

T1 International

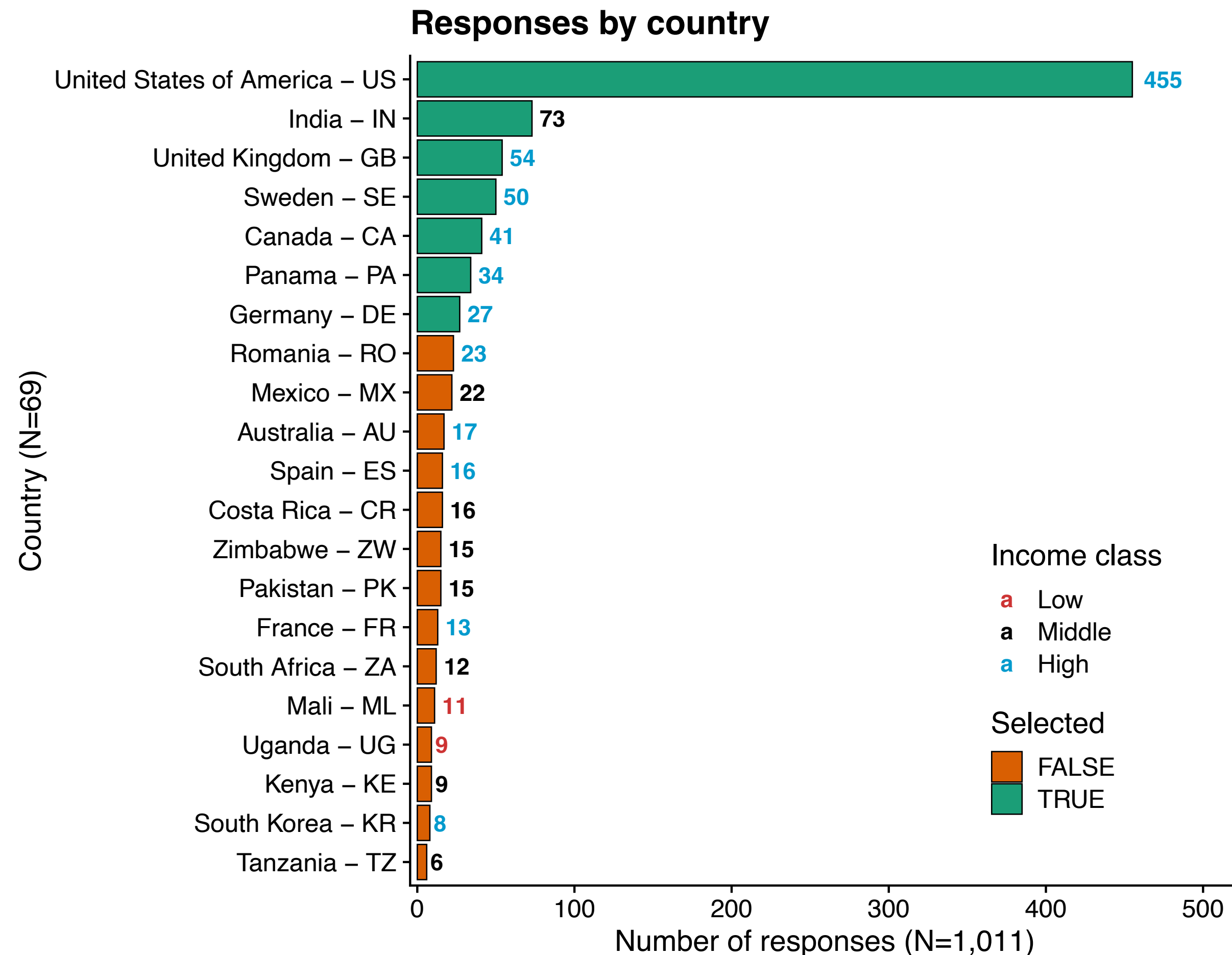
Reproducing analysis of the 2020 survey with 2022 data

