5–1.5	–	–	–	–
Etodolac (lodine)	1.2–4.7	12–47	–	–	–	–
F						
Famotidine (pepcid)	0.0007–0.0035	0.007–0.035	–	–	–	–
Felbamate (felbatol)	0.27–3.3	2.7–33	14–20	140–200	–	–
Felbatol (felbamate)	0.27–3.3	2.7–33	14–20	140–200	–	–
Feldene (piroxicam)	0.085–0.8	0.85–8.00	–	–	–	–
Felodipine (plendil)	0.00015–0.00088	0.0015–0.0088	0.001–0.0015	0.01–0.015	–	–
Fenfluramine (pondimin)	0.004–0.030	0.04–0.3	0.07–0.09	0.7–0.9	0.6–1.5	6–15
Fenoprofen (nalfon)	2.7–6.6	27–6.6	–	–	71	710
Fentanyl (sublimaze)	0.001–0.010	0.01–0.10	–	–	–	–
Fexofenadine (allegra)	0.018–0.021	0.18–0.210	–	–	–	–
Fioricet (butalbital)	0.17–0.26	1.7–2.6	0.7–4	7–40	1.3–2.6	13–26

Table 1 (*Continued*)

Drug	Therapeutic or normal		Toxic		Lethal	
	(mg%)	(μg/ml)	(mg%)	(μg/ml)	(mg%)	(μg/ml)
Fiorinal (butalbital)	0.17–0.26	1.7–2.6	0.7–4	7–40	1.3–2.6	13–26
Flecainide (tambocar)	0.02–0.10	0.2–1.0	–	–	–	–
Flexeril (cyclobenzaprine)	0.0015–0.0036	0.015–0.036	–	–	>0.04	>0.4
Flexin (zoxazolamine)	0.3–1.3	3–13	–	–	–	–
Flubiprofen (ansaid)	1–2.2	10–22	–	–	–	–
Flucanzol (diflucan)	0.5–1.5	5–15	–	–	–	–
Flumazenil (mazicon, romazicon)	0.0006–0.0039	0.006–0.039	–	–	–	–
Flunitrazepam (rohypnol)	0.006–0.0052	0.06–0.052	0.001–0.005	0.01–0.05	–	–
Fluoride	0.0014–0.04	0.014–0.4	–	–	1.5–20	15–200
Fluothane (halothane)	2.2–26.0	22–260	–	–	20	200
Fluoxetine (prozac)	0.009–0.040	0.09–0.40	–	–	0.13–0.68	1.3–6.8
Fluphenazine (prolixin)	0.00009–0.00170	0.0009–0.0170	–	–	–	–
Flurazepam (dalmane)	0.00005–0.00280	0.0005–0.0280	0.02	0.2	0.05–0.40	0.5–4.0
Flurazepam (dalmane) (+met: *N*-desalkylflurazepam)	0.0033–0.0144	0.033–0.144	–	–	–	–
Fluvoxamine (luvox)	0.0031–0.0087	0.031–0.087	–	–	–	–
Forane (isoflurane)	2.0–7.0	20.0–70.0	–	–	–	–
Furadantoin (nitrofurantoin)	0.18	1.8	–	–	–	–
Fortavase, invirase (saquinavir)	0.011–0.11	0.11–1.1	–	–	–	–
Furosemide (lasix)	0.1–1.0	1–10	>2	>20	–	–
G						
Gabapentin (neurontin)	0.2–1.0	2–10	–	–	–	–
Gabitrol (tiagabine)	0.0001–0.0234	0.001–0.234	–	–	–	–
Gamma-hydroxybutyrate (GHB)	<0.1	<1.0	2.6–36	26–360	>75	>750
GHB (gamma-hydroxybutyrate)	<0.1	<1.0	2.6–36	26–360	>75	>750
Glucophage (metformin)	0.1–0.4	1–4	4.5–7.0	45–70	–	–
Glutethimide (doriden)	0.2–1.2	2–12	1–8	10–80	3–10	30–100
Glycopyrrolate (robinul)	0.005–0.0076	0.050–0.076	–	–	–	–
Gold (sodium aurothiomalate)	0.3–0.8	3–8	–	–	–	–
Guaifenesin (robitussin)	0.04–0.14	0.4–1.4	21	210	–	–
Guanethidine (ismelin)	0.001	0.01	–	–	–	–
H						
Habitrol (transdermal) (nicotine)	0.0004–0.0444	0.004–0.444	–	–	0.14	1.4
Halcion (triazolam)	0.002	0.02	–	–	–	–
Haldol (haloperidol)	0.0006–0.0245	0.006–0.245	0.005–0.050	0.05–0.50	–	–
Haloperidol (haldol)	0.0006–0.0245	0.006–0.245	0.005–0.050	0.05–0.50	–	–
Halothane (fluothane)	2.2–26.0	22–260	–	–	20	200
Hexachlorophene (phisohex)	0.0003–0.0650	0.003–0.650	–	–	0.22–3.5	2.2–35
Hismanol (astemizole)	0.00004	0.0004	–	–	–	–
Hydralazine	0.02–0.09	0.2–0.9	–	–	–	–
Hydrochlorothiazide (hydrodiuril)	0.007–0.038	0.07–0.38	–	–	–	–
Hydrocodone (lortab, vicodin)	0.003–0.025	0.03–0.25	0.05–0.2	0.5–2	0.07–1.2	0.7–12
Hydrodiuril (hydrochlorothiazide)	0.007–0.038	0.07–0.38	–	–	–	–
Hydrogen sulfide	–	–	–	–	0.092	0.92
Hydromorphone (dilaudid)	0.0008–0.0049	0.008–0.049	–	–	0.03	0.3
Hydroxychloroquine (plaquenil)	0.0019–0.0210	0.019–0.210	–	–	6.1	61
Hydroxyzine (atarax, vistaril)	0.0022–0.008	0.022–0.08	–	–	0.4–3.9	4.2–39
Hyoscine (scopolamine)	0.00003–0.0019	0.0003–0.019	–	–	0.189	1.89
Hyperstat (diazoxide)	1.5–2.0	15–20	>10	>100	–	–
I						
Ibuprofen (motrin)	1.7–4.9	17–49	8.4–70	84–700	–	–
Imitrex (sumatriptan)	0.0024–0.0095	0.024–0.095	–	–	–	–
Imipramine (tofranil)	0.015–0.0105	0.15–0.105	0.05–0.15	0.5–1.5	0.28–0.85	2.8–8.5

