

## Appendix

**Criteria used for cleaning export data.**

<b>Reason for censoring</b>	<b>Example of product description that would trigger censoring</b>
Incorrect substance identified	“DIAMORPHINE” (in a search for “morphine”)
Item is part of a mix of products	“ABACAVIR, LOPINAVIR, LAMIVUDINE API”
Quantity of shipment < 1.0 kg, with exceptions made for very low-dose medicines	Value listed in “quantity” variable greater than 1.0kg
Finished Pharmaceutical Product (FPP), for example tablets	“ABACAVIR SULFATE TABLETS 600MG”
Impurity	“ABACAVIR SULPHATE IMPURITY”
Unclear quantity of API	“ABACAVIR GRANULES 10%” (In this example, the percentage descriptor could refer to a variety of parameters, for example, moisture content. As this is not specified, the true amount of API is unknown.)
Free sample or ‘no commercial value’	“ABACAVIR SULPHATE FREE SAMPLE” “ABACAVIR SULPHATE N.C.V.”
For veterinary use	“IVERMECTIN VETERINARY”
Reference/working standard	“ABACAVIR WORKING STANDARD”

This table is reproduced from an earlier publication as this element of the methodology was identical:

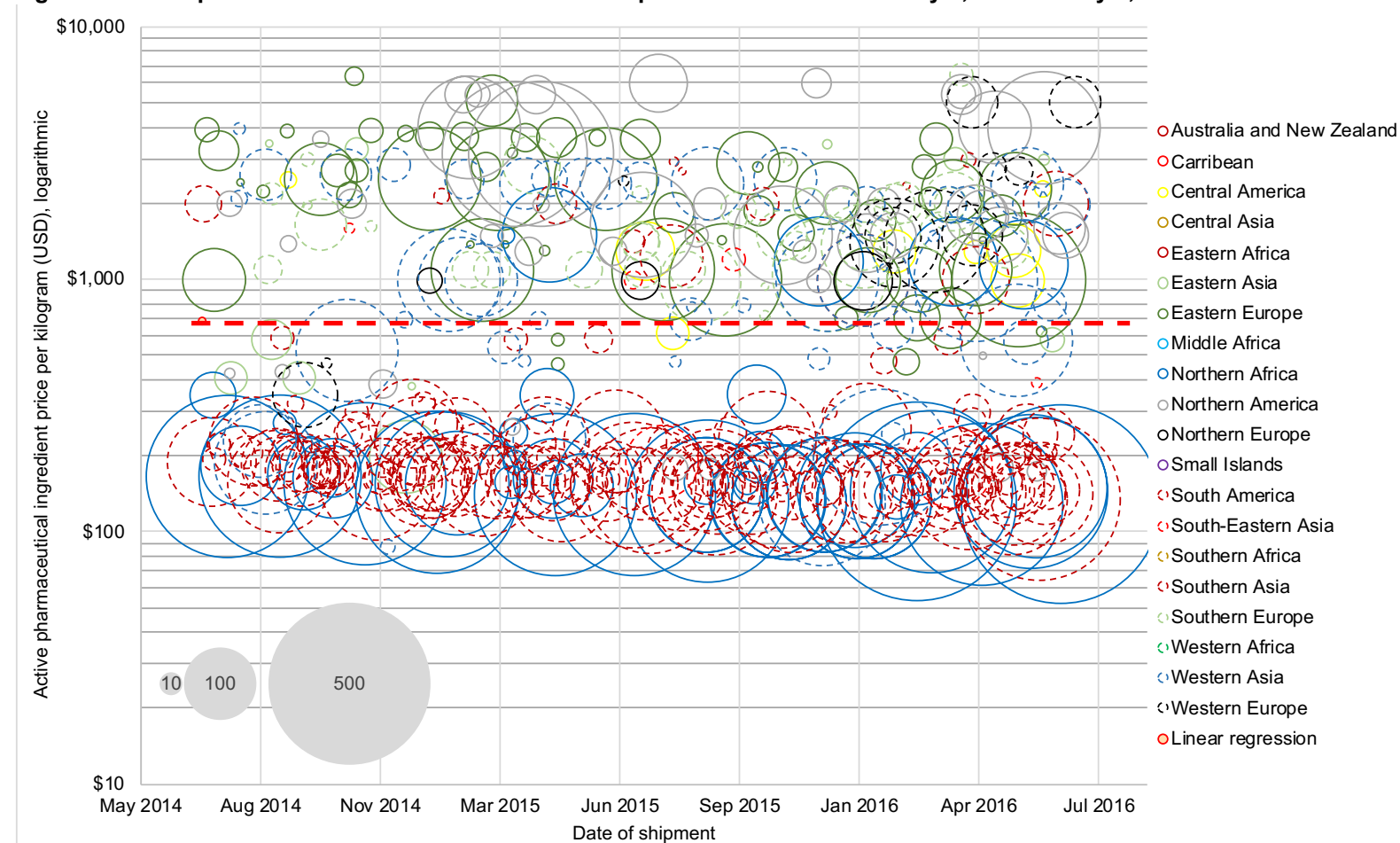
Hill A, Barber MJ, Gotham D. Estimated costs of production and potential prices for the WHO Essential Medicines List. *BMJ Global Health* 2018; e000571.

