

Web-extra material**Table 1: List of oral formulations considered child-appropriate**

	Formulation	IMS-MIDAS shorthand
Solid	Oral Solid Ordinary Orally Disintegrating Tablets	AAB (OR DISINTG TAB)
	Oral Solid Ordinary Buccal Tablets	AAE (BUCCAL TABLETS)
	Oral Solid Ordinary Chewable Tablets	AAG (CHEW.TABLETS)
	Oral Solid Ordinary Effervescent Tablets	AAH (EFFERV.TABLETS)
	Oral Solid Ordinary Soluble Tablets	AAK (SOLUBLE TABS.)
	Oral Solid Ordinary Powders	AEA (POWDER ORAL)
	Oral Solid Ordinary Granules	AEB (ORAL GRANULES)
	Oral Solid Ordinary Unit Dose Powders	AEP (U-DOSE POWDERS)
	Oral Solid Retard Unit Dose Powders	BEP (RET DOSE PWDR)
	Oral Solid Retard Other Powders/Granules	BEY (OTH PDR/GRN RT)
Liquid	Oral Liquid Unit Dose Pressurised Aerosols	DEH (EFFERV PDR/GRN)
	Oral Liquid Ordinary Soluble Powders	DEK (SOLUBLE POWDER)
	Oral Liquid Ordinary Unit Dose Powders	DEP (ORAL U-D PWDR)
	Oral Liquid Ordinary Other Powders/Granules	DEY (OTHER PDR/GRN)
	Oral Liquid Ordinary Liquids	DGA (ORAL LIQUID)
	Oral Liquid Ordinary Drops	DGB (DROPS ORAL)
	Oral Liquid Ordinary Dry Suspensions/Syrups/Drops	DGJ (DRY SYRUP/DROP)
	Oral Liquid Ordinary Suspensions	DGK (SUSPENSION)
	Oral Liquid Ordinary Syrups	DGM (SYRUP)
	Oral Liquid Ordinary Unit Dose Liquids	DGN (ORAL U-D LIQ)
	Oral Liquid Retard Soluble Powders	EEK (RET SOLUB PDR.)
	Oral Liquid Retard Unit Dose Powders	EEP (RET U-D PWDR)

**Table 2: Percentage use of antibiotics expressed as % of total child-appropriate formulation standard units recorded in IMS country-level wholesale data in 2015 for high-income countries**

Country	SU sold (million)	Access %*	Watch %*	Reserve %*	Unclassified %*	Amoxicillin %	AW-I
Australia	85.7	84.3	8.8	0.003	6.9	44.6	9.5
Austria	16.5	72.6	11.5	0.01	15.8	8.1	6.3
Belgium	46.8	87.6	8.9	0.01	3.5	69.8	9.9
Canada	95.1	85.9	8.5	0.006	5.6	66.5	10.1
Chile	30.7	73.1	12.3	0.0	14.6	53.0	5.6
Czech Republic	12.4	75.8	15.4	0.0	8.8	4.5	4.9
Estonia	1.6	65.5	17.9	0.0	16.6	34.9	3.7
Finland	5.5	83.3	4.7	0.0	12.1	37.2	17.8
France	467.4	78.7	19.7	0.008	1.6	54.4	4.0
Germany	121.9	46.8	19.6	0.03	33.6	24.6	2.4
Greece	67.7	69.0	12.2	0.0	18.8	30.2	5.7
Hungary	17.5	62.6	19.5	0.0	17.9	6.9	3.2
Ireland	23.0	71.4	11.0	0.07	17.5	33.8	6.5
Italy	241.4	68.2	27.7	0.008	4.0	22.3	2.5
Japan	255.1	34.4	51.0	0.0	14.6	27.0	0.7
Kuwait	6.4	43.6	49.4	0.0	7.0	0.1	0.9
Latvia	3.2	77.6	12.3	0.0	10.0	46.3	6.3
Lithuania	7.3	78.1	11.3	0.0	10.6	60.1	6.9
Luxembourg	1.6	74.4	10.2	0.0	15.4	50.1	7.2
Netherlands	39.4	92.3	3.4	0.0	4.3	42.5	27.2
New Zealand	28.6	81.0	6.8	0.002	12.2	50.7	11.9
Norway	5.4	85.3	10.0	0.0	4.7	19.7	8.5
Poland	115.3	72.5	12.0	0.0	15.5	21.0	6.1
Portugal	29.9	84.2	6.8	0.004	9.0	29.9	12.3
Puerto Rico	9.9	82.8	10.5	0.005	6.7	41.3	7.9
Saudi Arabia	150.8	56.0	33.0	0.0	11.0	7.8	1.7
Singapore	7.3	72.5	23.7	0.04	3.8	14.3	3.1
Slovakia	12.1	49.5	26.9	0.0	23.6	1.9	1.8
Slovenia	6.1	94.4	3.3	0.0	2.3	53.1	28.9
South Korea	238.4	58.0	29.5	0.0	12.5	0.6	2.0
Spain	213.2	90.4	7.4	0.02	2.2	48.0	12.3
Sweden	8.8	81.9	3.9	0.0	14.2	13.7	21.0
Switzerland	11.8	87.1	9.3	0.01	3.6	34.3	9.4
UK	197.1	73.2	12.1	0.05	14.7	42.5	6.1
Uruguay	7.5	85.8	5.0	0.0	9.1	68.9	17.0
USA	1185.0	86.7	11.9	0.1	1.4	54.5	7.3

