SHORTENING MEASURES OF ALOS AND POTENTIALLY AVOIDABLE HOSPITALISATIONS: A BELGIAN EXAMPLE

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I. Structure of the presentation

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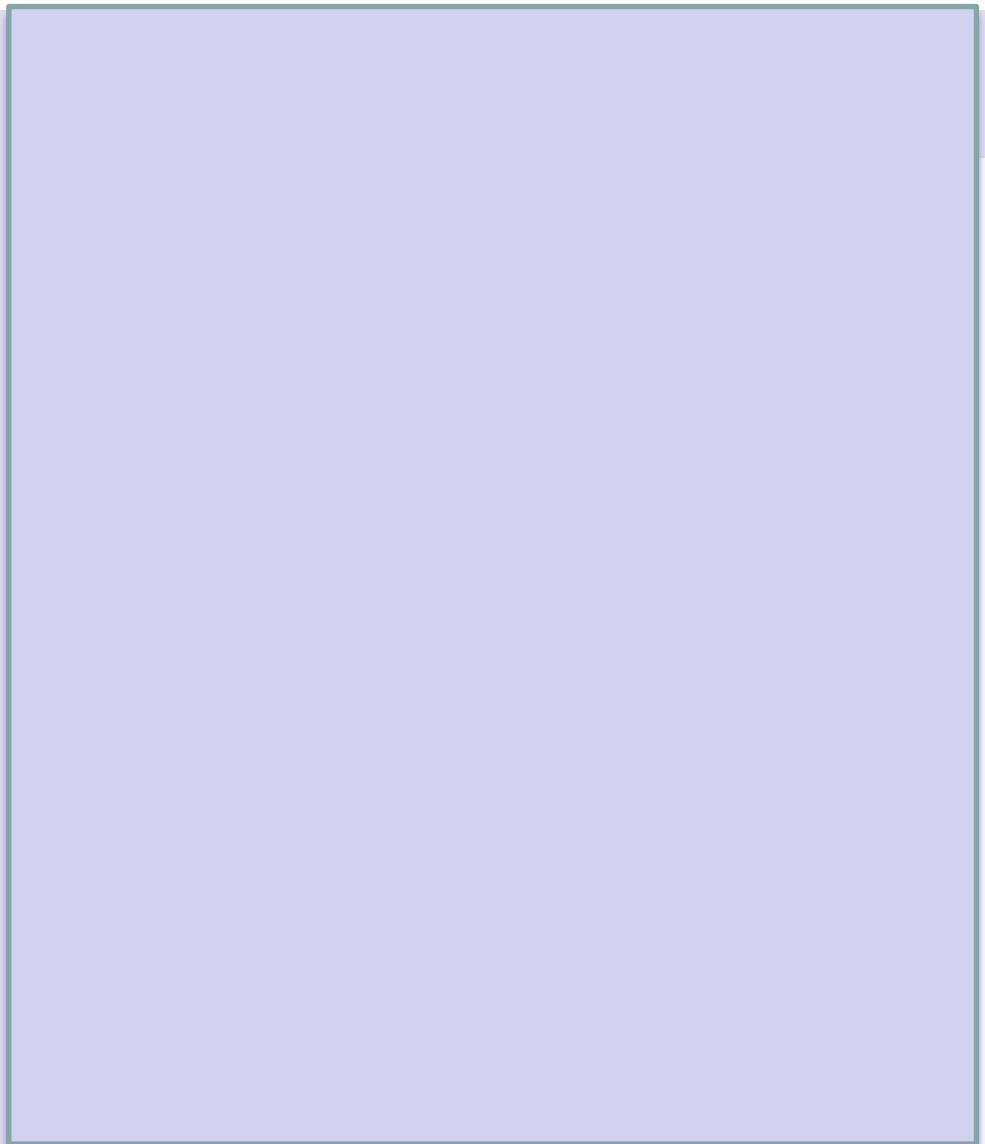
II. Facts and international comparisons :
    1. Bed days / inhabitants
        i. Hospital discharge
        ii. Average length of stay (ALOS)
        iii. Hospital beds
III. Explanations / hypothesis
IV. Solutions
V. Conclusions

II. Facts and international comparisons

1. Bed days / inhabitants



OECD 2012 (E-15)	bed days / inh	Bed days /Be
Germany	2,28	158%
Finland	2,11	146%
Austria	1,72	119%
Switzerland	1,62	112%
Belgium	**1,45**	**100%**
Luxembourg	1,12	78%
United Kingdom	1,05	72%
France	0,96	66%
Sweden	0,93	64%
Italy	0,85	59%
Ireland	0,80	56%
Denmark	0,79	55%
Spain	0,70	48%
Portugal	0,66	46%
Netherlands	0,67	46%