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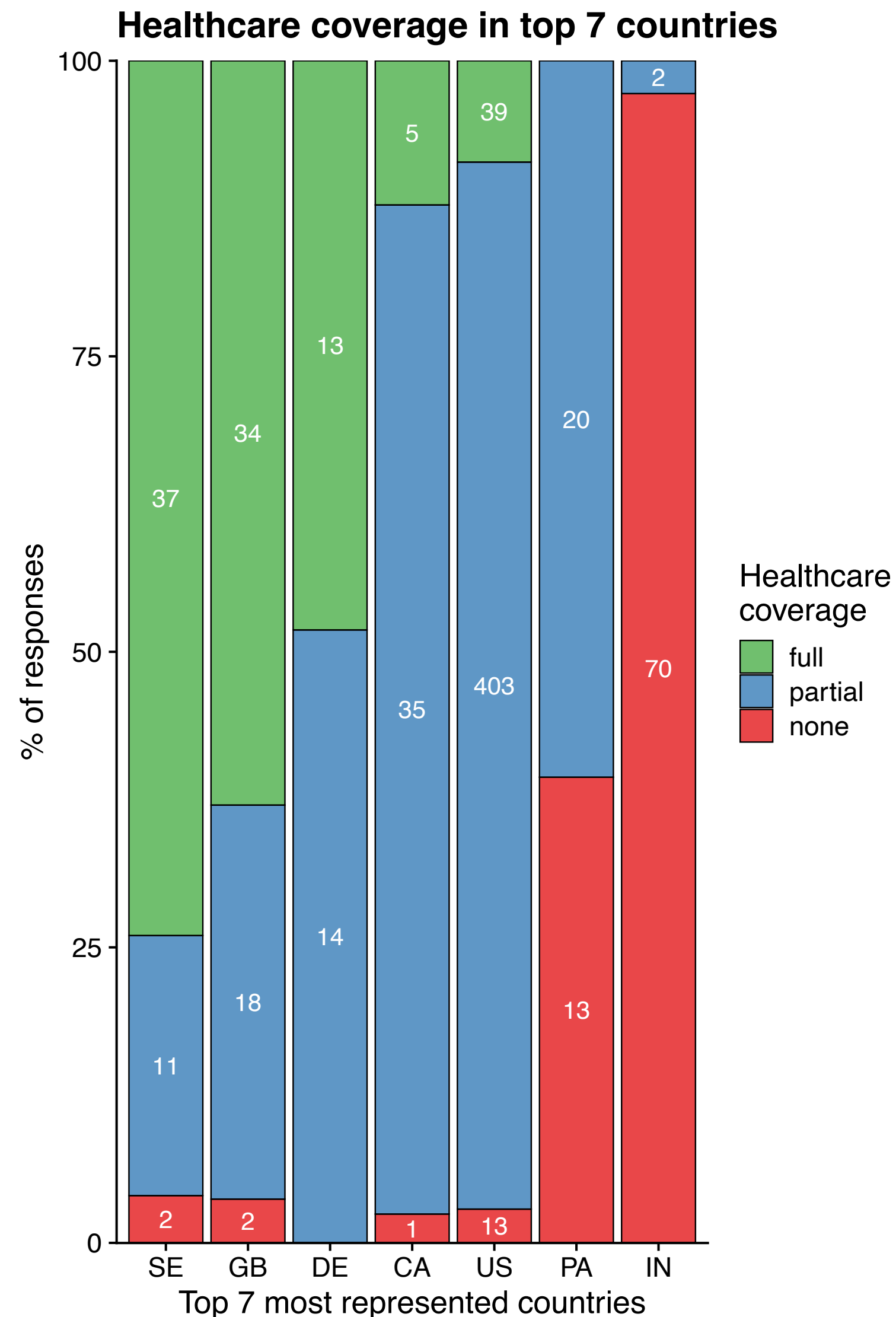
Country & healthcare coverage

The “Top 7”



- ▶ **7 countries** with **25+** respondents:
US, IN, GB, SE, CA, PA, DE
(same threshold as for the 2020's survey analysis)
- ▶ **US, CA, GB** also in 2020's survey analysis:
potential for comparison
- ▶ Responses from **other countries** not
considered further as not representative
(threshold of 25 already being a stretch)
- ▶ All top 7 countries are **high-income** except
India (**IN**), which is *middle-income*

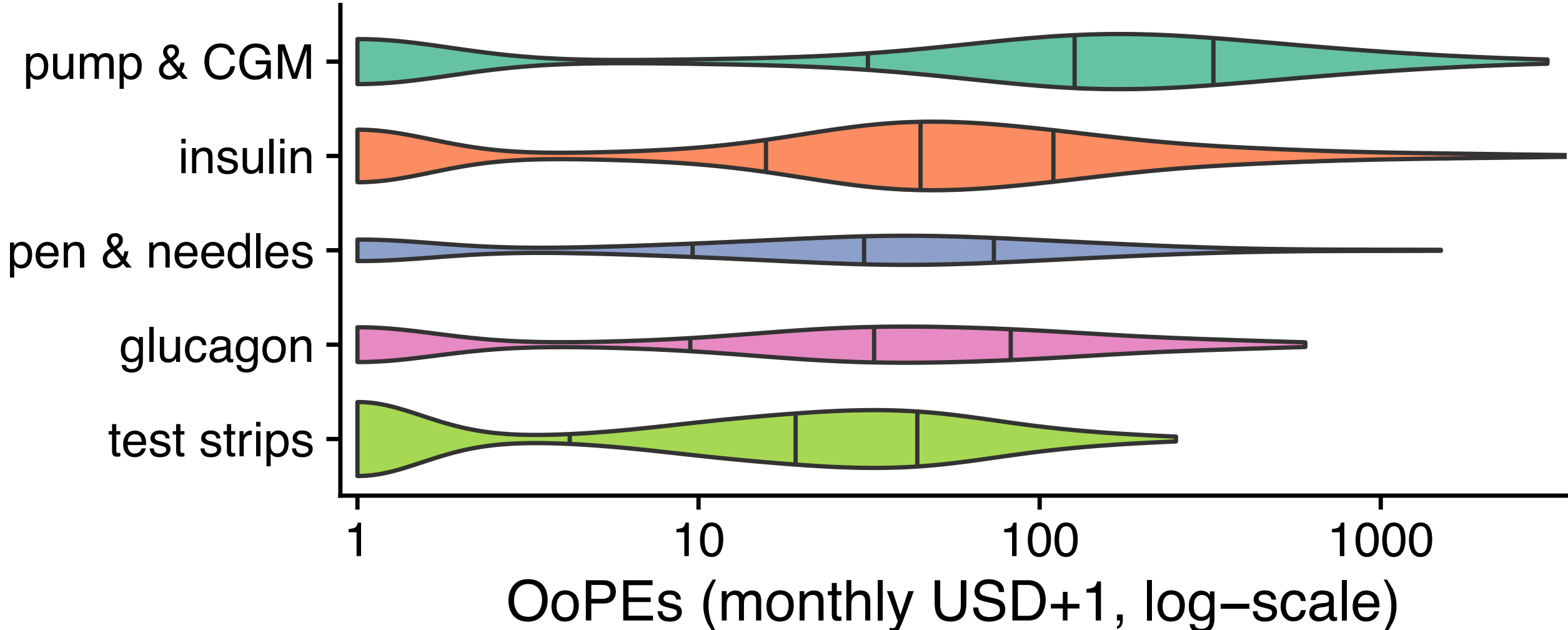
Healthcare coverage in Top 7



- ▶ Most combinations are present:
 - majority of *full* (SE, GB)
 - balance *full/partial* (DE)
 - majority *partial* (CA, US)
 - balance *partial/none* (PA)
 - majority *none* (IN)
- ▶ Potential danger for publication:
Nb. of responses for these sub-categories are really low
- ▶ Order from left-to-right according to *full*, then *none*

