

Supplementary Table 3: Comparison of the calculated (theoretical) osmolarity and the osmolarity reported by Manrique-Rodriguez et al for the IV mixtures

Active Substance	Osmolarity measurement via osmometry (Manrique-Rodriguez et al.[13])		Theoretical osmolarity provided by the formula		Osmolarity difference
	IV Mixture (Dose/Total Volume)	Osmolarity (mOsm/L)	IV Mixture (Dose/Total Volume)	Osmolarity (mOsm/L)	
Acyclovir	500 mg/100 ml 0.9% Saline	288	500 mg/120 ml 0.9% Saline	276.84	11.16
Amikacin	500 mg/100 ml 0.9% Saline	293	500 mg/102 ml 0.9% Saline	312.29	-19.29
Amikacin	1 g/100 ml 0.9% Saline	316	1 g/100 ml 0.9% Saline	327.08	-11.08
Amiodarone	900 mg/250 ml Dextrose 5%	304	900 mg/268 ml Dextrose 5%	269.18	34.82
Amoxicillin-Clavulanic Acid	2 g-200 mg/100 ml 0.9% Saline	442	2 g-200 mg/120 ml 0.9% Saline	312.31	129.69
Ampicillin	2 g/100 ml 0.9% Saline	360	2 g/108 ml 0.9% Saline	386.76	-26.76
Anfotericin B Liposomal	100 mg/50 ml Dextrose 5%	309	100 mg/50 ml Dextrose 5%	280.08	28.92
Anidulafungin	100 mg/130 ml 0.9% Saline	267	100 mg/130 ml 0.9% Saline	239.14	27.86
Azitromicina	500 mg/250 ml 0.9% Saline	301	500 mg/255 ml Saline	306.54	-5.54
Aztreonam	1 g/50 ml 0.9% Saline	369	1 g/60 ml 0.9% Saline	296.61	72.39
Calcium Chloride	1 g/100 ml 0.9% Saline	361	1 g/110 ml 0.9% Saline	406.31	-45.31
Calcium Chloride	1 g/500 ml 0.9% Saline	298	1 g/510 ml 0.9% Saline	330.77	-32.77
Calcium Gluconate	1,880 mg/100 ml Dextrose 5%	327	1,880 mg/120 ml Dextrose 5%	336.49	-9.49
Calcium Gluconate	1,880 mg/100 ml 0.9% Saline	317	1,880 mg/120 ml 0.9% Saline	363.15	-46.15
Calcium Gluconate	1,880 mg/500 ml Dextrose 5%	312	1,880 mg/520 ml Dextrose 5%	291.50	20.50
Calcium Gluconate	1,880 mg/500 ml 0.9% Saline	287	1,880 mg/520 ml 0.9% Saline	322.27	-35.27
Calcium Gluconate	940 mg/100 ml Dextrose 5%	316	940 mg/110 ml Dextrose 5%	309.90	6.10
Calcium Gluconate	940 mg/100 ml 0.9% Saline	298	940 mg/110 ml 0.9% Saline	338.99	-40.99
Calcium Gluconate	940 mg/500 ml Dextrose 5%	307	940 mg/510 ml Dextrose 5%	284.88	22.12
Calcium Gluconate	940 mg/500 ml 0.9% Saline	283	940 mg/510 ml 0.9% Saline	316.25	-33.25
Caspofungin	50 mg/100 ml 0.9% Saline	256	50 mg/110 ml 0.9% Saline	282.25	-26.25
Caspofungin	70 mg/250 ml 0.9% Saline	266	70 mg/260 ml 0.9% Saline	298.33	-32.33
Cefazolin	2 g/100 ml 0.9% Saline	315	2 g/110 ml 0.9% Saline	321.82	-6.82
Cefepime	1 g/50 ml 0.9% Saline	422	1 g/60 ml 0.9% Saline	362.45	59.55