**Included and excluded formulation types, by terms used in WHO Model List of Essential Medicines.**

<b>Included:</b>
Concentrate for injection, depot injection, infusion, injectable solution, injection, injection for intravenous administration, injection for spinal anaesthesia, injection in oil, injection: ampoule or pre-filled syringe, injections, oily injection, oily solution, oily suspension for injection, parenteral formulation, powder for injection, solution for injection, solution for intramuscular injection, solution for IV infusion, vial.
<b>Excluded:</b>
Ampoule (for buccal administration when solution for oromucosal administration is not available), aqueous solution*, bag for infusion, capsule, cream, cream (as mupirocin calcium), cream or lotion, cream or ointment, dental cartridge, detergent-based suspension, eye ointment, gel or rectal solution, granules, granules (slow-release; to mix with water), immediate release capsule, inhalation (aerosol), lotion, lozenge, metered dose inhaler (aerosol), nasal spray, ointment, oral liquid, oral powder, pessary, powder for oral administration, powder for oral liquid, pre-filled syringe, rectal dosage form, rectal solution, respirator solution for use in nebulizers, retention enema, saturated solution, solid oral dosage form, solid oral dosage form (controlled-release tablets), solid oral form, solution, solution (eye drops), solution for oromucosal administration, suppository, tablet, tablet (chewable), tablet (crushable), tablet (dispersible, scored), tablet (dispersible), tablet (enteric-coated), tablet (heat stable), tablet (immediate release), tablet (scored), tablet (slow release), tablet (sublingual), topical, topical forms, transdermal patches, vaginal cream, vaginal tablet.

\*this represents potassium permanganate for topical use in dermatology.

**Figure A1. Example of API data: Price of linezolid API exported from India from July 1, 2014 to July 1, 2016.**



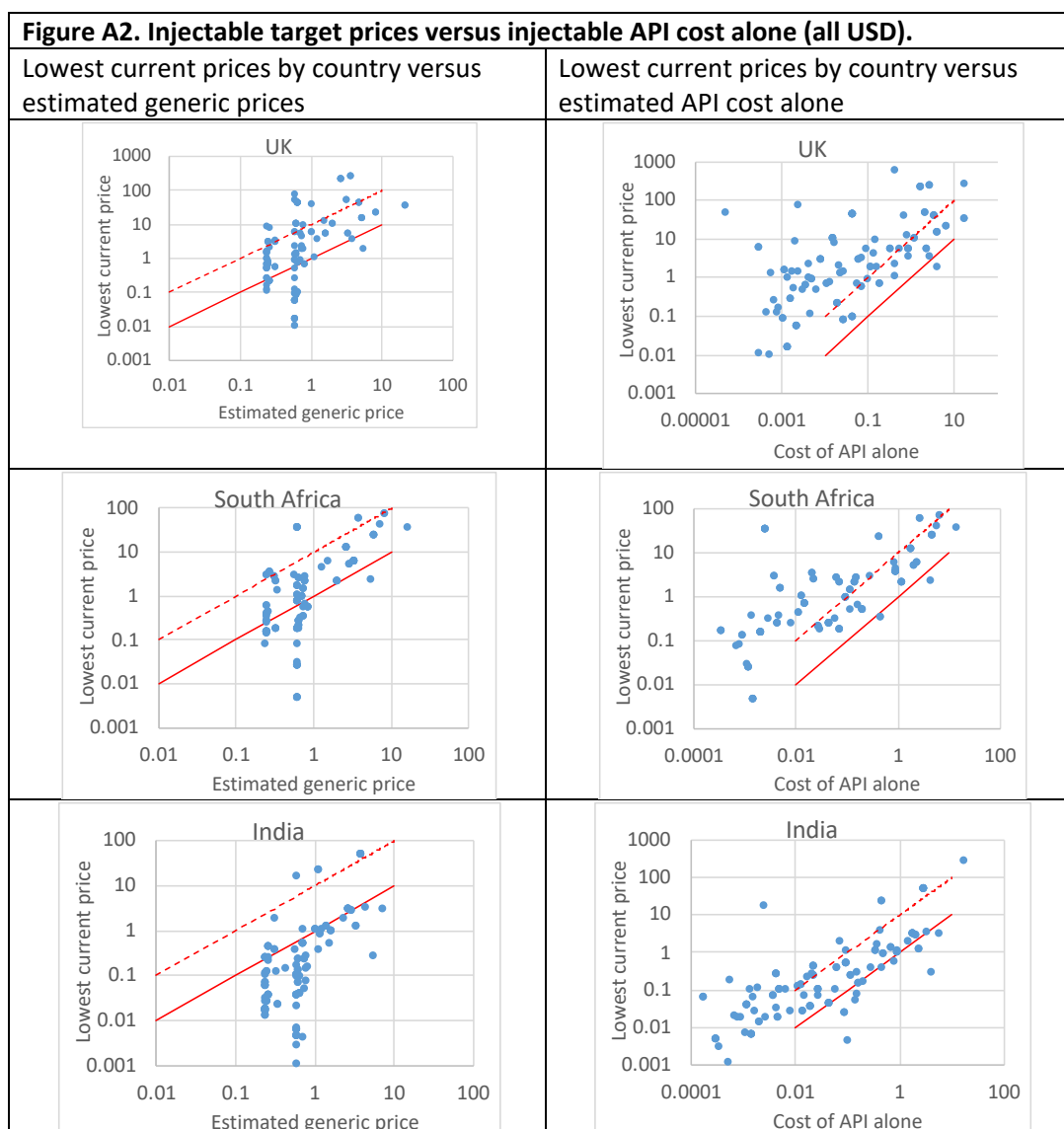
Bubble colours correspond to the region of the destination country for individual shipments. Bubble sizes correspond to the size of individual shipments (size key shown in lower-left, in kilograms). The linear regression model is shown as a dashed red line; though it appears horizontal it has a slight upwards slope. The values estimated by the linear regression model were \$683/kg on July 1, 2014, and \$690/kg on July 1, 2016.