Out-of-Pocket Expenses

Per expense category



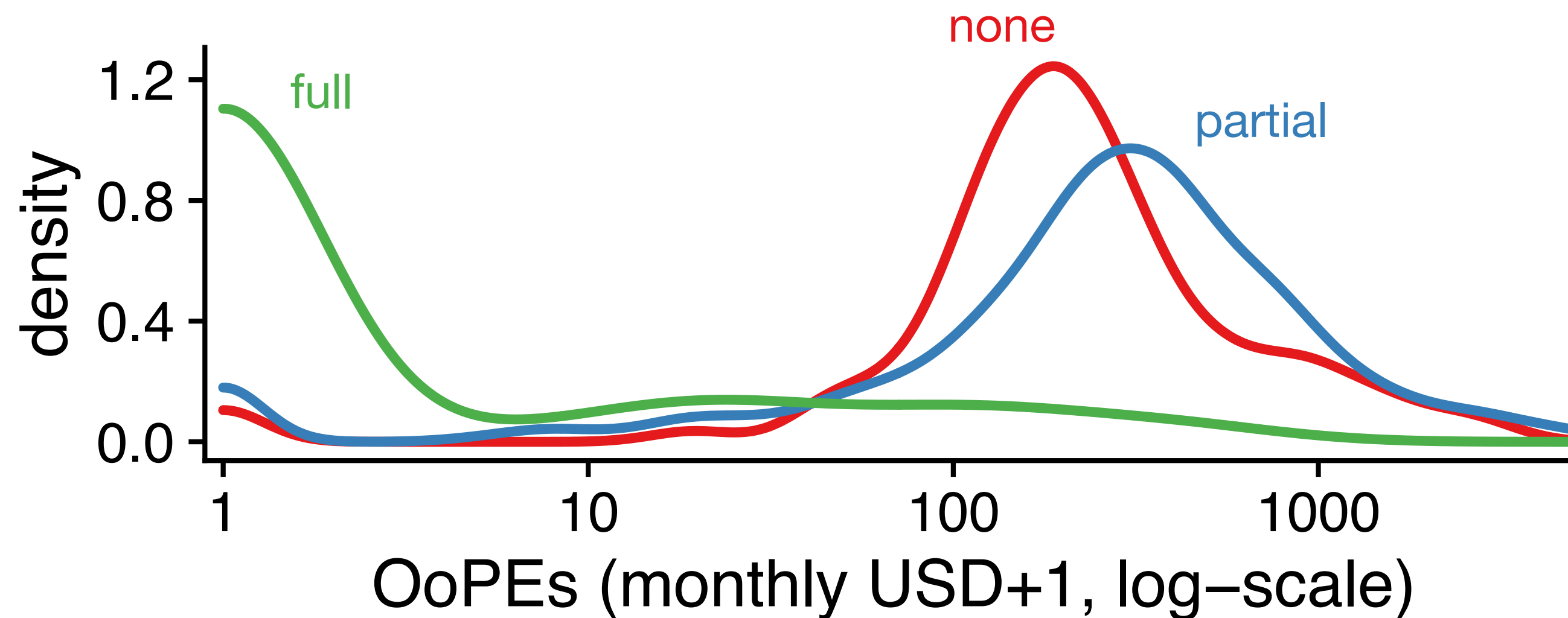
variable	N	NAs	mean	median	sd
devices	734	94 (12.8%)	219.1	100.0	365.5
insulins	734	31 (4.2%)	111.8	35.0	297.0
glucagon	734	319 (43.5%)	57.5	25.0	93.5
pen_needles	734	428 (58.3%)	59.1	25.0	144.1
strips	734	122 (16.6%)	25.2	12.2	36.0

- Definitions:
 - **pump & CGM:** pump supplies + CGM
 - **Insulin:** short-, long-, mixed-, other-acting insulins
 - **Pen & needles**
 - **Glucagon**
 - **Strips:** BG strips (not ketone)

- Graph reading:
 - violin areas are proportional to the number of answers
 - vertical ticks are 25%, 50% (median), and 75% quantiles
 - log-scaled with USD pseudocount of 1 to keep 0 USD