Cefepime	2 g/50 ml 0.9% Saline	556	2 g/60 ml 0.9% Saline	468.31	87.69
Cefotaxime	1 g/50 ml 0.9% Saline	339	1 g/54 ml 0.9% Saline	327.69	11.31
Cefotaxime	2 g/50 ml 0.9% Saline	392	2 g/60 ml 0.9% Saline	331.51	60.49
Ceftazidime	1 g/50 ml 0.9% Saline	311	1 g/60 ml 0.9% Saline	288.82	22.18
Ceftazidime	2 g/50 ml 0.9% Saline	332	2 g/60 ml 0.9% Saline	319.32	12.68
Ceftazidime-Avibactam	2 g-500 mg/100 ml 0.9% Saline	362	2 g-500 mg/112 ml 0.9% Saline	335.20	26.80
Ceftolozano-Tazobactam	1 g-0.5 g/100 ml 0.9% Saline	488	1 g-0.5 g/111.4 ml 0.9% Saline	306.78	181.22
Ceftriaxone	1 g/50 ml 0.9% Saline	378	1 g/60 ml 0.9% Saline	288.39	89.61
Ceftriaxone	2 g/50 ml 0.9% Saline	467	2 g/50 ml 0.9% Saline	382.12	84.88
Cefuroxime	1,500 mg/50 ml 0.9% Saline	353	1,500 mg/65 ml 0.9% Saline	349.04	3.96
Cefuroxime	750 mg/50 ml 0.9% Saline	338	750 mg/56 ml 0.9% Saline	340.96	-2.96
Ciclosporin A	250 mg/100 ml Dextrose 5%	605	250 mg/105 ml Dextrose 5%	266.74	338.26
Cisatracurium Besylate	100 mg/50 ml 0.9% Saline	2	100 mg/50 ml 0.9% Saline	2.16	-0.16
Clarithromycin	500 mg/250 ml 0.9% Saline	275	500 mg/260 ml 0.9% Saline	300.65	-25.65
Clindamicyn	900 mg/100 ml 0.9% Saline	308	900 mg/106 ml 0.9% Saline	309.27	-1.27
Clindamycin	600 mg/50 ml 0.9% Saline	322	600 mg/54 ml 0.9% Saline	309.04	12.96

Cloxacillin	1 g/50 ml 0.9% Saline	261	1 g/60 ml 0.9% Saline	296.57	-35.57
Colistimethate Sodium	80 mg/50 ml 0.9% Saline	294	80 mg/55 ml 0.9% Saline	286.81	7.19
Daptomycin	350 mg/50 ml 0.9% Saline	292	350 mg/52 ml 0.9% Saline	299.26	-7.26
Daptomycin	500 mg/50 ml 0.9% Saline	297	500 mg/60 ml 0.9% Saline	263.48	33.52
Dexketoprofen	50 mg/50 ml 0.9% Saline	376	50 mg/52 ml 0.9% Saline	301.86	74.14
Dexmedetomidine	1000 mcg/250 ml 0.9% Saline	279	1000 mcg/250 ml 0.9% Saline	310.00	-31.00
Digoxin	0.5 mg/100 ml 0.9% Saline	421	0.5 mg/102 ml 0.9% Saline	303.93	117.07
Digoxin	0.5 mg/50 ml 0.9% Saline	572	0.5 mg/52 ml 0.9% Saline	298.09	273.91
Dobutamine	250 mg/250 ml Dextrose 5%	287	250 mg/250 ml Dextrose 5%	262.39	24.61
Dobutamine	500 mg/250 ml Dextrose 5%	269	500 mg/250 ml Dextrose 5%	246.78	22.22
Dobutamine	400 mg/250 ml 0.9% Saline	291	400 mg/250 ml 0.9% Saline	314.47	-23.47
Epinephrine	10 mg/100 ml Dextrose 5%	303	10 mg/100 ml Dextrose 5%	278.55	24.45
Epinephrine	10 mg/250 ml Dextrose 5%	301	10 mg/250 ml Dextrose 5%	278.22	22.78
Ertapenem	1 g/ 50 ml 0.9% Saline	395	1 g/ 60 ml 0.9% Saline	293.38	101.62