### Costs prescribed in India's Drug Price Control Order (2012).

Item	Cost per unit in 2011 Indian rupees	Converted to 2016 USD
<b>Conversion cost</b>		
<i>Ampoules</i>		
Up to 1mL	0.4253	\$0.008
100mL	1.4327	\$0.028
<i>Sterile vials</i>		
Up to 5mL	1.22	\$0.024
100mL	3.21	\$0.063
<b>Packing materials cost</b>		
<i>USP type I glass vial including blister</i>		
Up to 2mL	1.48	\$0.029
100mL	6.96	\$0.136
<i>Plastic vial/bottle</i>		
Up to 2mL	0.99	\$0.019
100mL	2.96	\$0.058
<i>Ampoules</i>		
<i>White ampoule in tray</i>		
Up to 1mL	0.53	\$0.010
25mL	2.86	\$0.056
<i>Amber ampoules in blister</i>		
Up to 1mL	0.63	\$0.012
25mL	4.68	\$0.091
<b>Packing charges</b>		
<i>Ampoules</i>		
Up to 5mL	0.33	\$0.006
Over 15mL	0.56	\$0.011
<i>Liquid in vials</i>		
Up to 5mL	0.6	\$0.012
Over 5mL	0.69	\$0.013
<i>Sterile powder in vials</i>		
Up to 1g	0.23	\$0.004
Over 1g	0.38	\$0.007
<b>Ampoules range</b>		<b>\$0.03–\$0.13</b>
<b>Vials range</b>		<b>\$0.05–\$0.21</b>

Pharmabiz.com. NPPA notification dated Dec 27, 2012 fixing/revising the norms for conversion cost (CC), packing charges (PC), process loss (PL) and packing material. Available from: <http://pharmabiz.com/PrintArticle.aspx?aid=72988> (accessed 6 November 2018).

Rupee values were inflation-adjusted by a factor of 1.30, based on inflation data provided by the World Bank, available from <https://data.worldbank.org/indicator/FP.CPI.TOTL.ZG?locations=IN>.



*Solid red line: Points above this line represent an instance where the lowest current price is greater than the estimated generic price/API cost.*

*Dashed red line: Points above this line represent an instance where the lowest current price is more than 10 times the estimated generic price/API cost.*

'Floors' can be seen for estimated generic price at \$0.24 and \$0.61 – the cost-based prices estimated by our algorithm for ampoules and vials, respectively, if API costs are zero, therefore, the estimated cost-based price cannot be below these 'floors'. In all countries, it can be observed that in some cases (in India more than in South Africa more than in UK) lowest current prices go below these 'floors'.

Ratio of estimated cost-based prices to lowest current prices in the UK, South Africa, and India, by therapeutic category.

Medicine	UK	South Africa	India
Specific medicines for neonatal care	43.4	0.8	0.1
Cardiovascular medicines	5.2	9.9	0.2
Medicines for mental and behavioural disorder	5.7	7.1	0.1
Hormones, other endocrine medicines and contraceptives	4.5	0.8	2.8
Anticonvulsants/antiepileptics	2.8	3.7	0.3
Antineoplastics and immunosuppressives	3.0	2.7	0.7
Oxytocics and antioxytocics	3.7	1.3	0.4
Antidotes and other substances used in poisonings	2.5	1.4	0.4
Anti-infectives	2.0	1.4	0.3
Gastrointestinal medicines	1.3	1.0	0.1
Muscle relaxants (peripherally-acting) and cholinesterase inhibitors	1.6	0.5	0.1
Antiallergics and medicines used in anaphylaxis	0.7	0.9	0.1
Medicines acting on the respiratory tract	0.7	NA	0.1
Medicines affecting the blood	0.6	0.5	0.1
Medicines for pain and palliative care	0.6	0.5	0.1
Anaesthetics	0.2	0.2	0.1
Diuretics	0.3	0.1	0.0
Antimigraine medicines	NA	NA	NA
Antiparkinsonism Medicines	NA	NA	NA
Dermatological Medicines (topical)	NA	NA	NA
Ophthalmological Preparations	NA	NA	NA
Ear, nose and throat medicines (children)	NA	NA	NA
Medicines for diseases of joints	NA	NA	NA

Table is ranked by highest to lowest mean ratio across the three countries.

**Full results table: Lowest current prices in the UK, South Africa, and India, and estimated cost-based generic prices.**