Out-of-Pocket Expenses

Per healthcare coverage

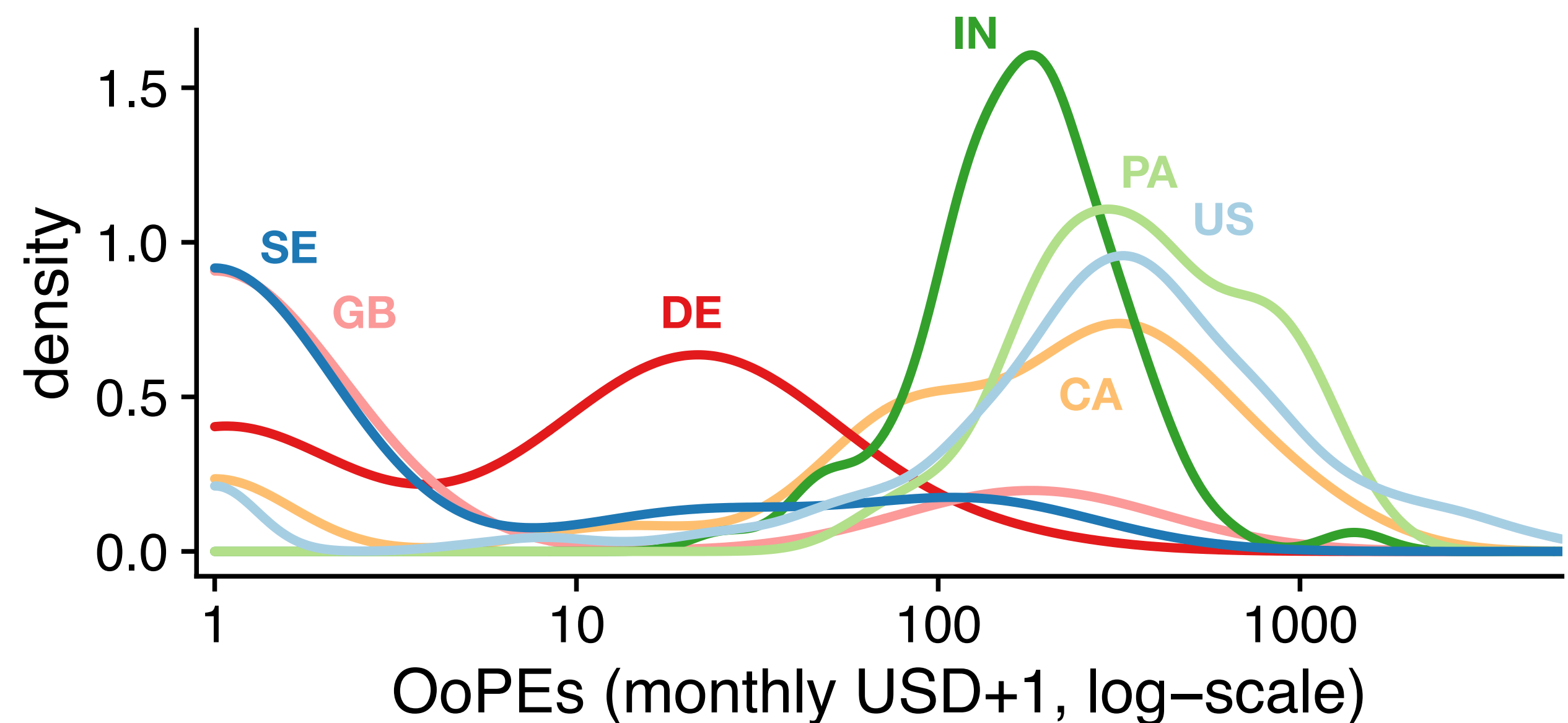


coverage	N	NAs	mean	median	sd
none	101	0 (0%)	361.1	201.3	479.5
partial	503	6 (1.2%)	475.4	281.1	668.5
full	128	7 (5.5%)	27.5	0.0	85.2

- ▶ Sum of monthly expenses listed in previous slide (pump & CGM + insulin + pen & needles + glucagon + BG test strips)
- ▶ Most *full coverage* have no OoPE (or very low, e.g. 10-100)
- ▶ Those with *no coverage* (median *200*, mean *361*) have lower OoPEs than those with *partial coverage* (median *280*, mean *470*)