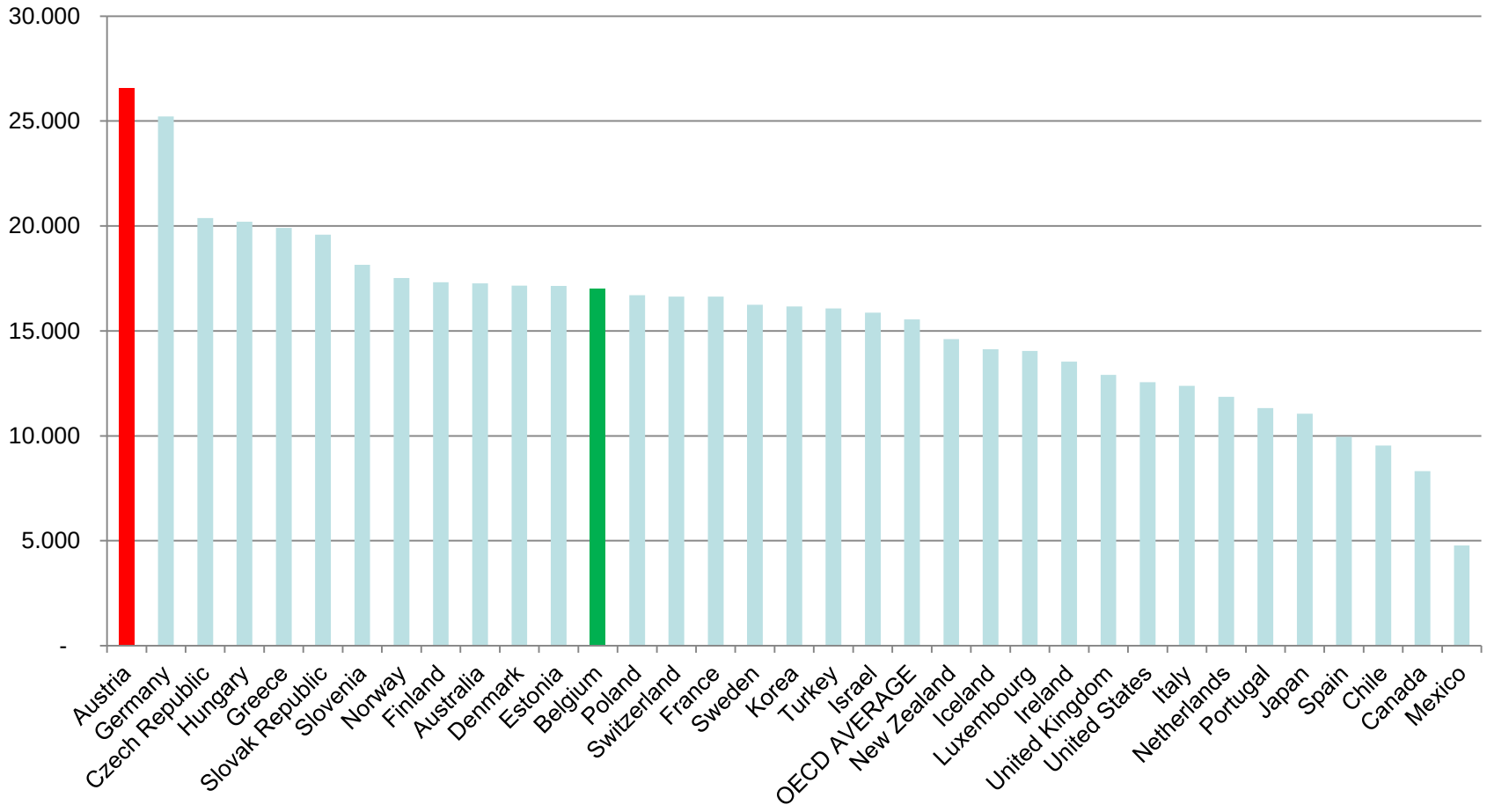
II. Facts and international comparisons
1. Bed days / inhabitants

Bed days / inhabitants is linked to:

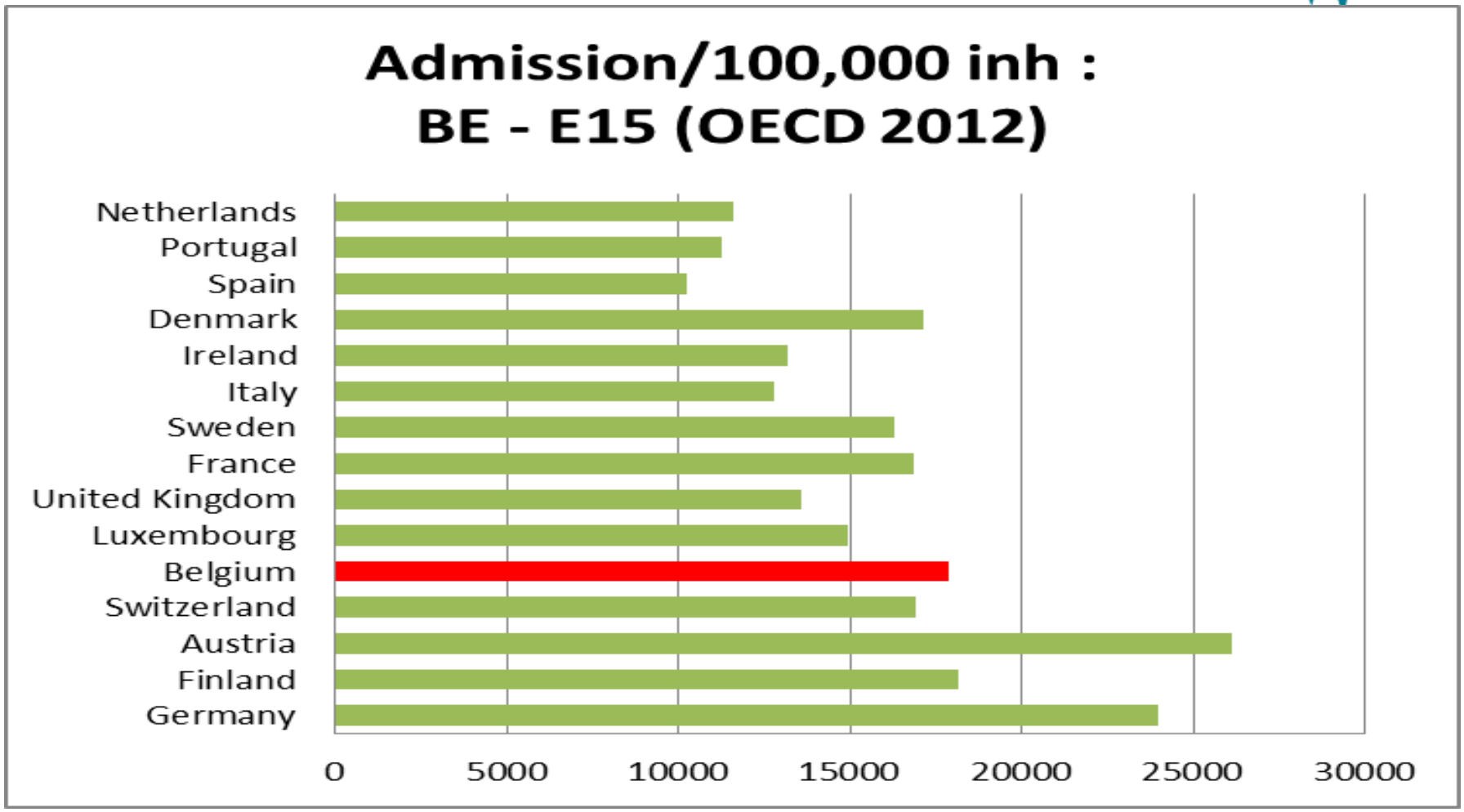
- Hospital discharges
- ALOS
- Hospital beds