Medicine	Unit	UK price (USD)	UK price source	South Africa price (USD)	India price (USD)	India price source	Cost of API per unit	Estimated cost-based product price per unit
acetylcysteine	2000mg ampoule	\$1.36	eMIT	\$1.57	\$2.00	TN		
aciclovir	powder for injection (250mg)	\$1.24	eMIT	\$2.10	\$0.23	TN	\$0.02215	\$0.63448
amikacin	powder for injection (1000mg)	\$23.83	eMIT	\$0.55	\$0.27	TN		
amikacin	powder for injection (100mg)	\$2.38	eMIT	\$0.33	\$0.05	TN		
amikacin	powder for injection (500mg)	\$11.92	eMIT	\$0.28	\$0.14	TN		
amiodarone	ampoule (150mg/3mL)	\$1.95	BNF	\$2.87	\$0.24	TN	\$0.02024	\$0.26893
amphotericin B	powder for injection (50mg)	\$5.04	BNF		\$1.02	TN	\$0.09296	\$0.72872
ampicillin	powder for injection (1000mg)	\$20.36	BNF	\$1.21	\$0.13	TN	\$0.02941	\$0.64415
ampicillin	powder for injection (500mg)	\$10.18	BNF	\$0.61	\$0.06	TN	\$0.01471	\$0.62457
artemether	ampoule (80mg/1mL)				\$0.40	P	\$0.02194	\$0.27120
artesunate	artesunate ampoule (60mg) & 5% sodium bicarbonate ampoule							
asparaginase	powder for injection (10,000iU)	\$796.90	BNF		\$11.57	TN		
atracurium	1mL injection (10mg)	\$0.86	BNF		\$0.00	TN	\$0.09646	\$0.73339
atropine	1mL ampoule (1mg)	\$8.25	BNF	\$0.13	\$0.01	TN	\$0.00198	\$0.24464
azathioprine	powder for injection (100mg)	\$39.99	BNF				\$0.04225	\$0.66124
bendamustine	2mL injection (180mg)				\$185.14	P	\$10.85220	\$15.04928
bendamustine	0.5mL injection (45mg)				\$46.29	P	\$2.71305	\$4.21607
benzathine benzylpenicillin	5mL vial (1.44g)				\$0.23	P		
benzathine benzylpenicillin	5mL vial (900mg)				\$0.17	P		
benzylpenicillin	powder for injection (3g)	\$15.18	BNF		\$0.49	TN		
benzylpenicillin	powder for injection (600mg)	\$3.04	BNF		\$0.10	TN		
bevacizumab	1mL injection (25mg)	\$78.86	BNF		\$63.57	TN		
biperiden	1ml ampoule (5mg)							
bleomycin	powder for injection (15mg)	\$24.78	BNF		\$4.60	TN		
bupivacaine	1mL injection (2.5mg)	\$0.11	eMIT		\$0.02	P	\$0.00051	\$0.60568
bupivacaine	4mL ampoule (20mg, with glucose)			\$0.21	\$0.23	P	\$0.00411	\$0.24747
bupivacaine	1mL injection (5mg)	\$0.09	eMIT	\$0.02	\$0.01	TN	\$0.00103	\$0.60637
caffeine citrate	1mL injection (20mg)	\$5.70	eMIT				\$0.00030	\$0.60540
calcium folinate	10mL ampoule (30mg)	\$6.01	BNF		\$1.87	P		
calcium gluconate	10mL ampoule (1000mg)	\$0.65	eMIT	\$0.36	\$0.11	P	\$0.01106	\$0.25672
capreomycin	powder for injection (1000mg)	\$37.19	BNF	\$7.16	\$3.93	P		
carboplatin	60mL injection (600mg)	\$32.83	eMIT	\$45.76	\$22.80	TN	\$17.23615	\$23.54631
carboplatin	15mL injection (150mg)	\$9.91	eMIT	\$11.44	\$5.70	TN	\$4.30904	\$6.34033