Table 1 (*Continued*)

Drug	Therapeutic or normal		Toxic		Lethal	
	(mg%)	(μg/ml)	(mg%)	(μg/ml)	(mg%)	(μg/ml)
Imipramine (tofranil) (+met: desipramine)	0.015–0.025	0.15–0.25	–	–	–	–
Inderal (propranolol)	0.001–0.034	0.01–0.34	0.2	2	0.8–1.2	8–12
Indocin (indomethacin)	0.01–0.40	0.1–4	0.6	6	–	–
Indomethacin (indocin)	0.01–0.40	0.1–4	0.6	6	–	–
INH (isoniazid)	0.06–2.0	0.6–20	2–14.3	20–143	6.5–16.8	65–168
Invirase, fortovase (saquinavir)	0.011–0.11	0.11–1.1	–	–	–	–
Ionamin (phentermine)	0.009–0.051	0.09–0.51	–	–	0.15–0.76	1.5–7.6
Iron	0.027–0.293	0.27–2.93	0.28–2.5	2.8–25	2–5	20–50
Ismelin (guanethidine)	0.001	0.01	–	–	–	–
Isoflurane (forane)	2.0–7.0	20.0–70.0	–	–	–	–
Isoniazid (INH)	0.06–2.0	0.6–20	2–14.3	20–143	6.5–16.8	65–168
Isopropanol	–	–	>40	>400	>150	>1500
Isoptin (calan, verapamil)	0.0055–0.0355	0.055–0.355	0.09	0.9	0.09–8.5	0.9–85
Isordil (isosorbide dinitrate)	0.0008–0.0038	0.008–0.038	–	–	–	–
Isosorbide dinitrate (isordil)	0.0008–0.0038	0.008–0.038	–	–	–	–
K						
Kemadrin (procyclidine)	0.008–0.063	0.08–0.63	–	–	–	–
Ketamine	0.02–0.63	0.2–6.3	–	–	–	–
Ketoprofen (orudis, actron)	0.5–0.15	5–1.5	–	–	–	–
Ketorolac (toradol)	0.087–0.45	0.87–4.5	–	–	–	–
Klonopin (clonazepam)	0.0007–0.0075	0.007–0.075	–	–	–	–
Kwell (lindane)	0.0001–0.0031	0.001–0.031	0.05	0.5	0.13	1.3
L						
Labetalol (normodyne, trandate)	0.0036–0.0271	0.036–0.271	–	–	–	–
Lamactal (lamotrigine)	0.20–1.90	2–19	1.5–3.6	15–36	–	–
Lamotrigine (lamactal)	0.20–1.90	2–19	1.5–3.6	15–36	–	–
Lasix (furosemide)	0.1–1.0	1–10	>2	>20	–	–
Lead	0.04	0.4	0.04–1.37	0.4–13.7	0.11–0.53	1.1–5.3
Leritine (anileridine)	<0.05	<0.5	–	–	0.09–0.70	0.9–7.0
Levo-dromoran (levorphanol)	0.0007–0.0021	0.007–0.021	–	–	0.08–0.27	0.8–2.7
Levoprome (methotrimeprazine)	0.002–0.0271	0.02–0.271	–	–	–	–
Levorphanol (levo-dromoran)	0.0007–0.0021	0.007–0.021	–	–	0.08–0.27	0.8–2.7
Librium (chlordiazepoxide)	0.067–0.31	0.67–3.1	0.5	5	2	20
Lidocaine (xylocaine)	0.15–0.50	1.5–5.0	0.7–2	7–20	>2.5	>25
Lindane (Kwell)	0.0001–0.0031	0.001–0.031	0.05	0.5	0.13	1.3
Lioresal (baclofen)	0.01–0.06	0.1–0.6	0.11–0.35	1.1–3.5	–	–
Lisinopril (prinivil, zestril)	0.002–0.0082	0.02–0.082	–	–	–	–
Lithium	0.42–0.97	4.2–9.7	1.39	13.9	>3.47	>34.7
Lodine (etodolac)	1.2–4.7	12–47	–	–	–	–
Lomotil (diphenoxylate)	0.001–0.004	0.01–0.04	–	–	–	–
Lopressor (metoprolol)	0.003–0.027	0.03–0.27	–	–	0.47–14.2	4.7–142
Loratadine (claritin)	0.0007–0.0028	0.007–0.028	0.046	0.46	–	–
Metabolite: descarboethoxyloratadine)	0.0007–0.0028	0.007–0.028	0.046	0.46	–	–
Lorazepam (ativan)	0.001–0.024	0.01–0.24	0.03–0.06	0.3–0.6	–	–
Lortab (hydrocodone, vicodin)	0.003–0.025	0.03–0.25	0.05–0.2	0.5–2	0.07–1.2	0.7–12
Loxapine (loxitane)	0.001–0.003	0.01–0.03	–	–	0.19–0.77	1.9–7.7
Loxitane (loxapine)	0.001–0.003	0.01–0.03	–	–	0.19–0.77	1.9–7.7
LSD (lysergic acid diethylamide, lysergide)	–	–	0.0001–0.0009	0.001–0.009	–	–
Ludiomil (maprotiline)	0.005–0.0718	0.05–0.718	0.024–0.080	0.24–0.80	0.2–1.3	2–13
Luvox (fluvoxamine)	0.0031–0.0087	0.031–0.087				
Lysergic acid diethylamide (LSD, lysergide)	–	–	0.0001–0.0009	0.001–0.009	–	–

Table 1 (*Continued*)