Erythromycin	1 g/500 ml 0.9% Saline	287	1 g/520 ml 0.9% Saline	301.60	-14.60
Erythromycin	250 mg/100 ml 0.9% Saline	286	250 mg/105 ml 0.9% Saline	299.60	-13.60
Erythromycin	500 mg/100 ml 0.9% Saline	286	500 mg/110 ml 0.9% Saline	290.14	-4.14
Fentanyl	0.45 mg/100 ml 0.9% Saline	280	0.45 mg/100 ml 0.9% Saline	310.03	-30.03
Fentanyl	0.75 mg/100 ml 0.9% Saline	281	0.75 mg/100 ml 0.9% Saline	310.04	-29.04
Flecainide	300 mg/150 ml Dextrose 5%	300	300 mg/150 ml Dextrose 5%	286.43	13.57
Flumazenil	2 mg/50 ml 0.9% Saline	292	2 mg/52 ml 0.9% Saline	298.20	-6.20
Flumazenil	5 mg/50 ml 0.9% Saline	299	5 mg/55 ml 0.9% Saline	282.12	16.88
Foscarnet	6000 mg/500 ml 0.9% Saline	285	6000 mg/500 ml 0.9% Saline	314.98	-29.98
Fosfomycin	1 g/50 ml Dextrose 5%	579	1 g/60 ml Dextrose 5%	506.36	72.64
Furosemide	250 mg/50 ml 0.9% Saline	286	250 mg/50 ml 0.9% Saline	340.23	-54.23
Furosemide	500 mg/250 ml 0.9% Saline	281	500 mg/250 ml 0.9% Saline	322.09	-41.09
Furosemide	500 mg/50 ml 0.9% Saline	289	500 mg/50 ml 0.9% Saline	60.47	228.53
Ganciclovir	500 mg/100 ml 0.9% Saline	290	500 mg/110 ml 0.9% Saline	299.63	-9.63
Haloperidol	5 mg/50 ml Dextrose 5%	303	5 mg/51 ml Dextrose 5%	272.81	30.19
Heparin Sodium	25.000 IU/250 ml Dextrose 5%	298	25.000 IU/250 ml Dextrose 5%	279.73	18.27
Heparin Sodium	25.000 IU/250 ml 0.9% Saline	278	25.000 IU/250 ml 0.9% Saline	311.73	-33.73
Hydrocortisone	100 mg/50 ml 0.9% Saline	276	100 mg/51 ml 0.9% Saline	307.95	-31.95
Imipenem-Cilastatin	500 mg-500 mg/100 ml 0.9% Saline	364	500 mg-500 mg/110 ml 0.9% Saline	322.33	41.67
Iron Sucrose	200 mg/100 ml 0.9% Saline	393	200 mg/110 ml 0.9% Saline	395.45	-2.45
Isoprenaline	1 mg/250 ml Dextrose 5%	302	1 mg/255 ml Dextrose 5%	272.57	29.43
Ketamine	500 mg/250 ml 0.9% Saline	282	500 mg/260 ml 0.9% Saline	314.26	-32.26
Labetalol	250 mg/250 ml Dextrose 5%	249	250 mg/250 ml Dextrose 5%	227.88	21.12
Labetalol	500 mg/250 ml Dextrose 5%	193	500 mg/250 ml Dextrose 5%	177.76	15.24
Levetiracetam	500 mg/100 ml 0.9% Saline	304	500 mg/105 ml 0.9% Saline	323.21	-19.21
Levosimendan	12.5 mg/500 ml Dextrose 5%	480	12.5 mg/505 ml Dextrose 5%	275.34	204.66
Levosimendan	25 mg/500 ml Dextrose 5%	680	25 mg/510 ml Dextrose 5%	272.72	407.28
Magnesium Sulphate	15 g/500 ml Dextrose 5%	399	15 g/500 ml Dextrose 5%	521.43	122.43
Magnesium Sulphate	15 g/500 ml 0.9% Saline	362	15 g/500 ml 0.9% Saline	553.43	191.43