Cannot really explain it. Perhaps one tends to spend more on diabetes management when subject to some healthcare coverage?

Out-of-Pocket Expenses

Per country (Top 7)



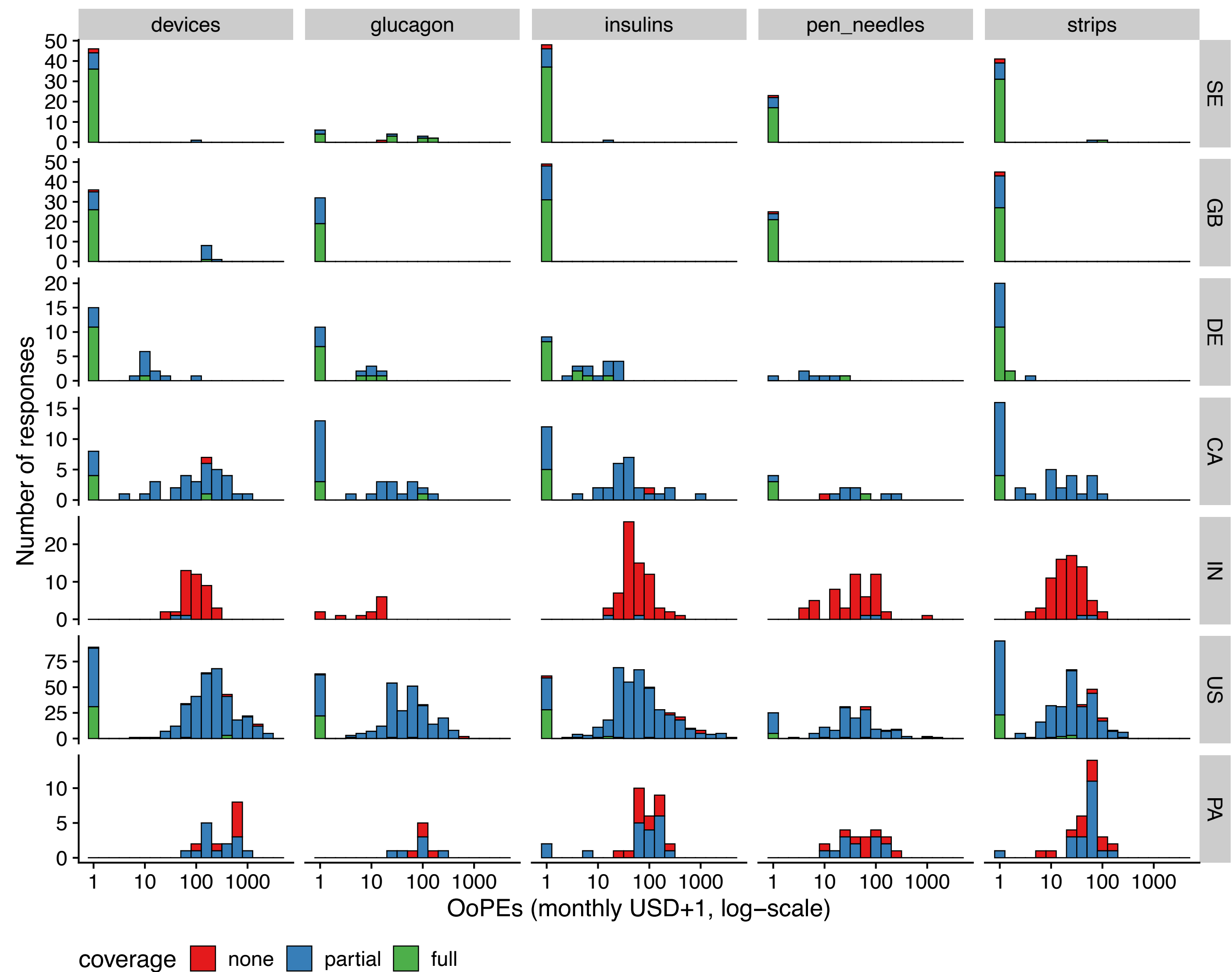
country_alpha2	N	NAs	mean	median	sd
PA	34	0 (0%)	462.8	351.0	320.9
US	455	7 (1.5%)	516.1	300.0	715.9
CA	41	1 (2.4%)	271.7	237.6	286.2
IN	73	0 (0%)	208.0	172.7	178.5
DE	27	0 (0%)	19.2	15.0	25.9
GB	54	4 (7.4%)	33.0	0.0	71.7
SE	50	1 (2%)	20.4	0.0	46.5