Drug	Therapeutic or normal		Toxic		Lethal	
	(mg%)	(μg/ml)	(mg%)	(μg/ml)	(mg%)	(μg/ml)
Lysergide (LSD, lysergic acid diethylamide)	–	–	0.0001–0.0009	0.001–0.009	–	–
M						
Magnesium	1.2–3.2	12–32	8–12	80–120	20–32	200–320
Malathion	0.0–0.35	0.0–3.5	–	–	0.05–0.35	0.5–3.5
Manganese (serum values)	0.00002–0.00011	0.0002–0.0011	0.46	4.6	–	–
Maprotiline (ludiomil)	0.005–0.0718	0.05–0.718	0.024–0.080	0.24–0.80	0.2–1.3	2–13
Marcaine (bupivacaine)	0.022–0.345	0.22–3.45	1	10	–	–
Mazicon (flumazenil, romazicon)	0.0006–0.0039	0.006–0.039	–	–	–	–
MDA (3,4-methylenedioxyamphetamine)	–	–	–	–	0.18–2.6	1.8–26
Mebaral (mephobarbital)	0.05–0.35	0.5–3.5	–	–	–	–
Mefenamic acid (ponstel)	0.03–2.00	0.3–20.0	1.1–11.0	11–110	–	–
Mellaril (thioridazine)	0.01–0.26	0.1–2.6	0.24–1.18	2.4–11.8	0.1–1.8	1–18
Mellaril (thioridazine) (+met: mesoridazine)	0.03–0.40	0.3–4.0	–	–	–	–
Meperidine (demerol)	0.007–0.080	0.07–0.80	0.5	5	0.8–2.0	8–20
Mephenytoin (mesantoin) (+met: *N*-desmethylmephenytoin)	2.5–4.0	25–40	5	50	–	–
Mephobarbital (mebaral)	0.05–0.35	0.5–3.5	–	–	–	–
Mepivacaine (carbocaine)	0.028–0.550	0.28–5.50	1	10	5	50
Meprobamate	0.2–2.6	2–26	6–10	60–100	14–35	140–350
Mercury (inorganic)	–	–	0.018–0.062	0.18–0.62	0.04–2.20	0.4–22.0
Mercury (organic)	<0.008	<0.08	>0.02	>0.2	>0.06	>0.6
Mesantoin (mephenytoin) (+met: *N*-desmethylmephenytoin)	2.5–4.0	25–40	5	50	–	–
Mesoridazine (serentil)	0.118–0.352	1.18–3.52	–	–	0.3	3
Mestinon (pyridostigmine)	40	400	–	–	–	–
Metaclopramide (reglan)	0.0072–0.075	0.072–0.75	–	–	–	–
Metaxalone (skelaxin)	29.6	296	–	–	–	–
Metformin (glucophage)	0.1–0.4	1–4	4.5–7.0	45–70	–	–
Methadone (dolophine)	0.0075–0.110	0.075–1.10	0.02–0.2	0.20–2.0	0.04–0.18	0.4–1.8
Methamphetamine	0.001–0.005	0.01–0.05	0.06–0.50	0.6–5.0	>1	>10
Methanol	–	–	20	200	>89	>890
Methaqualone (quaalude)	0.04–0.80	0.4–8.0	1–3	10–30	>0.5	>5
Methazolamide (neptazane)	4	40	–	–	–	–
Methocarbamol (robaxin)	2.6–4.1	26–41	–	–	–	–
Methohexital	0.34–1.07	3.4–10.7	–	–	9.8	98
Methotrimeprazine (levoprome)	0.002–0.0271	0.02–0.271	–	–	0.08–0.41	0.8–4.1
Methoxy-*O*-demethylencainide (met: encainide)	0.006–0.028	0.06–0.28	–	–	–	–
Methsuximide (celontin) (as met: desmethylmethsuximide)	1.0–4	10–40	4.4	>44	–	–
Methyldopa	0.10–0.75	1.0–7.5	1	10	–	–
Methylene chloride (dichloromethane)	–	–	–	–	9.5–60	95–600
3-4-Methylenedioxyamphetamines (MDA)	–	–	–	–	0.18–2.6	1.8–26
Methylfentanyl (China white)	–	–	–	–	0.0002–0.0011	0.002–0.011
Methylphenidate (ritalin)	0.001–0.006	0.01–0.06	0.08	0.8	0.23	2.3
Methyprylon (noludar)	0.5–1.5	5–15	3–6	30–60	10	100
Metoprolol (lopressor)	0.003–0.027	0.03–0.27	–	–	0.47–14.2	4.7–142
Mexiletine (mexitil)	0.05–0.20	0.5–2.0	–	–	2.1–4.5	21–45
Mexitil (mexiletine)	0.05–0.20	0.5–2.0	–	–	2.1–4.5	21–45
Mianserin	0.001–0.016	0.01–0.16	0.011–0.050	0.11–0.50	0.01–0.26	0.1–2.6
Midazolam (versed)	0.008–0.025	0.08–0.25	–	–	–	–
Milontin (phensuximide)	0.4–1.4	4–14	8–15	80–150	–	–
Mirtazapine (remeron)	0.0039–0.018	0.039–0.18	–	–	–	–

Table 1 (*Continued*)