Magnesium Sulphate	7.5 g/100 ml Dextrose 5%	505	7.5 g/100 ml Dextrose 5%	747.57	242.57
Magnesium Sulphate	7.5 g/100 ml 0.9% Saline	488	7.5 g/100 ml 0.9% Saline	763.57	275.57
Meropenem	1 g/50 ml 0.9% Saline	415	1 g/60 ml 0.9% Saline	301.79	113.21

Metamizole	2 g/100 ml 0.9% Saline	357	2 g/105 ml 0.9% Saline	383.83	-26.83
Metamizole	8 g/50 ml 0.9% Saline	805	8 g/50 ml 0.9% Saline	1054.18	-249.18
Methylprednisolone	250 mg/100 ml 0.9% Saline	289	250 mg/106.25 ml 0.9% Saline	298.05	-9.05
Methylprednisolone	250 mg/50 ml 0.9% Saline	292	250 mg/56.25 ml 0.9% Saline	287.42	4.58
Methylprednisolone	40 mg/50 ml 0.9% Saline	283	40 mg/51 ml 0.9% Saline	306.02	-23.02
Metoclopramide	10 mg/50 ml 0.9% Saline	276	10 mg/52 ml 0.9% Saline	299.22	-23.22
Micafungin	100 mg/100 ml 0.9% Saline	281	100 mg/110 ml 0.9% Saline	283.23	-2.23
Midazolam	100 mg/120 ml 0.9% Saline	261	100 mg/120 ml 0.9% Saline	260.89	0.11
Milrinone	20 mg/100 ml 0.9% Saline	278	20 mg/100 ml 0.9% Saline	311.33	-33.33
Morphine	50 mg/100 ml 0.9% Saline	277	50 mg/100 ml 0.9% Saline	297.61	-20.61
Morphine	100 mg/100 ml 0.9% Saline	279	100 mg/100 ml 0.9% Saline	285.22	-6.22
Mycophenolate Mofetil	500 mg/83 ml Dextrose 5%	314	500 mg/84 ml Dextrose 5%	257.00	57.00
Nitroglycerin	50 mg/250 ml 0.9% Saline	2125	50 mg/260 ml 0.9% Saline	298.92	1826.08
Nitroglycerin	50 mg/500 ml 0.9% Saline	2132	50 mg/510 ml 0.9% Saline	304.35	1827.65
Norepinephrine	30 mg/250 ml Dextrose 5%	280	30 mg/250 ml Dextrose 5%	278.75	1.25
Norepinephrine	60 mg/250 ml Dextrose 5%	280	60 mg/250 ml Dextrose 5%	279.50	0.50
Omeprazole	40 mg/100 ml Dextrose 5%	302	40 mg/105 ml Dextrose 5%	266.97	35.03
Omeprazole	40 mg/100 ml 0.9% Saline	267	40 mg/105 ml 0.9% Saline	297.45	-30.45
Ondansetron	4 mg/50 ml 0.9% Saline	281	4 mg/52 ml 0.9% Saline	298.34	-17.34
Ondansetron	8 mg/50 ml 0.9% Saline	290	8 mg/54 ml 0.9% Saline	287.54	2.46
Penicillin G Sodium	24 MU/240 ml 0.9% Saline	629	24 MU/250 ml 0.9% Saline	573.71	55.29
Pentamidine	300 mg/250 ml Dextrose 5%	295	300 mg/253 ml Dextrose 5%	280.71	14.29
Phenytoin	100 mg/50 ml 0.9% Saline	581	100 mg/52 ml 0.9% Saline	312.10	268.90
Phenytoin	250 mg/50 ml 0.9% Saline	1046	250 mg/55 ml 0.9% Saline	314.97	731.03
Piperacilina-Tazobactam	4 g-0.5 g/50 ml 0.9% Saline	482	4 g-0.5 g/70 ml 0.9% Saline	355.61	126.39
Potassium Chloride	20 mEq/100 ml Dextrose 5%	648	20 mEq/110 ml Dextrose 5%	618.56	29.44