carboplatin	45mL injection (450mg)	\$24.78	eMIT	\$30.01	\$15.81	TN	\$12.92711	\$17.81099
carboplatin	5mL injection (50mg)	\$4.64	eMIT	\$3.81	\$1.76	TN	\$1.43635	\$2.51678
cefazolin	powder for injection (1000mg)			\$0.53	\$0.26	TN	\$0.15187	\$0.80714
cefotaxime	powder for injection (250mg)	\$1.31	eMIT	\$0.15	\$0.06	TN	\$0.02734	\$0.64139
ceftazidime	powder for injection (1000mg)	\$0.99	eMIT	\$1.77	\$0.36	P	\$0.43097	\$1.17863
ceftazidime	powder for injection (250mg)	\$1.77	eMIT	\$0.44	\$0.36	P	\$0.10774	\$0.74841
ceftriaxone	powder for injection (1000mg)	\$0.64	eMIT	\$0.44	\$0.15	TN	\$0.19035	\$0.85836
ceftriaxone	powder for injection (250mg)	\$1.43	eMIT	\$0.27	\$0.08	TN	\$0.04759	\$0.66834
chloramphenicol	2mL ampoule (1000mg)				\$0.14	P	\$0.15906	\$0.45370
chloramphenicol	powder for injection (1000mg)	\$1.81	BNF		\$0.14	P	\$0.15906	\$0.81670
chlorpromazine	2mL ampoule (50mg)	\$0.92	eMIT		\$0.03	P	\$0.00429	\$0.24772
chlorpromazine	2mL ampoule (50mg)	\$0.92	eMIT		\$0.03	P	\$0.00429	\$0.24772
ciclosporin	1mL ampoule (50mg)	\$3.02	BNF	\$1.72	\$1.71	P	\$0.06771	\$0.33212
ciprofloxacin	1mL solution for infusion (2mg)	\$0.01	eMIT		\$0.00	TN	\$0.00051	\$0.60568
cisplatin	100mL injection (100mg)	\$13.73	eMIT	\$8.84	\$5.14	P	\$3.88629	\$5.77765
cisplatin	50mL injection (50mg)	\$9.09	eMIT	\$4.42	\$2.57	P	\$1.94314	\$3.19133
clindamycin	1mL injection (150mg)	\$0.37	eMIT		\$1.21	P		
cloxacillin	powder for injection (500mg)			\$0.89	\$0.12	TN	\$0.01268	\$0.62188
cyclizine	1mL injection (50mg)	\$2.11	eMIT				\$0.00419	\$0.61057
cyclophosphamide	powder for injection (500mg)	\$11.53	eMIT	\$5.04	\$0.50	TN	\$0.78130	\$1.64490
cytarabine	powder for injection (100mg)	\$3.99	eMIT	\$1.80	\$0.05	TN	\$0.13341	\$0.78257
dacarbazine	powder for injection (100mg)	\$5.42	eMIT		\$1.01	TN	\$0.33923	\$1.05652
dactinomycin	powder for injection (500mcg)				\$5.87	P		
daunorubicin	powder for injection (50mg)	\$211.25	BNF	\$10.03	\$2.78	TN	\$1.70665	\$2.87655
deferoxamine	injection (500mg)	\$5.19	BNF	\$0.47	\$2.12	TN		
deferoxamine	powder for injection (500mg)	\$5.19	BNF	\$0.47	\$2.12	TN		
desmopressin	1mL ampoule (4mcg)	\$1.46	eMIT				\$0.00112	\$0.24349
dexamethasone	1mL ampoule (4mg)			\$0.21	\$0.02	TN	\$0.00790	\$0.25252
dexamethasone	1mL ampoule (4mg)			\$0.21	\$0.02	TN	\$0.00790	\$0.25252
dexamethasone	1mL ampoule (4mg)			\$0.21	\$0.02	TN	\$0.00790	\$0.25252
dexamethasone	1mL ampoule (4mg)			\$0.21	\$0.02	TN	\$0.00790	\$0.25252
dexamethasone	1mL ampoule (4mg)			\$0.21	\$0.02	TN	\$0.00790	\$0.25252
diazepam	1mL injection (5mg)	\$0.25	eMIT	\$0.06	\$0.02	TN	\$0.00065	\$0.60587
digoxin	2mL ampoule (500mcg)	\$0.60	eMIT	\$2.44	\$0.06	P	\$0.00354	\$0.24671
dimercaprol	2mL ampoule (100mg)				\$1.50	P		
docetaxel	injection (20mg)	\$3.30	eMIT	\$21.70	\$1.45	TN	\$2.71104	\$4.21340
docetaxel	injection (40mg)			\$34.29	\$2.90	TN	\$5.42209	\$7.82180
dopamine	5mL vial (200mg)	\$0.68	eMIT	\$0.26	\$0.09	TN	\$0.05528	\$0.67858
doxorubicin	powder for injection (10mg)	\$1.99	eMIT	\$1.70	\$0.50	TN	\$0.45249	\$1.20727
doxorubicin	powder for injection (50mg)	\$5.25	eMIT	\$5.06	\$1.13	TN	\$2.26247	\$3.61635
eflornithine	100mL injection (20g)						\$27.83990	\$37.65990
ephedrine	1mL ampoule (30mg)	\$0.52	eMIT		\$0.10	TN	\$0.00184	\$0.24445

epinephrine (adrenaline)	10mL ampoule (1mg)	\$6.97	eMIT				\$0.01878	\$0.26699
epinephrine (adrenaline)	1mL ampoule (1mg)	\$0.20	eMIT		\$0.03	TN	\$0.01878	\$0.26699
epinephrine (adrenaline)	1mL ampoule (1mg)	\$0.20	eMIT		\$0.03	TN	\$0.01878	\$0.26699
ergometrine	1ml ampoule (0.2mg)				\$0.03	P		
erythromycin	powder for injection (500mg)	\$11.12	eMIT					
estradiol cypionate + medroxyprogesterone acetate	injection (5mg + 25mg)							
etoposide	5mL ampoule (100mg)	\$3.47	eMIT	\$3.66	\$0.97	TN	\$0.84629	\$1.36841
filgrastim	1.6mL vial (480mcg)						\$0.00392	\$0.61022
filgrastim	1mL vial (300mcg)	\$68.52	BNF	\$28.15	\$15.71	P	\$0.00245	\$0.60826
fluconazole	1mL vial (2mg)	\$0.01	eMIT		\$0.00	TN	\$0.00028	\$0.60538
flucytosine	250mL infusion (2.5g)	\$39.43	BNF				\$3.44262	\$5.18712
fludarabine	vial (50mg)	\$30.46	eMIT	\$42.03	\$20.50	TN		
fluorouracil	5mL ampoule (250mg)	\$0.60	eMIT		\$0.10	P		
fluphenazine	1mL ampoule (25mg)	\$2.78	eMIT	\$2.30	\$0.34	P	\$0.05980	\$0.32160
fomepizole	1.5mL ampoule (1500mg)						\$26.92838	\$36.08368
furosemide	2mL ampoule (20mg)	\$0.12	eMIT	\$0.07	\$0.02	TN	\$0.00075	\$0.24300
furosemide	2mL ampoule (20mg)	\$0.12	eMIT	\$0.07	\$0.02	TN	\$0.00075	\$0.24300
gemcitabine	vial (1000mg)	\$40.16	eMIT	\$20.20	\$4.71	TN	\$4.36964	\$6.42099
gemcitabine	vial (200mg)	\$5.19	eMIT	\$5.02	\$0.94	TN	\$0.87393	\$1.76820
gentamicin	2mL vial (20mg)	\$1.43	eMIT		\$0.04	P		
gentamicin	2mL vial (80mg)	\$0.78	eMIT	\$0.23	\$0.04	TN		
glucagon	1mL injection (1mg)	\$14.98	BNF	\$19.51	\$1.64	P		
haloperidol	1mL ampoule (5mg)	\$1.40	eMIT		\$0.02	TN	\$0.00166	\$0.24420
haloperidol	1mL ampoule (5mg)	\$1.40	eMIT		\$0.02	TN	\$0.00166	\$0.24420
haloperidol	1mL ampoule (5mg)	\$1.40	eMIT		\$0.02	TN	\$0.00166	\$0.24420
heparin sodium	1mL ampoule (133.3mg)						\$1.69772	\$2.50167
heparin sodium	1mL ampoule (6.7mg)	\$0.99	eMIT	\$0.17	\$0.02	P	\$0.08533	\$0.35558
heparin sodium	1mL ampoule (6.7mg)	\$0.99	eMIT	\$0.17	\$0.02	P	\$0.08533	\$0.35558
heparin sodium	1mL ampoule (33.3mg)	\$2.09	eMIT	\$0.28	\$0.14	TN	\$0.42411	\$0.80649
heparin sodium	1mL ampoule (33.3mg)	\$2.09	eMIT	\$0.28	\$0.14	TN	\$0.42411	\$0.80649
hydralazine	powder for injection (20mg)	\$2.88	BNF				\$0.00777	\$0.25234
hydrocortisone	powder for injection (100mg)			\$0.78	\$0.48	P	\$0.09166	\$0.72700
hydrocortisone	powder for injection (100mg)			\$0.78	\$0.48	P	\$0.09166	\$0.72700
hydroxocobalamin	1mL ampoule (1mg)	\$1.15	eMIT					
hyoscine hydrobromide	injection (600mcg)	\$1.33	eMIT				\$0.00239	\$0.24518
hyoscine hydrobromide	injection (400mcg)	\$1.10	eMIT				\$0.00159	\$0.24412
ibuprofen	1mL injection (5mg)	\$46.80	BNF				\$0.00005	\$0.60507
ifosfamide	powder for injection (1g)	\$118.72	BNF	\$28.71	\$2.33	TN	\$1.31204	\$2.35133
ifosfamide	powder for injection (2g)	\$233.84	BNF	\$48.71	\$4.65	TN	\$2.62408	\$4.09765