Drug	Therapeutic or normal		Toxic		Lethal	
	(mg%)	(μg/ml)	(mg%)	(μg/ml)	(mg%)	(μg/ml)
Moclobemide	0.3	3	–	–	5.6–9.0	56–90
Molybdenum	0.0015	0.015	–	–	–	–
Morphine	0.01	0.10	–	–	0.005–0.400	0.05–4.00
Motrin (ibuprofen)	1.7–4.9	17–49	8.4–70	84–700	–	–
Motofen (difenoxin)	0.016	0.160	–	–	–	–
Moxifluxacin (avelox)	0.45–1.44	4.5–14.4	–	–	–	–
Mysoline (primidone)	0.2–1.9	2–19	5–8	50–80	10	100
N						
N-acetylprocainamide (NAPA) (met: procainamide (Pronestyl))	0.2–1.2	2–12	1.6	16	–	–
N-desalkylflurazepam (met: flurazepam (dalmane))	0.001–0.014	0.01–0.14	–	–	–	–
N-desmethyldiazepam (nordiazepam) (met: clorazepate (Tranxene))	0.01–0.26	0.1–2.6	>0.5	>5	–	–
N-desmethyldiazepam (nordiazepam) (met: diazepam (valium))	0.002–0.180	0.02–1.80	–	–	–	–
Nalfon (fenoprofen)	2.7–6.6	27–66	–	–	71	710
Naloxone (narcan)	0.001	0.01	–	–	–	–
NAPA (*N*-acetylprocainamide) (met: procainamide (pronestyl))	0.2–1.2	2–12	1.6	16	–	–
Naprosyn (naproxen)	3.1–12	31–120	40	400	–	–
Naproxen (anaprox)	3.1–12	31–120	40	400	–	–
Narcan (naloxone)	0.001	0.01	–	–	–	–
Nardil (phenelzine)	0.0001–0.0002	0.001–0.002	–	–	>0.15	>1.5
Navane (thiothixene)	0.001–0.010	0.01–0.10	–	–	–	–
Nebcin (tobramycin)	0.16–0.78	1.6–7.8	–	–	–	–
Nefazodone (serzone)	0.01–0.12	0.1–1.2	–	–	–	–
Nembutal (pentobarbital)	0.1–0.3	1–3	>0.5	>5	1.0–16.9	10–169
Neo-synephrine (phenylephrine)	0.003	0.03	–	–	–	–
Neptazane (methazolamide)	4	40	–	–	–	–
Nesacaine (chloroprocaine)	0.2–0.4	2–4	–	–	–	–
Neurontin (gabapentin)	0.2–1.0	2–10	–	–	–	–
Nicardipine (cardene)	0.0036–0.015	0.036–0.150	–	–	–	–
Nickel	0.011	0.11	–	–	–	–
Nicotine	0.0004–0.0444	0.004–0.444	–	–	0.14	1.4
Nicotine (transdermal) (prostep, habitrol, nicotrol)	0.0004–0.0031	0.004–0.031	–	–	–	–
Nicotrol (transdermal, nicotine)	0.0004–0.0031	0.004–0.031	–	–	–	–
Nifedipine (adalat, procardia)	0.0015–0.0162	0.015–0.162	–	–	–	–
Nisentil (alphaprodine)	0.087–0.100	0.87–1.00	–	–	–	–
Nitrite (butyl nitrite)	0.05–0.40	0.5–4	–	–	2.2	22
Nitro-bid (nitro-dur, nitroglycerin)	0.0002–0.0013	0.002–0.013	–	–	–	–
Nitro-dur (nitro-bid, nitroglycerin)	0.0002–0.0013	0.002–0.013	–	–	–	–
Nitrofurantoin (furadantoin)	0.18	1.8	–	–	–	–
Nitroglycerin (nitro-bid, nitro-dur)	0.0002–0.0013	0.002–0.013	–	–	–	–
Nitroprusside (as met: thiocyanate)	0.55–2.9	5.5–29	>10	>100	20	200
Nitrous oxide	29–44	290–440	–	–	35	350
Noctec (chloral hydrate) (as met: trichloroethanol)	0.2–1.2	2–12	10	100	25	250
Noludar (methyprylon)	0.5–1.5	5–15	3–6	30–60	10	100
Nordiazepam (*N*-desmethyldiazepam) (met: clorazepate (tranxene))	0.01–0.26	0.1–2.6	>0.5	>5.0	–	–
Nordiazepam (*N*-desmethyldiazepam) (met: diazepam (valium))	0.002–0.180	0.02–1.80	–	–	–	–
Norflex (orphenadrine)	0.003–0.085	0.03–0.85	0.2	2	0.4–0.8	4.0–8.0

Table 1 (*Continued*)

Drug	Therapeutic or normal		Toxic		Lethal	
	(mg%)	(μg/ml)	(mg%)	(μg/ml)	(mg%)	(μg/ml)
Norfluoxetine (met: fluoxetine (prozac))	0.0018–0.0466	0.018–0.466	–	–	0.09–0.5	0.9–5.0
Normodyne (labetalol, trandate)	0.0036–0.0271	0.036–0.271	–	–	–	–
Norpace (disopyramide)	0.2–0.6	2–6	0.7	7	2.6	26
Norpramin (desipramine) (met: imipramine (tofranil))	0.005–0.0684	0.05–0.684	>0.05	>0.5	1–2	10–20
Nortriptyline (aventyl) (met: amitriptyline (elavil))	0.005–0.0375	0.05–0.375	0.05	0.5	1.3	13
Norverapamil	0.0160–0.0207	0.160–0.207	–	–	–	–
(met: verapamil (calan, isoptin))	0.4–0.8	4–8	1	10	>2	>20
Norvir (ritonavir)	1.1–6.6	11.2–66.0	–	–	–	–
Novocaine (procaine)	0.02–1.30	0.2–13.0	>2.1	>21	–	–
O						
O-demethylencainide (met: encainide)	0.01–0.03	0.1–0.3	–	–	–	–
Olanzapine (zyprexa)	0.0009–0.0023	0.009–0.023	–	–	0.12	1.2
Ondansetron (zofran)	0.0022–0.0114	0.022–0.114	–	–	–	–
Orinase (tolbutamide)	4.3–9.6	43–96	–	–	64	640
Orphenadrine (norflex)	0.003–0.085	0.03–0.85	0.2	2	0.4–0.8	4.0–8.0
Orudis (ketoprofen)	0.5–0.15	5–1.5	–	–	–	–
Oxalate	0.2	2	–	–	1–11	10–110
Oxaprozin (daypro)	0.01–0.04	0.1–0.4				
Oxazepam (serax)	0.015–0.140	0.15–1.4	>0.2	>2	–	–
Oxycodone (percodan, oxycontin)	0.001–0.010	0.01–0.10	0.02–0.50	0.2–5.0	–	–
Oxycontin (oxycodone, percodan)	0.001–0.010	0.01–0.10	0.02–0.50	0.2–5.0	–	–
Oxyphenbutazone (tandearil)	1.1–11.8	11–118	–	–	–	–
P						
Pancuronium (pavulon)	0.009–0.022	0.09–0.22	–	–	0.16	1.6
Papaverine	0.025–0.400	0.25–4.00	–	–	–	–
Paradione (paramethadione)	0.11–0.50	1.1–5.0	–	–	–	–
Paraldehyde	2.0–33.2	20–332	20–40	200–400	>50	>500
Paramethadione (paradione)	0.11–0.50	1.1–5.0	–	–	–	–
Para-methoxyamphetamine (PMA)	–	–	–	–	0.02–0.49	0.2–4.9
Paraquat	–	–	0.06–0.32	0.6–3.2	>1.5	>15
Parathion	–	–	–	–	0.05–3.40	0.5–34.0
Parnate (tranylcypromine)	0.005	0.05	–	–	–	–
Paroxetine (paxil)	0.0031–0.0062	0.031–0.062	–	–	0.14–0.34	1.4–3.4
Pavulon (pancuronium)	0.009–0.022	0.09–0.22	–	–	0.16	1.6
Paxil (paroxetine)	0.0031–0.0062	0.031–0.062	–	–	0.14–0.34	1.4–3.3
PCP (phencyclidine)	–	–	0.0007–0.0240	0.007–0.240	0.1–0.5	1–5
Pemoline (cylert)	0.07–0.62	0.70–6.2	–	–	–	–
Pentachlorophenol	–	–	–	–	>4.6	>46
Pentazocine (talwin)	0.003–0.100	0.03–1.00	0.2–0.5	2–5	>0.03	>0.3
Pentobarbital (nembutal)	0.1–0.3	1–3	>0.5	>5	1.0–16.9	10–169
Pentothal (thiopental)	0.1–4.2	1–42	>0.7	>7	1–40	10–400
Pentoxifylline (trental)	0.006–0.16	0.06–1.6	–	–	>0.6	>6.0
Pepcid (famotidine)	0.0007–0.0035	0.007–0.035	–	–	–	–
Percodan (oxycodone)	0.001–0.010	0.01–0.10	0.02–0.50	0.2–5.0	–	–
Perphenazine (trilafon)	0.00004–0.00300	0.0004–0.0300	0.1	1	–	–
Phenacetin	0.01–2.00	0.1–20.0	>3	>30	–	–
Phencyclidine (PCP)	–	–	0.0007–0.0240	0.007–0.240	0.1–0.5	1–5
Phendimetrazine	0.002–0.024	0.02–0.24	–	–	–	–
Phenelzine (nardil)	0.0001–0.0002	0.001–0.002	–	–	>0.15	>1.5
Phenergan (promethazine)	0.0006–0.0099	0.006–0.099	–	–	0.24–1.2	2.4–12
Phenmetrazine	0.004–0.024	0.04–0.24	–	–	0.4	4
Phenobarbital	1–4	10–40	4–6	40–60	>8	>80