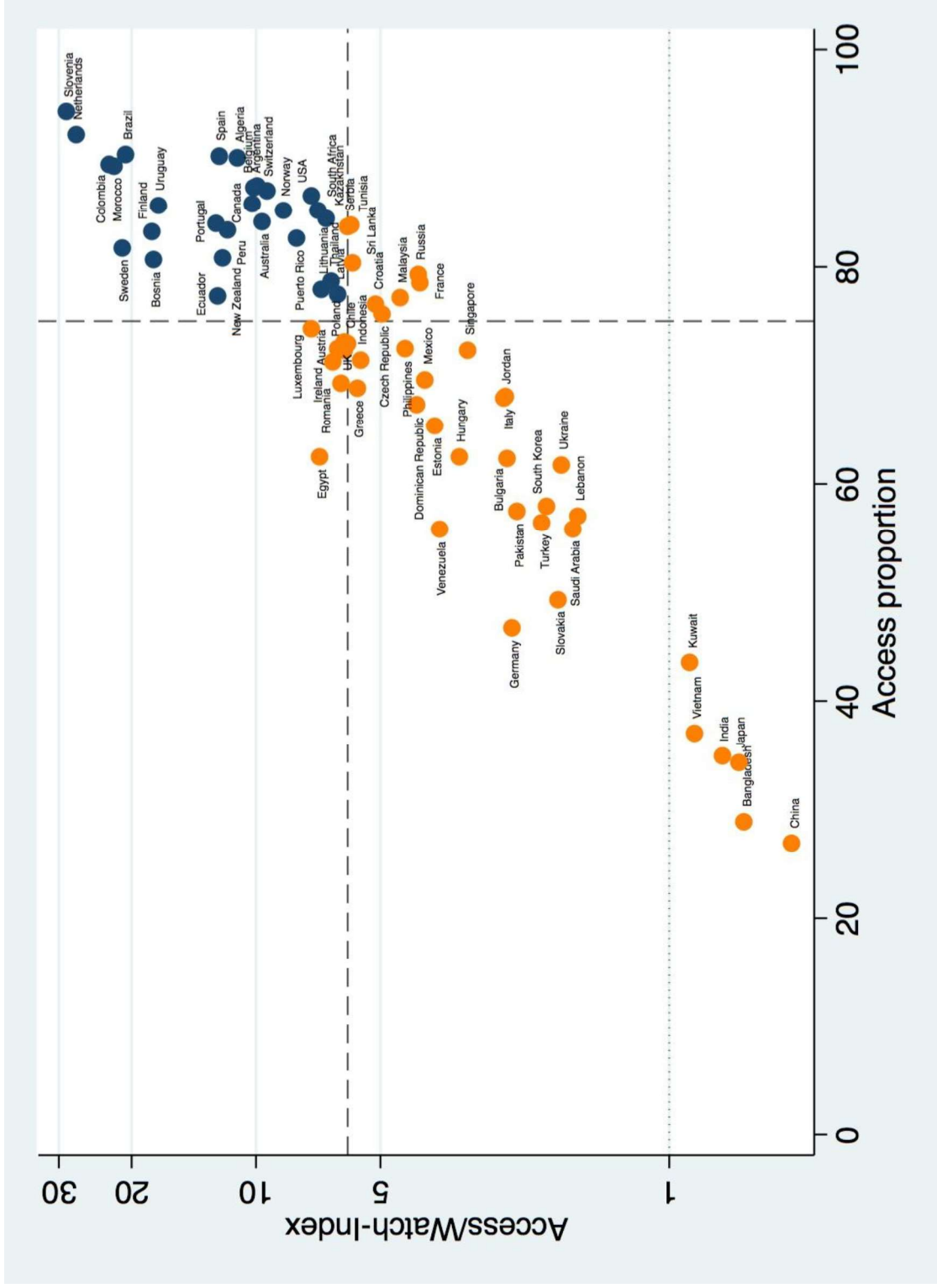
\*rounding may result in the total of Access+Watch+Reserve+Unclassified coming to slightly more or less than 100%