II. Facts and international comparisons

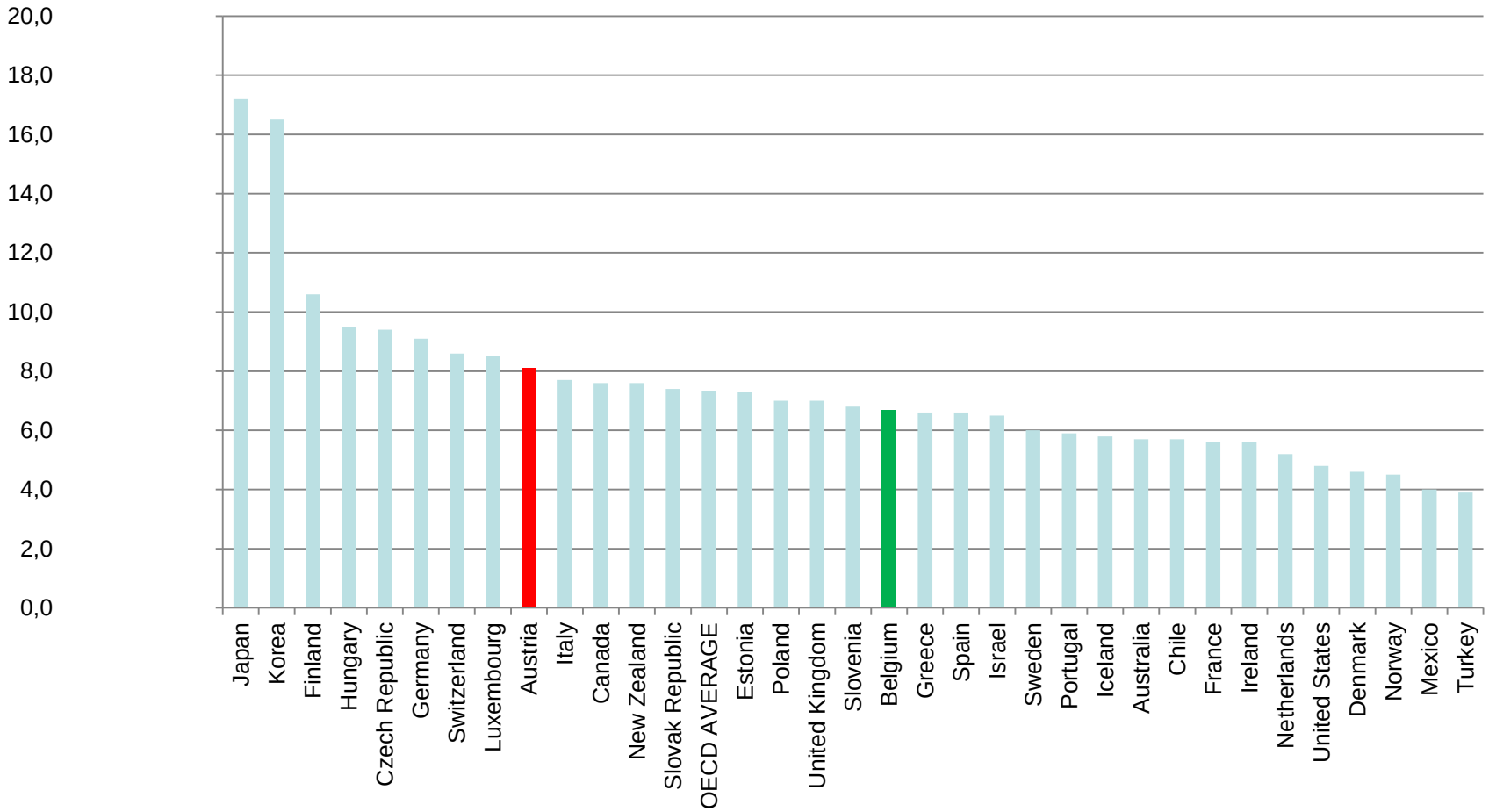
i. Hospital discharges (2013, 100,000 pop)