Potassium Chloride	20 mEq/100 ml 0.9% Saline	639	20 mEq/110 ml 0.9% Saline	647.65	-8.65
Potassium Chloride	40 mEq/100 ml Dextrose 5%	1026	40 mEq/120 ml Dextrose 5%	902.36	123.64
Potassium Chloride	40 mEq/100 ml 0.9% Saline	996	40 mEq/120 ml 0.9% Saline	929.02	66.98
Potassium Chloride	40 mEq/1000 ml Dextrose 5%	380	40 mEq/1020 ml Dextrose 5%	351.45	28.55
Potassium Chloride	40 mEq/1000 ml 0.9% Saline	355	40 mEq/1020 ml 0.9% Saline	382.83	-27.83
Potassium Phosphate Dibasic	1M (1 amp)/250 ml 0.9% Saline	363	1M (1amp)/260 ml 0.9% Saline	413.48	-50.48
Potassium Phosphate Dibasic	1M (2 amp)/250 ml 0.9% Saline	443	1M (2 amp)/270 ml 0.9% Saline	509.29	-66.29
Ranitidine	50 mg/50 ml 0.9% Saline	258	50 mg/55 ml 0.9% Saline	287.00	-29.00
Remifentanyl	5 mg/100 ml 0.9% Saline	287	5 mg/100 ml 0.9% Saline	310.24	-23.24
Rifampicin	600 mg/100ml 0.9% Saline	268	600 mg/110ml 0.9% Saline	288.45	-20.45
Rocuronium	500 mg/100 ml 0.9% Saline	285	500 mg/100 ml 0.9% Saline	326.40	-41.40
Rocuronium	600 mg/250 ml 0.9% Saline	281	600 mg/250 ml 0.9% Saline	317.87	-36.87
Sodium Nitroprusside	50 mg/1000 ml Dextrose 5%	304	50 mg/1000 ml Dextrose 5%	310.50	-6.50
Sulfametoxazole-Trimetoprima	160 mg-800 mg/250 ml 0.9% Saline	392	160 mg-800 mg/256 ml 0.9% Saline	315.98	76.02
Teicoplanin	200 mg/50 ml 0.9% Saline	282	200 mg/51.6 ml 0.9% Saline	302.45	-20.45
Teicoplanin	400 mg/50 ml 0.9% Saline	284	400 mg/50 ml 0.9% Saline	314.26	-30.26
Thiopental Sodium	1 g/50 ml 0.9% Saline	397	1 g/51 ml 0.9% Saline	452.29	-55.29
Tigecycline	100 mg/100 ml 0.9% Saline	259	100 mg/110 ml 0.9% Saline	283.37	-24.37
Tigecycline	50 mg/100 ml 0.9% Saline	270	50 mg/105 ml 0.9% Saline	296.05	-26.05
Tranexamic Acid	500 mg/50 ml 0.9% Saline	316	500 mg/55 ml 0.9% Saline	339.64	-23.64

Urapidil	100 mg/50 ml 0.9% Saline	785	100 mg/50 ml 0.9% Saline	315.16	469.84
Urapidil	250 mg/50 ml 0.9% Saline	1629	250 mg/50 ml 0.9% Saline	322.90	1306.10
Valproic Acid	400 mg/100 ml 0.9% Saline	327	400 mg/104 ml 0.9% Saline	344.36	-17.36
Vancomycin	1 g/100 ml 0.9% Saline	235	1 g/120 ml 0.9% Saline	269.55	-34.55
Vancomycin	1 g/250 ml 0.9% Saline	263	1 g/270 ml 0.9% Saline	292.02	-29.02
Voriconazole	200 mg/100 ml 0.9% Saline	326	200 mg/120 ml 0.9% Saline	263.10	62.90
Voriconazole	400 mg/100 ml 0.9% Saline	365	400 mg/100 ml 0.9% Saline	321.45	43.55

Abbreviations:**IV:** Intravenous**IU:** International units**MU:** Millions units**NC:** Not calculated**Amp:** Ampoule