Table 1 (*Continued*)

Drug	Therapeutic or normal		Toxic		Lethal	
	(mg%)	(μg/ml)	(mg%)	(μg/ml)	(mg%)	(μg/ml)
Phenol	–	–	–	–	>4.6	>46
Phensuximide (milontin)	0.4–1.4	4–14	8–15	80–150	–	–
Phentermine (ionamin)	0.009–0.051	0.09–0.51	–	–	0.15–0.76	1.5–7.6
Phenylbutazone (butazolidin)	1.6–15.0	16–150	20	200	40	400
Phenylephrine (neo-synephrine)	0.003	0.03	–	–	–	–
Phenylpropanolamine	0.003–0.048	0.03–0.48	–	–	>1	>10
Phenytoin (dilantin, diphenylhydantoin)	1–2	10–20	2–5	20–50	>10	>100
Phisohex (hexachlorophene)	0.0003–0.0650	0.003–0.650	–	–	0.22–3.5	2.2–35
Phosphorus (adult)	2.0–4.8	20–48	–	–	–	–
Phosphorus (child)	4–7	40–70	–	–	–	–
Piroxicam (feldene)	0.085–0.8	0.85–8.00	–	–	–	–
Placidyl (ethchlorvynol)	0.05–0.88	0.5–8.8	–	–	2.2–21.3	22–213
Plaquenil (hydroxychloroquine)	0.0019–0.0210	0.019–0.210	–	–	6.1	61
Plendil (felodipine)	0.00015–0.00088	0.0015–0.0088	0.001–0.0015	0.01–0.015	–	–
PMA (para-methoxyamphetamine)	–	–	–	–	0.02–0.49	0.2–4.9
Polythiazide (renese)	0.2–0.7	2–7	–	–	–	–
Pondimin (fenfluramine)	0.004–0.030	0.04–0.3	0.07–0.09	0.7–0.9	0.6–1.5	6–15
Ponstel (mefenamic acid)	0.03–2.00	0.3–20.0	1.1–11.0	11–110	–	–
Prazepam (centrax)	0.001–0.004	0.01–0.04	–	–	–	–
Preludin (phenmetrazine)	0.004–0.024	0.04–0.24	–	–	0.4	4
Prilocaine (citanest)	0.1–0.5	1–5	–	–	–	–
Primidone (mysoline)	0.2–1.9	2–19	5–8	50–80	10	100
Prinivil (lisinopril, zestril)	0.002–0.0082	0.02–0.082				
Probenecid (benemid)	10–20	100–200	–	–	–	–
Procainamide (pronestyl)	0.4–0.8	4–8	1	10	>2	>20
Procaine (novocaine)	0.02–1.30	0.2–13.0	>2.1	>21	–	–
Procardia (adalat, nifedipine)	0.0015–0.0162	0.015–0.162	–	–	–	–
Prochlorperazine (compazine)	–	–	>0.1	>1	0.5	5
Procyclidine (kemadrin)	0.008–0.063	0.08–0.63	–	–	–	–
Prolixin (fluphenazine)	0.00009–0.00170	0.0009–0.0170	–	–	–	–
Prograf (tacrolimus)	0.0005–0.002	0.005–0.02	>0.003	>0.03	–	–
Promazine (sparine)	–	–	>0.1	>1	>0.5	>5
Promethazine (phenergan)	0.0006–0.0099	0.006–0.099	–	–	0.24–1.2	2.4–12
Pronestyl (procainamide)	0.4–0.8	4–8	1	10	>2	>20
Propafenone (rythmol)	0.0176–0.165	0.17–1.65	–	–	–	–
Proparacaine (alcaine)	0.2–1.6	2–16	–	–	–	–
Propofal (diprivan)	0.023–0.107	0.23–1.07	0.03–0.06	0.3–0.6	0.1–1.7	1–17
Propoxyphene (darvon)	0.023–0.107	0.23–1.07	0.03–0.06	0.3–0.6	0.1–1.7	1–17
Propoxyphene (darvon) (+met: norpropoxyphene)	0.104–0.371	1.04–3.71	0.28–1.2	2.8–12	0.27–4.7	2.7–47
Propranolol (inderal)	0.6–71.1	6–711	–	–	–	–
Propylene glycol	0.01–0.034	0.1–0.34	0.2	2	0.8–1.2	8–12
Propylhexedrine (benzedrex)	0.001	0.01	–	–	0.2–0.3	2–3
Prosom (estazolam)	0.0042–0.0100	0.042–0.100	0.125	1.25	–	–
Prostep (transdermal) (nicotine)	0.0004–0.0031	0.004–0.031	–	–	–	–
Prothiaden (dothiepin)	0.0017–0.0420	0.017–0.420	–	–	0.03–0.25	0.3–2.5
Protriptyline (vivactil)	0.007–0.038	0.07–0.38	0.05–0.20	0.5–2.0	>0.1	>1
Prozac (fluoxetine)	0.009–0.040	0.09–0.40	–	–	0.13–0.68	1.3–6.8
Pseudoephedrine (sudafed)	0.050–0.077	0.50–0.77	–	–	1.9	19
Pyribenzamine (tripelennamine)	0.006	0.06	–	–	1	10
Pyridostigmine (mestinon)	40	400	–	–	–	–
Q						
Quaalude (methaqualone)	0.04–0.80	0.4–8.0	1–3	10–30	>0.5	>5
Quazepam	1.1–14.8	11–148	–	–	–	–
Quetiapine (serognel)	0.0195–0.0632	0.195–0.632	1.3	13	–	–