II. Facts and international comparisons
i. Hospital discharges (2012; 100,000 pop)



II. Facts and international comparisons
ii. Average length of stay (ALOS)



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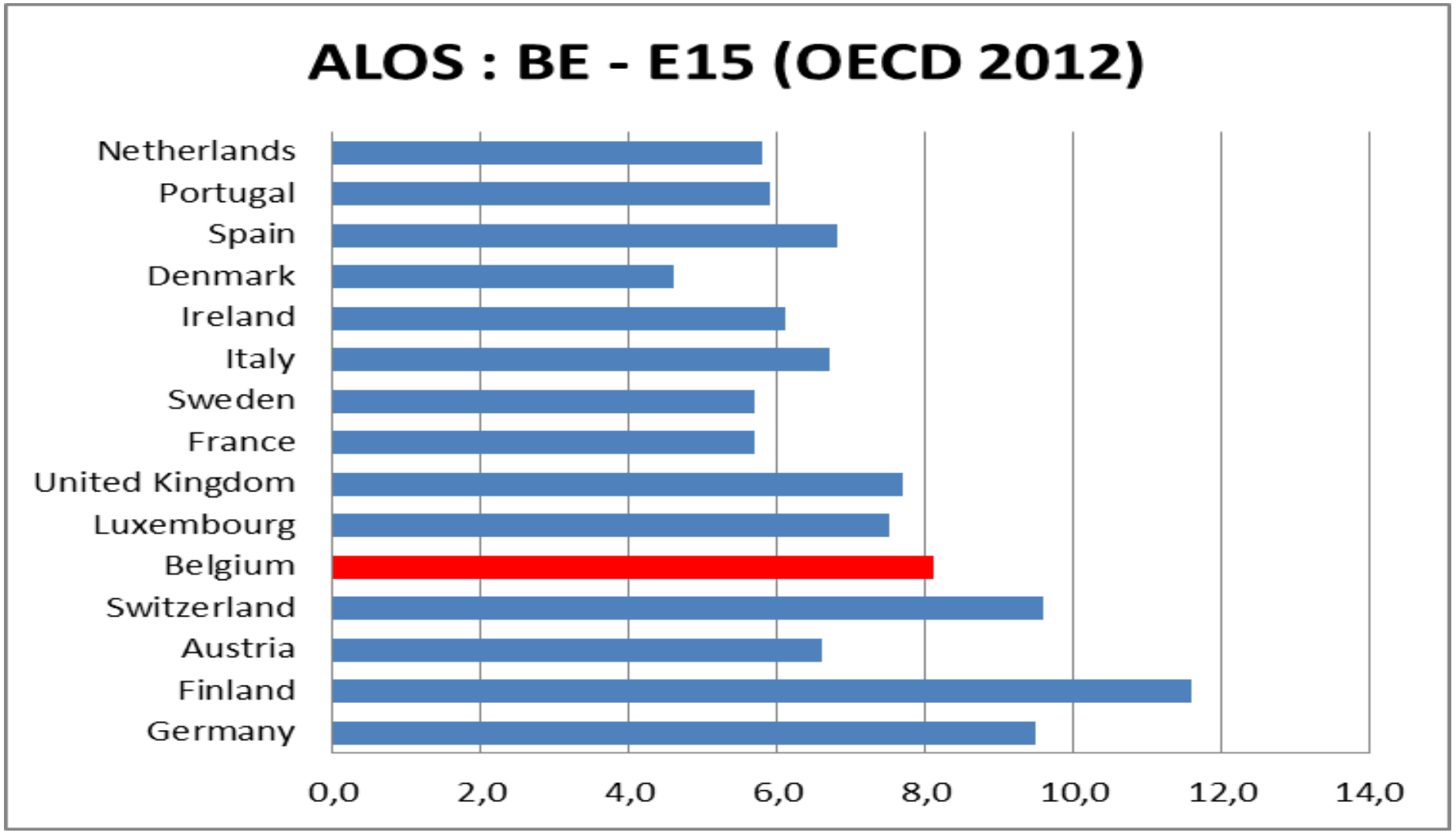
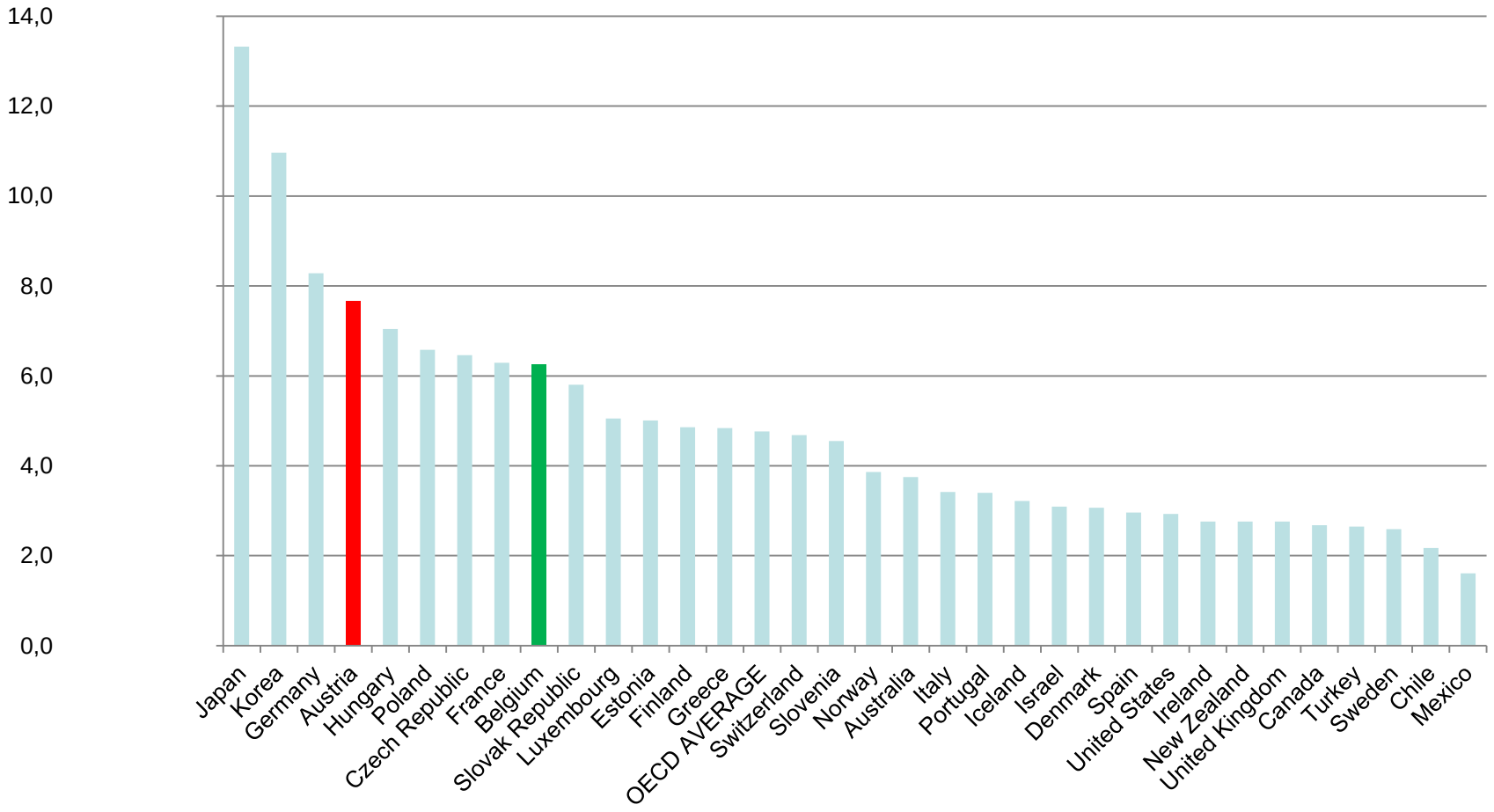