**Table 3: Percentage use of antibiotics expressed as % of total child-appropriate formulation standard units recorded in IMS country-level wholesale data in 2015 for middle-income countries**

Country	SU sold (million)	Access %*	Watch %*	Reserve %*	Unclassified %*	Amoxicillin %	AW-I
Algeria	583.7	90.2	8.2	0.0	1.6	46.6	11.0
Argentina	124.5	87.4	8.7	0.0	4.0	55.1	10.1
Bangladesh	498.5	29.0	44.4	0.1	26.4	16.5	0.7
Bosnia	7.4	80.8	4.6	0.0	14.6	15.3	17.5
Brazil	499.5	90.5	4.4	0.0	5.1	47.2	20.5
Bulgaria	23.8	62.5	25.6	0.0	11.8	25.2	2.4
China	2406.6	27.0	54.0	0.0	18.9	10.7	0.5
Colombia	85.3	89.6	4.0	0.0	6.3	59.5	22.1
Croatia	11.7	76.7	15.1	0.0	8.2	23.4	5.1
Dominican Republic	7.8	67.4	16.6	0.0	16.0	35.6	4.1
Ecuador	71.8	77.5	6.3	0.0	16.2	31.1	12.3
Egypt	648.6	62.6	9.0	1.0	27.4	7.6	6.9
India	4175.3	35.0	47.3	0.2	17.4	9.6	0.7
Indonesia	247.9	71.6	12.9	0.0	15.5	48.3	5.6
Jordan	25.8	68.0	27.3	0.0	4.7	11.6	2.5
Kazakhstan	50.1	84.6	12.6	0.0	2.9	27.7	6.7
Lebanon	20.9	57.2	34.7	0.0	8.2	11.2	1.6
Malaysia	92.5	77.3	17.4	0.004	5.4	33.9	4.4
Mexico	143.4	69.8	18.1	0.0	12.1	11.7	3.9
Morocco	210.1	89.5	4.1	0.0	6.3	39.8	21.6
Pakistan	1472.6	57.6	24.8	0.05	17.6	19.2	2.3
Peru	80.0	83.5	7.2	0.0	9.3	69.7	11.6
Philippines	165.3	72.6	16.8	0.0002	10.5	29.2	4.3
Romania	77.1	69.5	11.2	0.0	19.3	14.8	6.2
Russia	297.6	79.4	19.8	0.002	0.8	44.9	4.0
Serbia	32.0	83.9	14.1	0.0	2.0	44.4	6.0
South Africa	226.9	85.4	12.2	0.004	2.4	50.4	7.0
Sri Lanka	38.3	80.5	13.9	0.0	5.6	19.1	5.8
Thailand	126.9	78.8	12.1	0.0	9.1	51.4	6.5
Tunisia	113.3	84.0	14.3	0.0	1.7	47.3	5.9
Turkey	776.5	56.6	28.1	0.0001	15.3	2.6	2.1
Ukraine	46.7	61.9	34.2	0.0	3.9	0.4	1.8
Venezuela	103.3	55.9	15.6	0.0	28.5	14.7	3.6
Vietnam	210.6	37.1	43.1	0.0	19.8	11.6	0.9