Table 1 (*Continued*)

Drug	Therapeutic or normal		Toxic		Lethal	
	(mg%)	(μg/ml)	(mg%)	(μg/ml)	(mg%)	(μg/ml)
Quinidine	0.10–0.60	1–6	1	10	3–5	30–50
Quinine	0.17–0.97	1.7–9.7	>1	>10	1.2	12
R						
Rantidine (zantac)	0.0036–0.0094	0.036–0.094	–	–	–	–
Reglan (metaclopramide)	0.0072–0.075	0.072–0.75	–	–	–	–
Remeron (mirtazapine)	0.0039–0.018	0.039–0.18	–	–	–	–
Remifentanil (ultiva)	0.0003–0.005	0.003–0.05	–	–	–	–
Renese (polythiazide)	0.2–0.7	2–7	–	–	–	–
Repoise (butaperazine)	0.002–0.069	0.02–0.69	–	–	–	–
Restoril (temazepam)	0.04–0.09	0.4–0.9	–	–	–	–
Retrovir (AZT, zidovadine)	0.027–0.08	0.27–0.8	–	–	–	–
Rezulin (troglitazone)	0.1–0.3	1–3	–	–	–	–
Risperdal (risperidone)	0.0003–0.0012	0.003–0.012	–	–	–	–
Risperidone (risperdal)	0.0003–0.0012	0.003–0.012	–	–	–	–
9-Hydroxy risperidone	0.099	0.990	–	–	–	–
Ritalin (methylphenidate)	0.001–0.006	0.01–0.06	0.08	0.8	0.23	2.3
Ritonavir (norvir)	1.1–6.6	11.2–66.0	–	–	–	–
Robaxin (methocarbamol)	2.6–4.1	26–41	–	–	–	–
Robinul (glycopyrrolate)	0.005–0.0076	0.050–0.076	–	–	–	–
Robitussin (guaifenesin)	0.04–0.14	0.4–1.4	21	210	–	–
Rofecoxib (vioxx)	0.016–0.032	0.16–0.32	–	–	–	–
Rohypnol (flunitrazepam)	0.006–0.0052	0.06–0.052	0.001–0.005	0.01–0.05	–	–
Romazicon (flumazenil, mazicon)	0.0006–0.0039	0.006–0.039	–	–	–	–
Rythomol (propafenone)	0.0176–0.165	0.17–1.65	–	–	–	–
S						
Salicylamide	0.5	5.0	–	–	4	40
Salicylate (met: acetylsalicylic acid — for normal usage)	2–10	20–100	15–30	150–300	50	500
Salicylate (met: acetylsalicylic acid — for rheumatoid arthritis)	2–25	20–250	–	–	–	–
Sandimmune (cyclosporine)	0.005–0.045	0.050–0.045	–	–	–	–
Sandoptal (butalbital)	0.17–0.26	1.7–2.6	0.7–4	7–40	1.3–2.6	13–26
Saquinavir (invirase, fortovase)	0.011–0.11	0.11–1.1	–	–	–	–
Scopolamine (hyoscine)	0.00003–0.0019	0.0003–0.019	–	–	0.189	1.89
Secobarbital (seconal)	0.1–0.22	1–2.2	>0.3	>3	0.5–5.2	5–52
Seconal(secobarbital)	0.1–0.22	1–2.2	>0.3	>3	0.5–5.2	5–52
Sectral (acebutolol)	0.05–0.12	0.5–1.2	–	–	–	–
Seldane (terfenadine) (as active metabolite)	0.0133–0.0423	0.133–0.423	–	–	–	–
Selegine (eldepryl)	0.0009–0.0019	0.009–0.019	–	–	–	–
Serax (oxazepam)	0.015–0.140	0.15–1.40	>0.2	>2	–	–
Serentil (mesoridazine)	0.118–0.352	1.18–3.52	–	–	0.3	3
Seroflurane (serofrane)	1.34	13.4	–	–	–	–
Serofrane (seroflurane)	1.34	13.4	–	–	–	–
Serognel (quetiapine)	0.0195–0.0632	0.195–0.632	1.3	13	–	–
Sertraline (zoloft)	0.0055–0.025	0.055–0.25	–	–	–	–
Serzone (nefazodone)	0.01–0.12	0.1–1.2	–	–	–	–
Sildenafil (viagra)	0.0127–0.115	0.127–1.15	–	–	–	–
Simvastatin (zocor)	0.00027–0.00056	0.0027–0.0056	–	–	–	–
Sinequan (doxepin)	0.010–0.025	0.10–0.25	0.012–0.43	0.12–4.3	0.2–2.6	2–26
Sinequan (doxepin) (+met: *N*-desmethyldoxepin)	0.010–0.025	0.10–0.25	>0.05	>0.5	0.8–3.5	8–35
Skelaxin (metaxalone)	29.6	296	–	–	–	–
Sodium aurothiomalate (gold)	0.3–0.8	3–8	–	–	–	–

Table 1 (*Continued*)