II. Facts and international comparisons

iii. Hospital beds per 1,000 population (2013)



II. Facts and international comparisons

1. Bed days / inhabitants

OECD 2012 (E-15)	ALOS	ALOS /Be	Admissions /100,000inh	Adm /Be	bed days / inh	Bed days /Be
Germany	9,5	117%	23.984	134%	2,28	158%
Finland	11,6	143%	18.159	102%	2,11	146%
Austria	6,6	81%	26.100	146%	1,72	119%
Switzerland	9,6	119%	16.887	95%	1,62	112%
Belgium	**8,1**	**100%**	**17.841**	**100%**	**1,45**	**100%**
Luxembourg	7,5	93%	14.944	84%	1,12	78%
United Kingdom	7,7	95%	13.596	76%	1,05	72%
France	5,7	70%	16.859	94%	0,96	66%
Sweden	5,7	70%	16.306	91%	0,93	64%
Italy	6,7	83%	12.751	71%	0,85	59%
Ireland	6,1	75%	13.156	74%	0,80	56%
Denmark	4,6	57%	17.154	96%	0,79	55%
Spain	6,8	84%	10.246	57%	0,70	48%
Portugal	5,9	73%	11.247	63%	0,66	46%
Netherlands	5,8	72%	11.584	65%	0,67	46%