- ▶ Overall 3 OoPE clusters:
 - very low: **SE**, **GB**
 - middle: **DE**
 - high: **IN**, **US**, **CA**, **PA**
- ▶ Usual suspects at the usual places:
 - EU countries do very well
 - India not as bad as US
 - Canada is disappointing
- ▶ Danger:
 - India does better than US might be deceiving, bias towards middle-class Indian people? I did expect very bad results for IN.

Out-of-Pocket Expenses

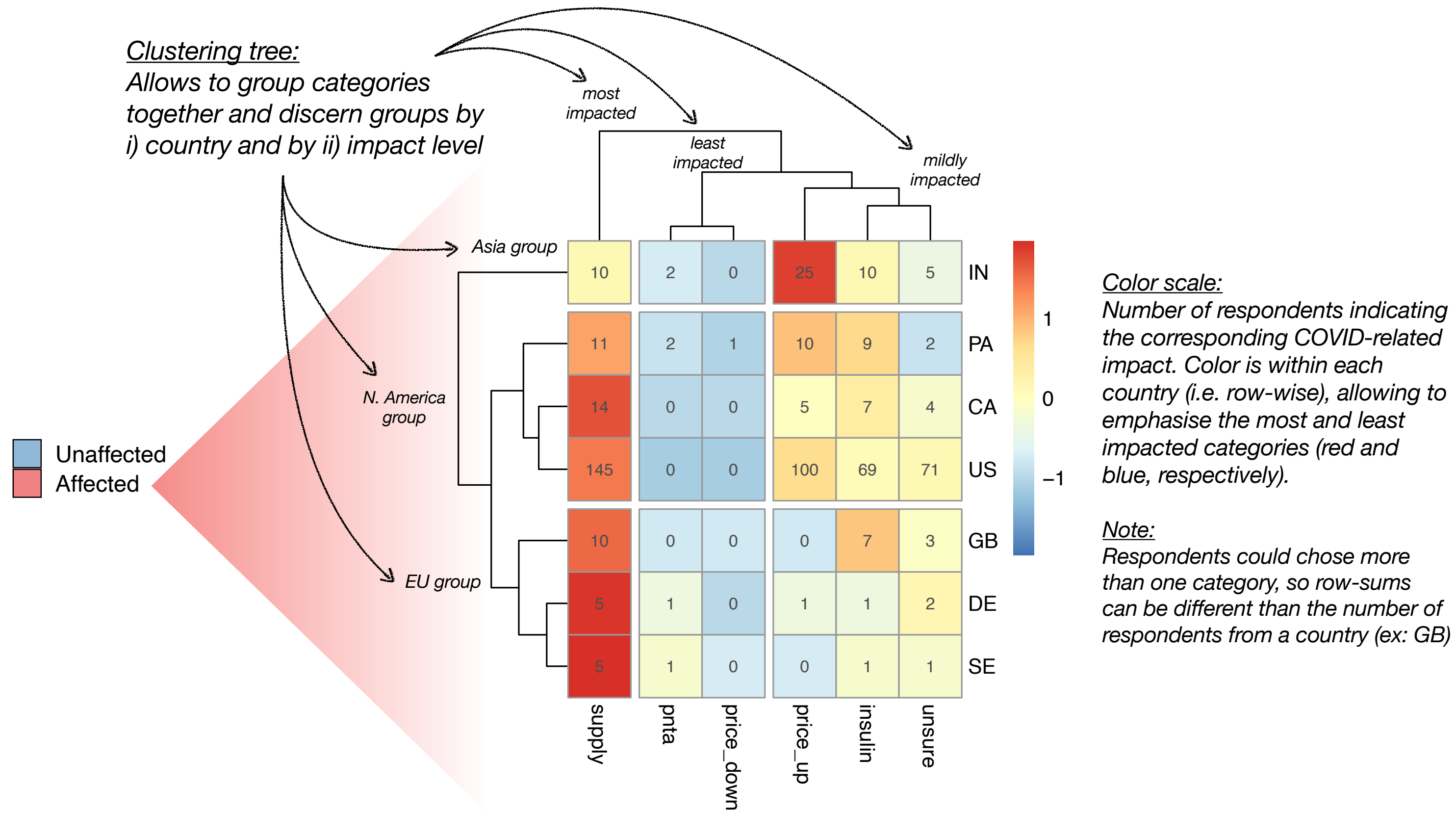
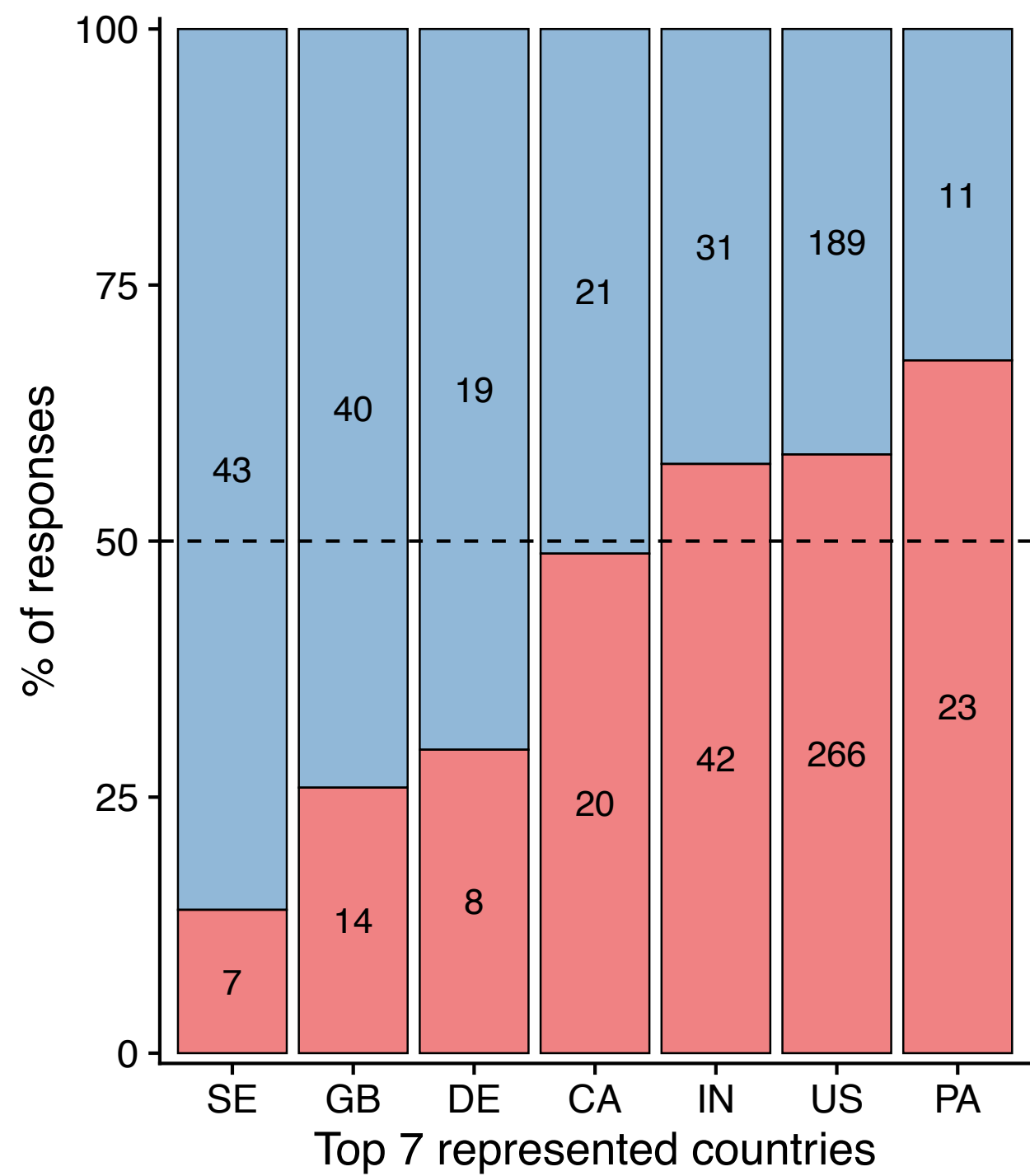
Breakdown

- ▶ Clear difference between EU countries (top 3) and the rest
- ▶ As expected, immense majority of **full coverage** have very low OoPEs (very left of the X-axis)
- ▶ Virtually nobody has no OoPEs in IN & PA
- ▶ Though virtually no respondent from IN had any healthcare coverage, their OoPEs levels appear similar to people with partial healthcare coverage in the US.