Drug	Therapeutic or normal		Toxic		Lethal	
	(mg%)	(μg/ml)	(mg%)	(μg/ml)	(mg%)	(μg/ml)
Soma (carisoprodol)	1–4	10–40	3–5	30–50	11	110
Sparine (promazine)	–	–	>0.1	>1	>0.5	>5
Stadol (butorphanol)	0.00011–0.00017	0.0011–0.0017	–	–	–	–
Stelazine (trifluoperazine)	0.05–0.20	0.5–2.0	0.12–0.30	1.2–3.0	0.3–0.8	3–8
Strychnine	–	–	0.2	2	0.28–1.20	2.8–12.0
Sublimaze (fentanyl)	0.001–0.010	0.01–0.10	–	–	–	–
Sudafed (pseudoephedrine)	0.050–0.077	0.50–0.77	–	–	1.9	19
Sufenta (sufentanil)	0.0001–0.0011	0.001–0.011	–	–	–	–
Sufentanil (sufenta)	0.0001–0.0011	0.001–0.011	–	–	–	–
Sulfadiazine	8–15	80–150	–	–	–	–
Sulfaguanidine	3–5	30–50	–	–	–	–
Sulfanilamide	10–15	100–150	–	–	–	–
Sulfisoxazole	9–10	90–100	–	–	–	–
Sulindac (clinoril)	0.4–0.5	4–5	–	–	–	–
Sumatriptan (imitrex)	0.0024–0.0095	0.024–0.095	–	–	–	–
Surmontil (trimipramine)	0.001–0.030	0.01–0.30	–	–	0.87–1.20	8.7–12.0
Symmetrel (amantadine)	0.006–0.031	0.06–0.31	0.1–0.05	1–0.5	0.21–0.48	2.1–4.8
T						
Tacrolimus (prograf)	0.0005–0.002	0.005–0.02	>0.003	>0.03	–	–
Tagamet (cimetidine)	0.05–0.45	0.5–4.5	–	–	–	–
Talwin (pentazocine)	0.003–0.100	0.03–1.00	0.2–0.5	2–5	>0.03	>0.3
Tambocar (flecainide)	0.02–0.10	0.2–1.0	–	–	–	–
Tandearil (oxyphenbutazone)	1.1–11.8	11–118	–	–	–	–
Taractan (chlorprothixene)	0.004–0.030	0.04–0.30	0.04–0.08	0.4–0.8	–	–
Tegretol (carbamazepine)	0.14–1.2	1.4–12	>1.5	>15	>5	>50
Temazepam (restoril)	0.04–0.09	0.4–0.9	–	–	–	–
Tenormin (atenolol)	0.02–0.07	0.20–0.70	3.5	35	–	–
Tenuate (diethylpropion)	0.0007–0.0200	0.007–0.200	–	–	0.54	5.4
Terbutaline (brethine)	0.0002–0.0006	0.002–0.006	–	–	0.004	0.04
Terfenadine (seldane) (as active metabolite)	0.0133–0.0423	0.133–0.423	–	–	–	–
Tetrachloroethylene	–	–	–	–	0.45–4.0	4.5–44.0
Tetrahydrocannabinol (THC)	<0.019	<0.19	–	–	–	–
Thallium	<0.008	<0.08	>0.1	>1	0.05–1.10	0.5–11.0
THC (tetrahydrocannabinol)	<0.019	<0.19	–	–	–	–
Theophylline (aminophylline)	1–2	10–20	3–4	30–40	5–25	50–250
Thiocyanate	0.6–2.9	6–29	–	–	–	–
Thiocyanate (met: nitroprusside)	0.55–2.9	5.5–29	>10	>100	20	200
Thiopental (pentothal)	0.1–4.2	1–42	>0.7	>7	1–40	10–400
Thioridazine (mellaril)	0.01–0.26	0.1–2.6	>0.5	>5	0.1–1.8	1–18
Thioridazine (mellaril) (+met: mesoridazine)	0.03–0.40	0.3–4.0	–	–	–	–
Thiothixene (navane)	0.001–0.010	0.01–0.10	–	–	–	–
Thorazine (chlorpromazine)	0.001–0.050	0.01–0.50	0.1–0.2	1–2	0.3–1.2	3–12
Tiagabine (gabitrol)	0.0001–0.0234	0.001–0.234	–	–	–	–
Tigan (trimethobenzamide)	0.1–0.2	1–2	–	–	–	–
Timolol (blocadren)	0.004–0.023	0.04–0.23	–	–	–	–
Tin	0.012–0.014	0.12–0.14	–	–	–	–
Tobramycin (nebcin)	0.16–0.78	1.6–7.8	–	–	–	–
Tocainide (tonocard)	0.4–1.0	4–10	–	–	–	–
Tofranil (imipramine)	0.015–0.0105	0.15–0.105	0.05–0.15	0.5–1.5	0.28–0.85	2.8–8.5
Tofranil (imipramine) (+met: desipramine)	0.015–0.025	0.15–0.25	–	–	–	–
Tolbutamide (orinase)	4.3–9.6	43–96	–	–	64	640
Tolectin (tolmetin)	3.7	37	>6	>60	–	–

Table 1 (*Continued*)