III. Explanations / hypothesis to explore

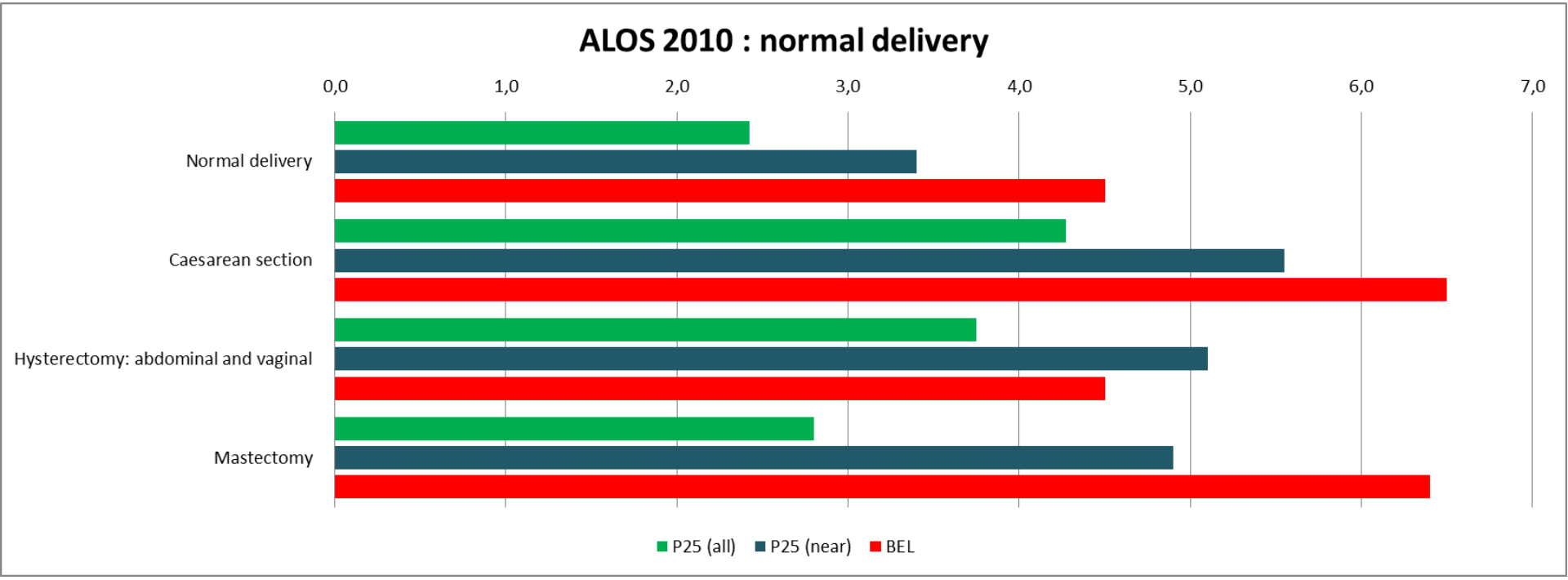
1. Higher admissions rates ?
2. Longer ALOS?

Illustrations with gynecology and medical conditions (internal medicine)

3. Substitution with one day surgery ?
4. Variations within countries ?
5. Avoidable admissions

III. Explanations / hypothesis to explore
1-2. GYNECOLOGY (ALOS 2012)

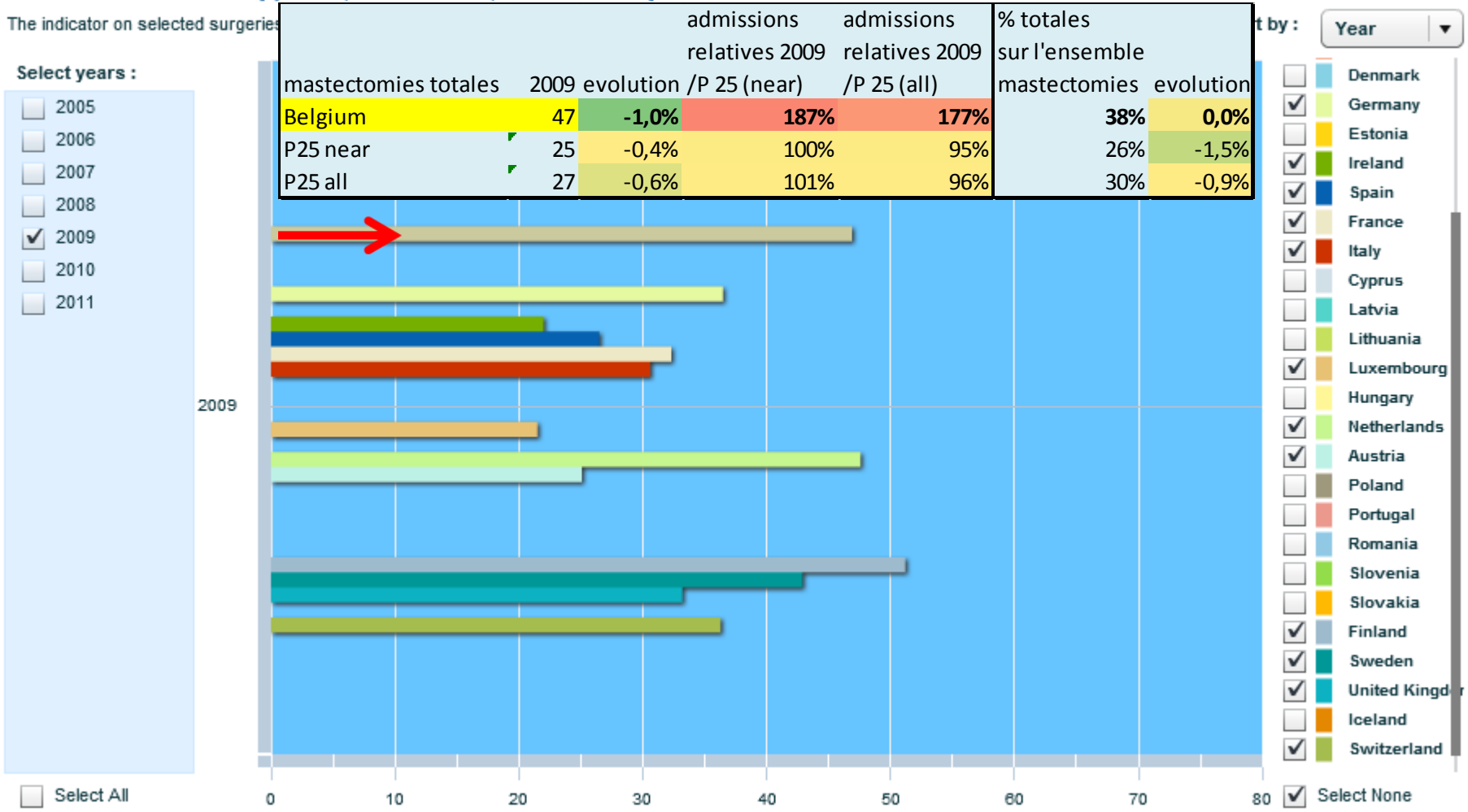
	NEAR								ALL						
Case	DEU	AUT	ITA	FRA	LUX	BEL	ESP	CHE	IRL	FIN	SWE	GBR	DNK	NOR	NLD
Normal delivery		3,8	3,2	4,2	3,9	4,5	2,5	3,6		3,5	2,2	1,5	1,6	3	
Caesarean section	6,3	6,2	4,2	6,5	6	6,5	4,5	5,9	4,7	4,9	3,9	3,2	3,8	4,9	
Hysterectomy: abdominal and vaginal	6,8	6,9	5,8	5,4	5,4	4,5	5,1	5,1	5,5	2,6	3,5	3,2	3,1	5	
Mastectomy		8,8	5,1	5,9	3,3	6,4	4,7	6,7		2,6	2,4	2,8	2,8	3,1	