\*rounding may result in the total of Access+Watch+Reserve+Unclassified coming to slightly more or less than 100%

Figure S1: Scatterplot of Access percentage and Access/Watch-Index.



Dark blue dots: countries with Access percentage and AW-I above the rounded median (indicated by dashed lines, Access percentage 75%, AW-I 6). Orange dots: Access percentage or AW-I or both equal to or below median. Dotted line indicates AW-I of 1 where Access use equals Watch use. For countries below the dotted line more Watch standard units are sold than Access standard units.

Figure S2: Scatterplot of Access percentage and Amoxicillin-Index.

Dark blue dots: Countries with an AW-I above the median of 6. Light blue dots: Countries with an AW-I equal to or below the median. The dashed lines indicate the rounded median Access percentage (75%) and Amox-I (30%), the dotted line indicates the rounded upper Amox-I quartile (50%).

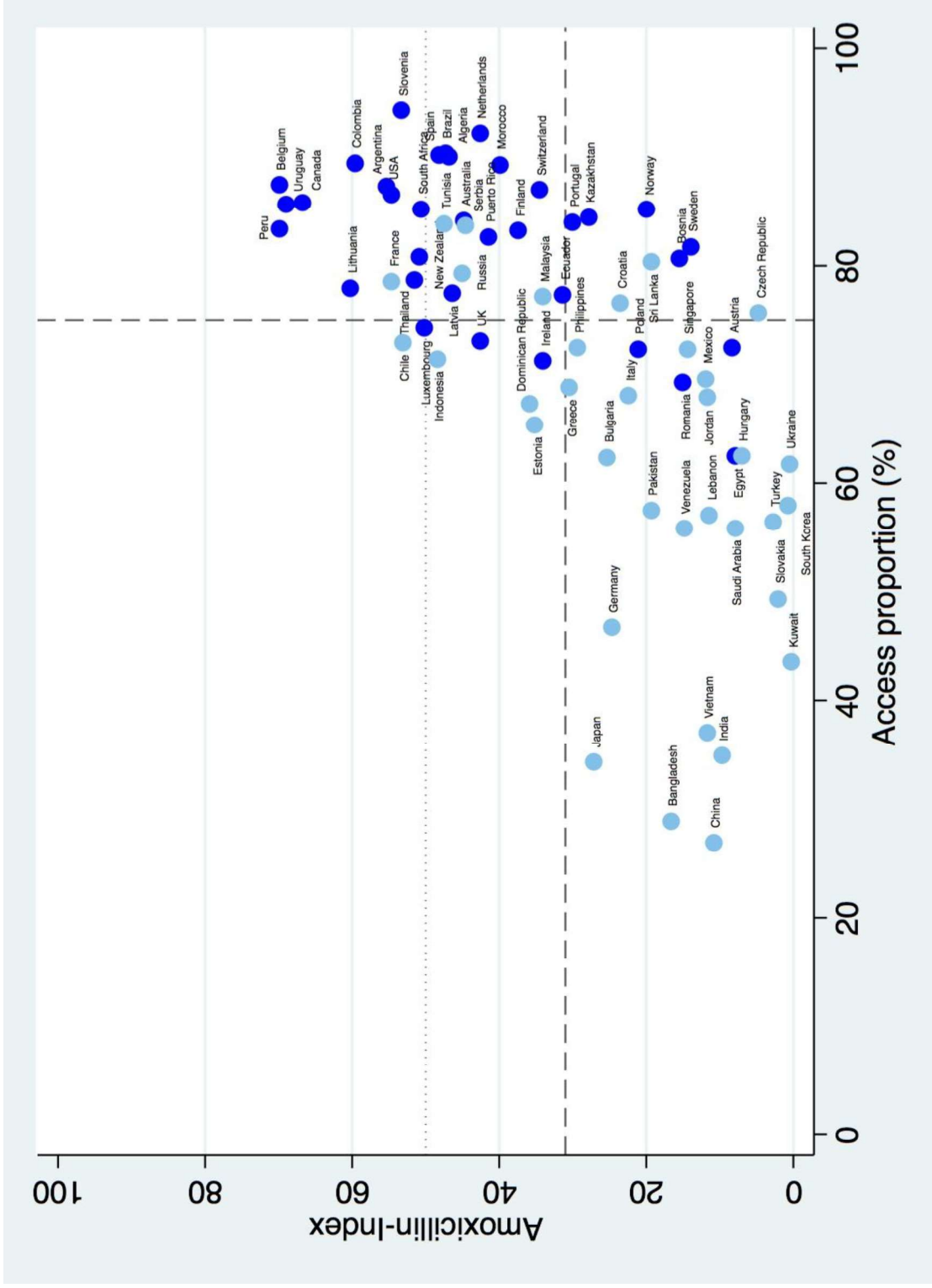




Figure 2

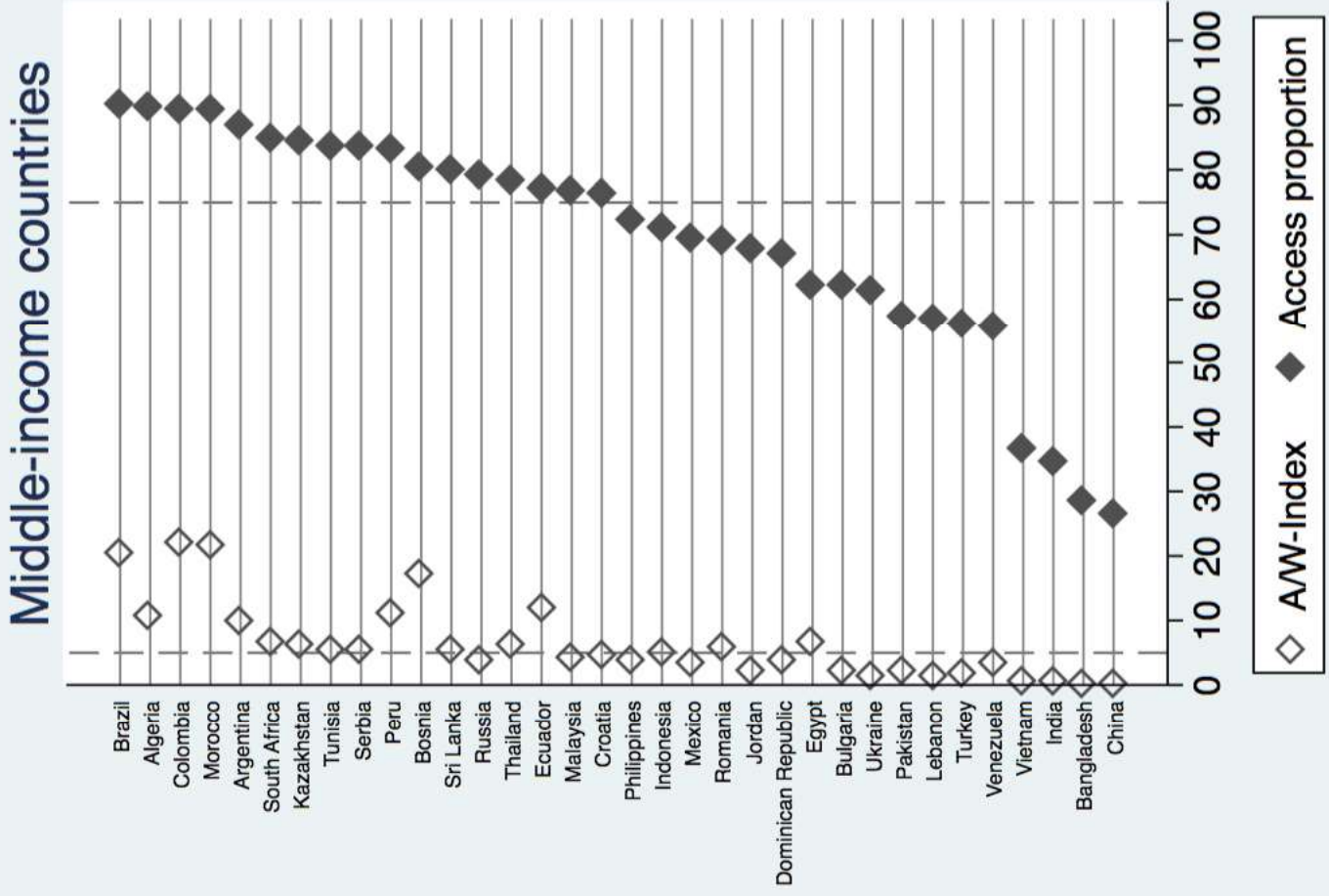
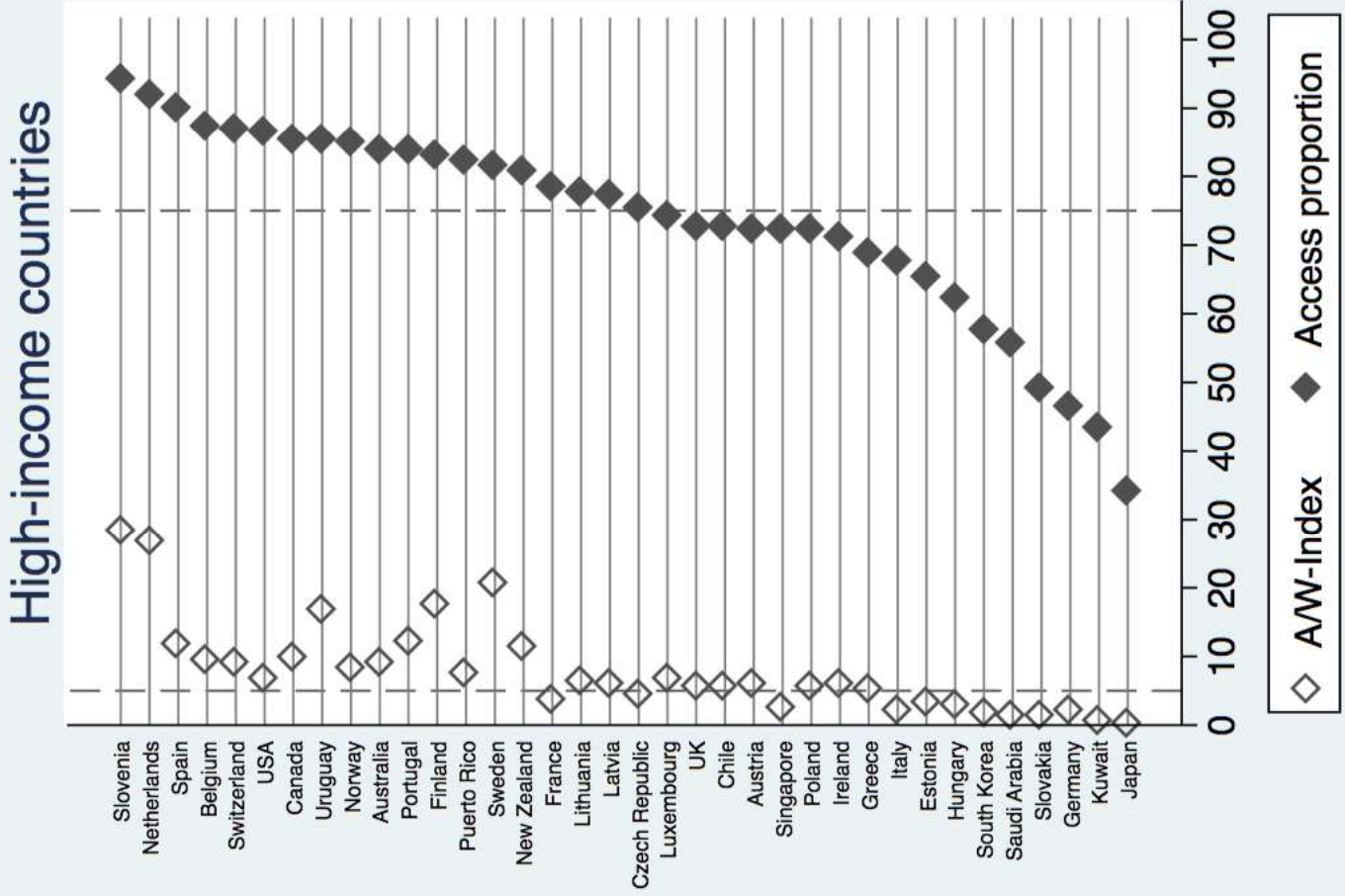
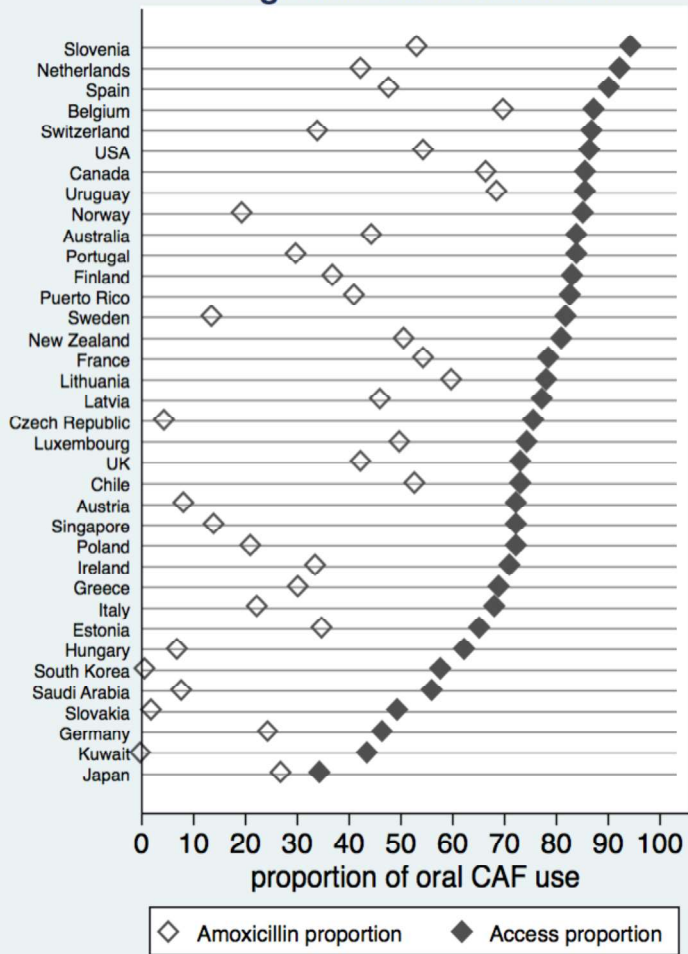


Figure 3

### High-income countries



### Middle-income countries