Drug	Therapeutic or normal		Toxic		Lethal	
	(mg%)	(μg/ml)	(mg%)	(μg/ml)	(mg%)	(μg/ml)
Tolmetin (tolectin)	3.7	37	>6	>60	–	–
Toluene	–	–	–	–	1	10
Tonocard (tocainide)	0.4–1.0	4–10	–	–	–	–
Toradol (ketorolac)	0.087–0.45	0.87–4.5	–	–	–	–
Tramadol (ultram)	0.01–0.06	0.1–0.6				
Trancopal (chlormezanone)	0.25–0.88	2.5–8.8	–	–	–	–
Trandate (labetalol, normodyne)	0.0036–0.0271	0.036–0.271	–	–	–	–
Tranxene (chlorazepate)	0.01–0.16	0.1–1.6	>0.5	>5.0	–	–
(as met: *N*-desmethyldiazepam)						
Tranylcypromine (parnate)	0.005	0.05	–	–	–	–
Trazodone (desyrel)	0.07–0.489	0.7–4.89	–	–	1.5	15
Trental (pentoxifylline)	0.006–0.16	0.06–1.6	–	–	>0.6	>6.0
Triazolam (halcion)	0.002	0.02	–	–	–	–
Tribromoethanol	–	–	–	–	9	90
Trichloroethane	–	–	–	–	10–100	100–1000
Trichloroethanol	0.2–1.2	2–12	10	100	25	250
(met: chloral hydrate (Noctec))						
Trichloroethylene	0.1–9.0	1–90	–	–	0.3–11.0	3–110
Tridione (trimethadione)	1–3	10–30	–	–	–	–
Trifluoperazine (stelazine)	0.05–0.20	0.5–2.0	0.12–0.30	1.2–3.0	0.3–0.8	3–8
Trilafon (perphenazine)	0.00004–0.00300	0.0004–0.0300	0.1	1	–	–
Trimethadione (tridione)	1–3	10–30	–	–	–	–
Trimethobenzamide (tigan)	0.1–0.2	1–2	–	–	–	–
Trimethoprim (trimpex)	0.1–0.2	1–2	–	–	–	–
Trimipramine (surmontil)	0.001–0.030	0.01–0.30	–	–	0.87–1.20	8.7–12.0
Trimpex (trimethoprim)	0.1–0.2	1–2	–	–	–	–
Tripelennamine (pyribenzamine)	0.006	0.06	–	–	1	10
Triprolidine (actidil)	0.0004–0.0044	0.004–0.044	–	–	–	–
Tubocurarine	0.004–0.600	0.04–6.00	–	–	–	–
Tylenol (acetaminophen)	1–2	10–20	15	150	>16	>160
U						
Ultiva (remifentanil)	0.0003–0.005	0.003–0.05	–	–	–	–
Ultram (tramadol)	0.01–0.06	0.1–0.6				
Unisom (doxylamine)	0.0069–0.0138	0.069–0.138	–	–	0.07–1.2	0.7–12
Uric acid	3–7	30–70	–	–	–	–
V						
Valium (diazepam)	0.002–0.400	0.02–4.00	0.5–2.0	5–20	>3	>30
Valium (diazepam)	0.031–0.600	0.31–6.00	–	–	>3.4	>34
(+met: *N*-desmethyldiazepam)						
Valmid (ethinamate)	0.4–1.1	4–11	–	–	10–20	100–200
Valproic acid (depakene)	5–10	50–100	0.71–20.0	7.1–200	–	–
Vancomycin	3–4	30–40	–	–	–	–
Vasotec (enalapril)	0.00063–0.007	0.0063–0.070	–	–	–	–
Venlafaxine (effexor)	0.007–0.393	0.07–3.93	–	–	–	–
(met: *O*-desmethylvenlafaxine)	0.0061–0.075	0.061–0.75	0.1–0.15	1–1.5	–	–
Verapamil (calan, isoptin)	0.0055–0.0355	0.055–0.355	0.09	0.9	0.09–8.5	0.9–85
Versed (midazolam)	0.008–0.025	0.08–0.25	–	–	–	–
Viagra (sildenafil)	0.0127–0.115	0.127–1.15				
Vicodin (hydrocodone, lortab)	0.003–0.025	0.03–0.25	0.05–0.2	0.5–2	0.07–1.2	0.7–12
Vioxx (rofecoxib)	0.016–0.032	0.16–0.32	–	–	–	–
Vivactil (protriptyline)	0.007–0.038	0.07–0.38	0.05–0.20	0.5–2.0	>0.1	>1
Vistaril (atarax, hydroxyzine)	0.0022–0.008	0.022–0.08	–	–	0.4–3.9	4.2–39
Vistazine (hydroxyzine)	0.008	0.08	1.3	13	3.9	39
Voltaren (diclofenac, cataflam)	0.075–0.20	0.75–2.0	0.6	6	–	–

Table 1 (*Continued*)

Drug	Therapeutic or normal		Toxic		Lethal	
	(mg%)	(μg/ml)	(mg%)	(μg/ml)	(mg%)	(μg/ml)
W						
Warfarin (coumadin)	0.10–0.31	1.0–3.1	–	–	–	–
Wellbutrin (bupropion)	0.0025–0.0100	0.025–0.100	–	–	0.73	7.3
X						
Xanax (alprazolam)	0.0025–0.0102	0.025–0.102	–	–	0.0122–0.039	0.122–0.390
Xylene	–	–	–	–	0.3–11.0	3–110
Xylocaine (lidocaine)	0.15–0.50	1.5–5.0	0.7–2	7–20	>2.5	>25
Y						
Yocon (yohimbine)	0.0046–0.029	0.046–0.290	–	–	–	–
Yohimbine (yocon)	0.0046–0.029	0.046–0.290	–	–	–	–
Z						
Zantac (rantidine)	0.0036–0.0094	0.036–0.094	–	–	–	–
Zarontin (ethosuximide)	4–10	40–100	–	–	25	250
Zestril (lisinopril, prinivil)	0.002–0.0082	0.02–0.082				
Zidovadine (AZT, retrovir)	0.027–0.08	0.27–0.8	–	–	–	–
Zilenton (zyflo)	0.04–0.31	0.4–3.1	–	–	–	–
Zinc	0.068–0.136	0.68–1.36	–	–	–	–
Zocor (simvastatin)	0.00027–0.00056	0.0027–0.0056	–	–	–	–
Zofran (ondansetron)	0.0022–0.0114	0.022–0.114	–	–	–	–
Zolmitriptan (zomig)	0.0029–0.0272	0.029–0.272	–	–	0.05–0.112	0.5–1.12
Zoloft (sertraline)	0.0055–0.025	0.055–0.25	–	–	–	–
Zolpidem (ambien)	0.0003–0.0018	0.003–0.018	–	–	–	–
Zomig (zolmitriptan)	0.0029–0.0272	0.029–0.272	–	–	0.05–0.112	0.5–1.12
Zoxazolamine (flexin)	0.3–1.3	3–13	–	–	–	–
Zyflo (zilenton)	0.04–0.31	0.4–3.1	–	–	–	–
Zyprexa (olanzapine)	0.0009–0.0023	0.009–0.023	–	–	0.12	1.2

2.2. Toxic blood-level

The concentration of drug and/or its active metabolite(s) or chemical present in the blood (serum or plasma) that is associated with serious toxic symptoms in humans.

2.3. Lethal blood-level

The concentration of drug and/or its active metabolite(s) or chemical present in the blood (serum or plasma) that has been reported to cause death, or is so far above reported therapeutic or toxic concentrations, that one can judge that it might cause death in humans.

2.4. Normal blood-level

Some of the values under normal represent body constituents and others represent values related to normal environmental exposure. Values can and do vary with geographical location.

For some drugs, i.e. acetaminophen, the post-ingestion blood-level does not necessarily represent the degree of toxicity. For other drugs, with a large volume of distribution, e.g. anti-depressants and cannabinoids, the blood-levels may not accurately reflect clinical or toxic response to the drugs.

2.5. Units

Drugs and chemicals in the table are reported in both mg% and μg/ml. Drugs are listed by both their trade and generic names. Milligram percent (mg%) is equal to milligram/deciliter (mg/dl); microgram/milliliter (μg/ml) is equal to milligram/liter (mg/l).

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