III. Explanations / hypothesis to explore
1-2. Admissions for total mastectomy

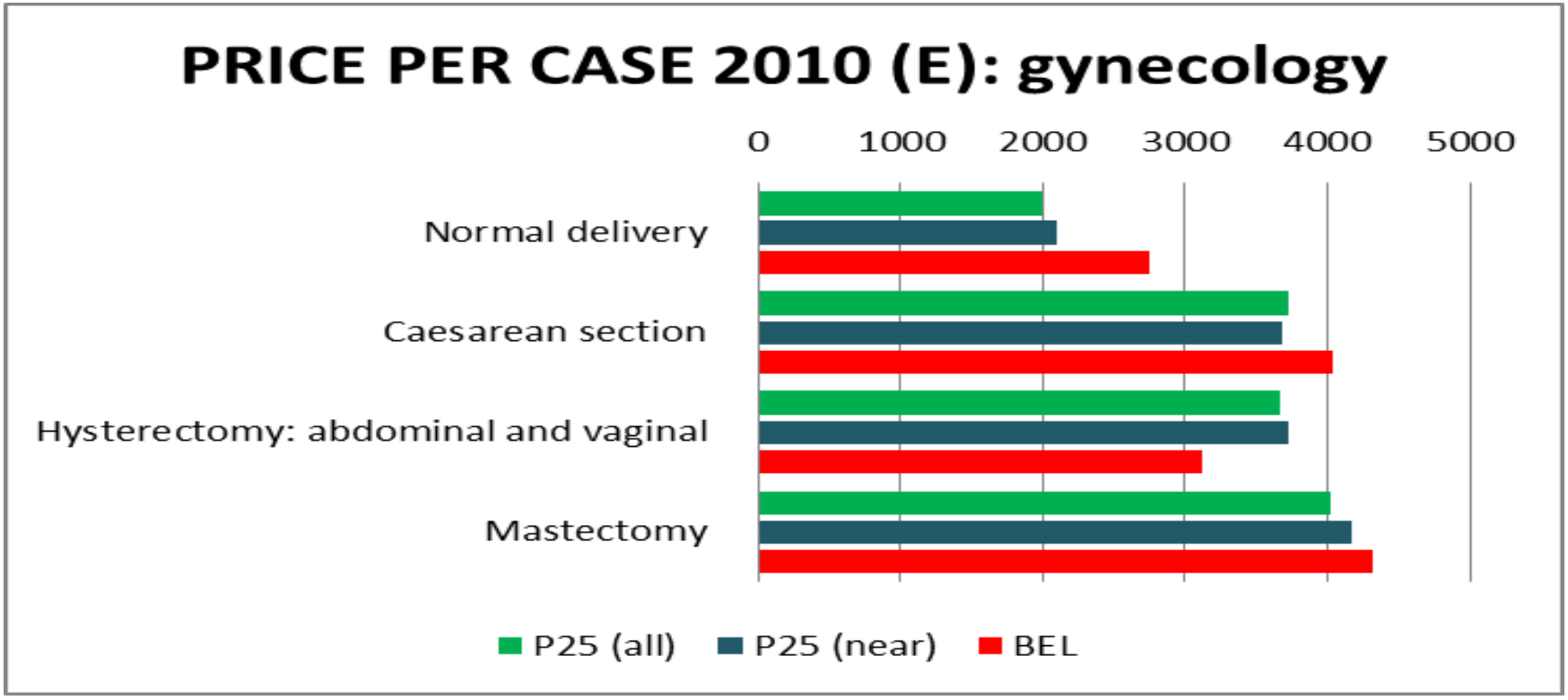
Number of total mastectomy per 100,000 inhabitants, time series of 6 years

mastectomies totales	2009	evolution	admissions relatives 2009 /P 25 (near)	admissions relatives 2009 /P 25 (all)	% totales sur l'ensemble mastectomies	evolution
Belgium	47	-1,0%	187%	177%	38%	0,0%
P25 near	25	-0,4%	100%	95%	26%	-1,5%
P25 all	27	-0,6%	101%	96%	30%	-0,9%