ifosfamide	powder for injection (500mg)	\$59.35	BNF	\$17.22	\$1.16	TN	\$0.65602	\$1.47816
imipenem + cilastatin	powder for injection (500mg + 500mg)	\$3.30	eMIT	\$3.12	\$11.86	P		
imipenem + cilastatin	powder for injection (250mg + 250mg)			\$1.56	\$8.50	P		
insulin injection (soluble)	10mL injection (13.9mg)				\$0.79	TN	\$0.46524	\$1.22423
insulin injection (soluble)	10mL injection (34.7mg)	\$9.72	BNF	\$1.83	\$5.80	P	\$1.16309	\$2.15308
intermediate-acting insulin	10mL injection (13.9mg)				\$0.79	TN		
intermediate-acting insulin	10mL injection (34.7mg)	\$9.72	BNF	\$1.83	\$4.19	P		
irinotecan	5mL vial (100mg)	\$143.81	BNF		\$21.43	P	\$0.42618	\$1.17225
irinotecan	25mL vial (500mg)	\$46.83	eMIT		\$107.14	P	\$2.13090	\$3.44123
irinotecan	2mL vial (40mg)	\$5.58	eMIT		\$10.71	P	\$0.17047	\$0.83190
kanamycin	powder for injection (1g)				\$0.43	P		
ketamine	10mL vial (500mg)	\$9.10	BNF	\$2.30	\$0.07	P	\$0.14269	\$0.79492
lidocaine	2mL ampoule (100mg lidocaine + glucose)				\$0.06	P	\$0.00016	\$0.24222
lidocaine	5mL ampoule (100mg)	\$0.26	eMIT		\$0.02	P	\$0.00162	\$0.24416
lidocaine	vial (10mg)	\$0.05	BNF	\$0.40	\$0.00	P	\$0.00016	\$0.60522
lidocaine	vial (20mg)	\$0.06	BNF	\$0.14	\$0.00	P	\$0.00032	\$0.60543
lidocaine + epinephrine (adrenaline)	vial (10mg + 0.005mg)	\$0.13	BNF				\$0.00026	\$0.60534
lidocaine + epinephrine (adrenaline)	vial (20mg + 0.005mg)	\$0.12	BNF				\$0.00042	\$0.60556
lorazepam	1mL ampoule (2mg)				\$0.06	TN	\$0.00147	\$0.24395
lorazepam	1mL ampoule (4mg)	\$0.46	BNF		\$0.21	P	\$0.00294	\$0.24591
magnesium sulfate	10mL ampoule (5g)	\$0.73	eMIT	\$1.36	\$0.09	TN	\$0.01335	\$0.25978
magnesium sulfate	2mL ampoule (1g)	\$0.42	eMIT	\$0.27	\$0.02	TN	\$0.00267	\$0.24556
mannitol	1mL solution (100mg)	\$0.01	BNF		\$0.00	P	\$0.00069	\$0.60592
mannitol	1mL solution (100mg)	\$0.01	BNF		\$0.00	P	\$0.00069	\$0.60592
mannitol	1mL solution (200mg)	\$0.02	BNF	\$0.01	\$0.01	P	\$0.00138	\$0.60683
mannitol	1mL solution (200mg)	\$0.02	BNF	\$0.00	\$0.01	P	\$0.00138	\$0.60683
medroxyprogesterone acetate	1mL vial (150mg)	\$7.81	BNF	\$0.42	\$3.32	P		
meglumine antimoniate		0						
melarsoprol	5mL ampoule (180mg)							
melarsoprol	5mL ampoule (180mg)							
mesna	10mL ampoule (1000mg)	\$38.23	BNF		\$0.88	TN	\$0.66591	\$1.12833
mesna	4mL ampoule (400mg)	\$17.43	BNF	\$2.40	\$0.35	TN	\$0.26636	\$0.59653
methotrexate	powder for injection (50mg)	\$1.83	eMIT	\$1.93	\$0.26	TN	\$4.04570	\$5.98983
methylprednisolone	5mL vial (200mg)						\$0.56616	\$1.35856