COVID-19 impact

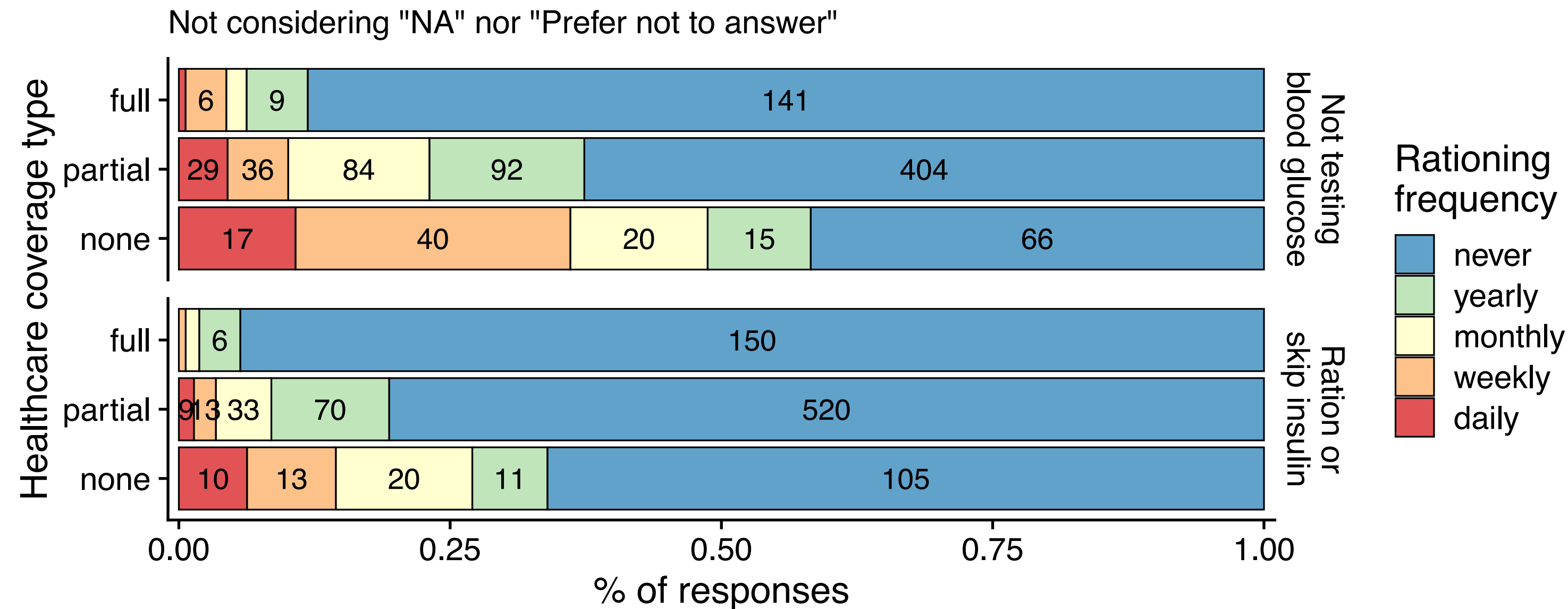
Overview and details



- ▶ Data-driven clustering separates countries by region (EU, N&C Americas, Asia)
- ▶ Largest impact was on supply, except for IN where it was insulin price surge. Expectedly barely any insulin price lowering.
- ▶ EU countries were less impacted

Rationing

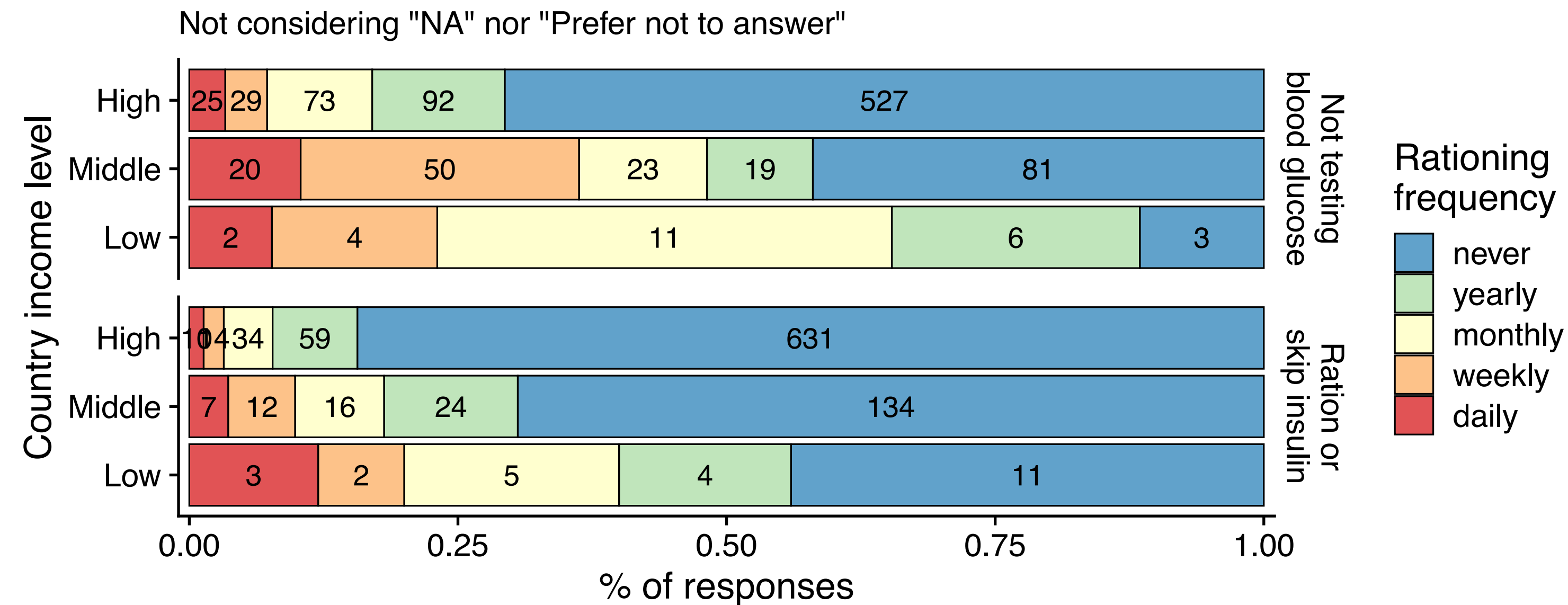
By healthcare coverage



- ▶ Clear negative correlation between the level of healthcare coverage and rationing frequency, both for blood glucose testing and insulin intake.
- ▶ Overall, testing of blood glucose level is more prone to rationing than insulin intake.