methylprednisolone	1mL vial (80mg)				\$0.61	P	\$0.22647	\$0.90643
methylprednisolone	1mL vial (40mg)	\$1.79	eMIT	\$1.20	\$0.22	P	\$0.11323	\$0.75571
methylthioninium chloride (methylene blue)	10mL ampoule (100mg)							
metoclopramide	2mL ampoule (10mg)	\$0.15	eMIT	\$0.11	\$0.02	TN	\$0.00086	\$0.24315
metoclopramide	2mL ampoule (10mg)	\$0.15	eMIT	\$0.11	\$0.02	TN	\$0.00086	\$0.24315
metronidazole	100mL vial (500mg)	\$0.47	eMIT		\$0.09	TN	\$0.00616	\$0.61320
metronidazole	100mL vial (500mg)	\$0.47	eMIT		\$0.09	TN	\$0.00616	\$0.61320
midazolam	1mL injection (5mg)	\$0.08	eMIT	\$0.17	\$0.09	P	\$0.02628	\$0.63998
midazolam	1mL injection (1mg)	\$0.11	eMIT	\$0.06	\$0.03	TN	\$0.00526	\$0.61200
midazolam	1mL injection (1mg)	\$0.11	eMIT	\$0.06	\$0.03	TN	\$0.00526	\$0.61200
morphine	1mL ampoule (10mg)	\$0.16	eMIT	\$0.13	\$0.10	TN		
morphine	1mL ampoule (10mg)	\$0.16	eMIT	\$0.13	\$0.10	TN		
naloxone	1mL ampoule (400mcg)	\$0.43	eMIT	\$0.21	\$0.99	TN		
neostigmine	1mL ampoule (500mcg)			\$0.26	\$0.02	TN	\$0.01352	\$0.25999
neostigmine	1mL ampoule (2.5mg)	\$0.53	eMIT	\$0.15	\$0.32	P	\$0.06758	\$0.33194
norethisterone enantate	1mL ampoule (200mg)	\$5.27	BNF	\$0.72	\$1.98	P		
omeprazole	powder for injection (40mg)	\$1.23	eMIT		\$0.16	TN	\$0.00055	\$0.60573
ondansetron	2mL ampoule (4mg)	\$0.11	eMIT	\$0.30	\$0.02	TN	\$0.00445	\$0.24792
ondansetron	2mL ampoule (4mg)	\$0.11	eMIT	\$0.30	\$0.02	TN	\$0.00445	\$0.24792
oxaliplatin	40mL vial (200mg)	\$40.30	eMIT				\$12.77141	\$17.60375
oxaliplatin	20mL vial (100mg)	\$20.15	eMIT	\$59.76			\$6.38571	\$9.10438
oxaliplatin	powder for injection (100mg)	\$20.15	eMIT	\$59.76	\$6.21	TN	\$6.38571	\$9.10438
oxaliplatin	powder for injection (50mg)	\$13.81	eMIT	\$29.88	\$3.10	TN	\$3.19285	\$4.85469
oxytocin	1mL ampoule (25mcg)	\$0.91	eMIT	\$0.32	\$0.09	TN	\$0.00134	\$0.24378
paclitaxel	powder for injection (1mg)	\$0.09	eMIT	\$0.22	\$0.04	TN	\$0.04273	\$0.66188
paromomycin	injection (750mg)							
pegylated interferon alfa (2a or 2b)	injection (100mcg)	\$172.80	BNF		\$48.91	TN		
pegylated interferon alfa (2a or 2b)	injection (180mcg)	\$161.72	BNF		\$46.43	TN		
pegylated interferon alfa (2a or 2b)	injection (80mcg)	\$138.24	BNF		\$39.13	TN		
pentamidine	powder for injection (200mg)	\$27.54	BNF					
phenobarbital	1mL injection (200mg)	\$7.32	eMIT		\$0.20	P	\$0.01656	\$0.26404
phenytoin	5mL vial (250mg)	\$0.85	eMIT	\$1.34	\$0.09	TN	\$0.00475	\$0.61133
phytomenadione	5mL ampoule (50mg)	\$2.46	BNF		\$0.36	P		
phytomenadione	5mL ampoule (5mg)							