Rationing

By country income level

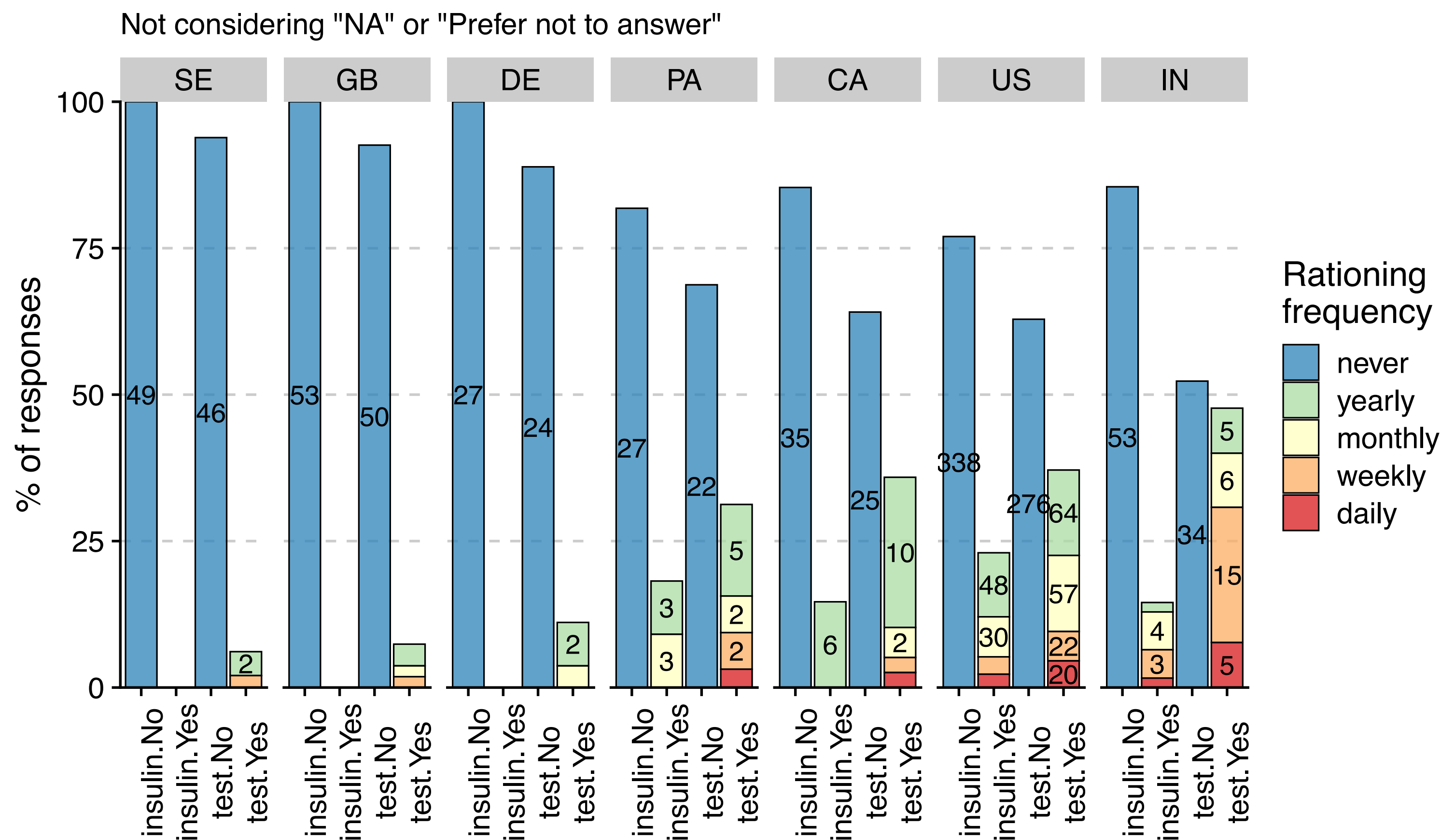


- ▶ Clear negative correlation between the country income level and rationing frequency, both for blood glucose testing and insulin intake.
- ▶ Overall, testing of blood glucose level is more prone to rationing than insulin intake.

Rationing

In Top 7 most represented countries

- ▶ Again clear distinction between EU-countries and the rest, with virtually no rationing/underuse in SE, GB, and DE.
- ▶ Though with very different country income level and healthcare coverage distributions, IN and US have similar underuse frequencies and are the worst amongst the top 7 most represented countries.



Demographic table

Worldwide (N=1,011)

characteristic	response	n	prop
gender	female	726	(71.8%)
gender	male	263	(26%)
gender	other	12	(1.2%)
gender	pnta	12	(1.2%)
connection to T1D	patient	768	(76%)
connection to T1D	mychild	224	(22.2%)
connection to T1D	betterhalf	13	(1.3%)
connection to T1D	doc	4	(0.4%)
monthly household income (USD)	[0,1000)	215	(21.3%)
monthly household income (USD)	[1000,1500)	73	(7.2%)
monthly household income (USD)	[1500,3000)	166	(16.4%)
monthly household income (USD)	[3000,5000)	113	(11.2%)
monthly household income (USD)	[5000,Inf]	80	(7.9%)
Country income level	Low	29	(2.9%)
Country income level	Middle	212	(21%)
Country income level	High	770	(76.2%)

Top 7 (N=736)

characteristic	response	n	prop
gender	female	535	(52.9%)
gender	male	179	(17.7%)
gender	other	12	(1.2%)
gender	pnta	10	(1%)
connection to T1D	patient	564	(55.8%)
connection to T1D	mychild	158	(15.6%)
connection to T1D	betterhalf	10	(1%)
connection to T1D	doc	0	(0%)
monthly household income (USD)	[0,1000)	93	(9.2%)
monthly household income (USD)	[1000,1500)	46	(4.5%)
monthly household income (USD)	[1500,3000)	142	(14%)
monthly household income (USD)	[3000,5000)	107	(10.6%)
monthly household income (USD)	[5000,Inf]	76	(7.5%)
Country income level	Low	0	(0%)
Country income level	Middle	73	(7.2%)
Country income level	High	661	(65.4%)