procaine benzylpenicillin	powder for injection (1g)							
procaine benzylpenicillin	powder for injection (3g)				\$0.49	P		
propofol	1mL injection (20mg)	\$0.05	eMIT		\$0.17	P	\$0.00226	\$0.60800
propofol	1mL injection (10mg)	\$0.03	eMIT	\$0.02	\$0.03	TN	\$0.00113	\$0.60650
prostaglandin E1	1mL solution for injection (0.5mg)							
prostaglandin E2	1mL solution for injection (1mg)							
protamine sulfate	5mL ampoule (50mg)	\$6.44	BNF	\$4.08	\$0.08	P		
protamine sulfate	5mL ampoule (50mg)	\$6.44	BNF	\$4.08	\$0.08	P		
pyridostigmine	1mL ampoule (1mg)							
quinine	2mL ampoule (600mg)			\$1.10	\$0.11	P	\$0.07719	\$0.34474
ranitidine	2mL ampoule (50mg)	\$0.48	eMIT	\$0.49	\$0.01	TN	\$0.00105	\$0.24340
ribavirin	10mL solution (800mg)						\$0.09776	\$0.73512
ribavirin	10mL solution (800mg)						\$0.09776	\$0.73512
ribavirin	10mL solution (1g)						\$0.12220	\$0.76765
ribavirin	10mL solution (1g)						\$0.12220	\$0.76765
rituximab	50mL vial (500mg)	\$1,135.10	BNF	\$518.48			\$336.88802	\$449.00296
rituximab	10mL vial (100mg)	\$227.01	BNF	\$103.70			\$67.37760	\$90.28459
salbutamol	5mL ampoule (50mcg)						\$0.00001	\$0.24201
sodium calcium edetate	5mL ampoule (1000mg)						\$0.00334	\$0.24644
sodium nitrite	10mL ampoule (300mg)						\$0.00038	\$0.24250
sodium nitroprusside	powder for injection (50mg)				\$0.64	P	\$0.00784	\$0.25244
sodium stibogluconate	30mL vial (3g)	\$25.91	BNF					
sodium stibogluconate or meglumine antimoniate	N/A							
sodium thiosulfate	50mL ampoule (12500mg)						\$0.02574	\$0.27625
spectinomycin	powder for injection (2g)				\$2.86	P		
streptokinase	powder for injection (15.6mg)	\$101.97	eMIT	\$223.93	\$3.65	P	\$14.27110	\$19.59983
streptomycin	powder for injection (1000mg)			\$0.29	\$0.06	P		
streptomycin	powder for injection (1000mg)			\$0.29	\$0.06	P		
sulfamethoxazole + trimethoprim	5mL ampoule (400mg+80mg)	\$2.31	BNF				\$0.00659	\$0.25077
sulfamethoxazole + trimethoprim	5mL ampoule (400mg+80mg)	\$2.31	BNF				\$0.00659	\$0.25077

sulfamethoxazole + trimethoprim	10mL ampoule (800mg+160mg)	\$4.62	BNF				\$0.01317	\$0.25953
suramin sodium	powder for injection (1g)							
suxamethonium		0					\$0.00000	\$0.60500
suxamethonium	2mL ampoule (100mg)	\$0.86	eMIT		\$0.12	P	\$0.05053	\$0.30925
testosterone	1mL ampoule (200mg)				\$1.34	P	\$0.02237	\$0.27178
tranexamic acid	10mL ampoule (1000mg)	\$3.90	BNF	\$8.47	\$0.54	P	\$0.09442	\$0.36767
trastuzumab	powder for injection (150mg)	\$529.62	BNF					
trastuzumab	powder for injection (440mg)							
trastuzumab	powder for injection (60mg)							
valproic acid (sodium valproate)	10mL ampoule (1g)				\$2.86	P	\$0.02628	\$0.27698
valproic acid (sodium valproate)	4mL ampoule (400mg)	\$5.09	eMIT		\$1.14	P	\$0.01051	\$0.25599
vancomycin	powder for injection (250mg)	\$0.72	eMIT	\$0.88	\$0.28	TN	\$0.22748	\$0.90777
vecuronium	powder for injection (10mg)	\$4.38	BNF		\$1.05	TN		
vecuronium	powder for injection (10mg)	\$4.38	BNF		\$1.05	TN		
verapamil	2mL ampoule (5mg)	\$1.41	BNF				\$0.00039	\$0.24252
vinblastine	powder for injection (10mg)	\$19.27	eMIT	\$6.20	\$1.72	TN	\$2.57796	\$4.03626
vincristine	powder for injection (5mg)	\$23.43	eMIT	\$13.92	\$0.24	TN	\$2.66370	\$4.15039
vincristine	powder for injection (1mg)	\$4.08	eMIT	\$2.78	\$0.05	TN	\$0.53274	\$1.31408
vinorelbine	1mL vial (10mg)	\$6.23	eMIT	\$6.76	\$36.79	P		
vinorelbine	5mL vial (50mg)	\$23.41	eMIT	\$33.61	\$152.63	P		
zidovudine (ZDV or AZT)	20mL vial (200mg)	\$11.60	BNF		\$0.20	P	\$0.05046	\$0.67216

eMIT – price source was the electronic market information tool, available from <https://www.gov.uk/government/publications/drugs-and-pharmaceutical-electronic-market-information-emit>

BNF – price source was the British National Formulary, available from <https://bnf.nice.org.uk/>

TN – price source was the database of the Tamil Nadu Medical Services Corporation, available from [http://www.tnmsc.com/tnmsc/new/user\\_pages/drugtender.php?drugcat=drug2017](http://www.tnmsc.com/tnmsc/new/user_pages/drugtender.php?drugcat=drug2017) and [http://www.tnmsc.com/tnmsc/new/user\\_pages/drugtender.php?drugcat=sdg2017](http://www.tnmsc.com/tnmsc/new/user_pages/drugtender.php?drugcat=sdg2017)

P – price source was the MedGuide India database, available from <http://www.medguideindia.com/>

Prices in South Africa were collected from the South Africa Department of Health Master Procurement Catalogue. Available from <http://www.health.gov.za/index.php/component/phocadownload/category/196> (accessed May 12, 2017).

**Exchange rates**

Exchange rates used were 1 INR = 0.015 USD, 1 GBP = 1.3 USD, 1 ZAR = 0.075 USD.