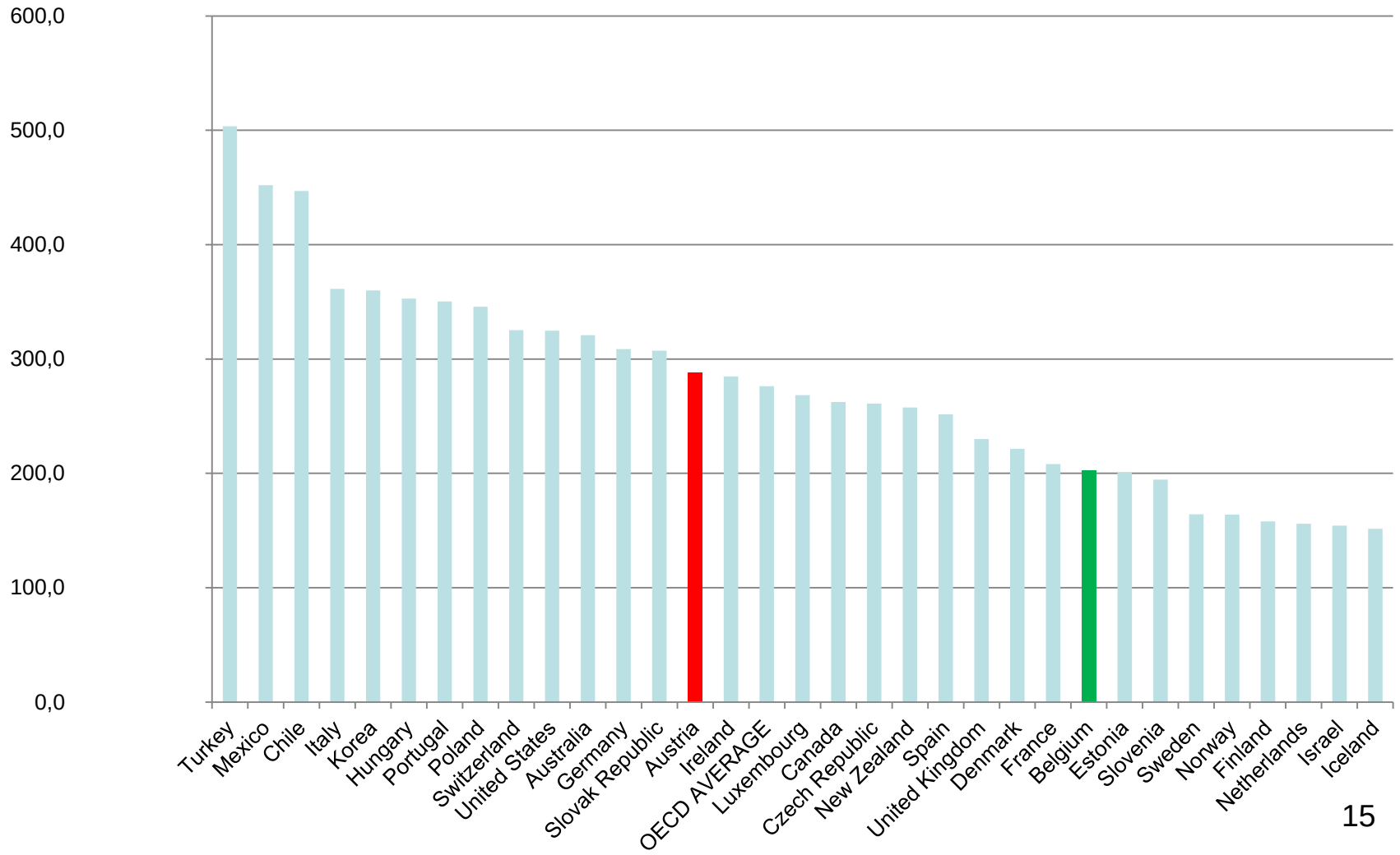


III. Explanations / hypothesis to explore
1-2. PRICE PER CASE 2012: gynecology

					NEAR								ALL						
Price (euros) per case	P25 (near)	Percent 25	P25 (all)	Percent	DEU	AUT	ITA	FRA	LUX	BEL	ESP	CHE	IRL	FIN	SWE	GBR	DNK	NOR	NLD
Normal delivery	2095	31%	1991	38%		2891	1275	2134	3993	2744	2056	3684		1181	2033	1755	2233	2161	1991
Caesarean section	3684	10%	3723	9%	2976	5289	2113	4115	6884	4041	3920	6935	4942	3418	4358	3525	4016	6761	4032
Hysterectomy: abdom	3730	-16%	3671	-15%	3789	6445	3553	4551	4977	3117	5646	8269	6596	3153	5296	3079	5751	12063	4982
Mastectomy	4168	3%	4024	7%		6884	3543	4943	4024	4312	6001	9681		4183	3959	2806	5257	5137	6826



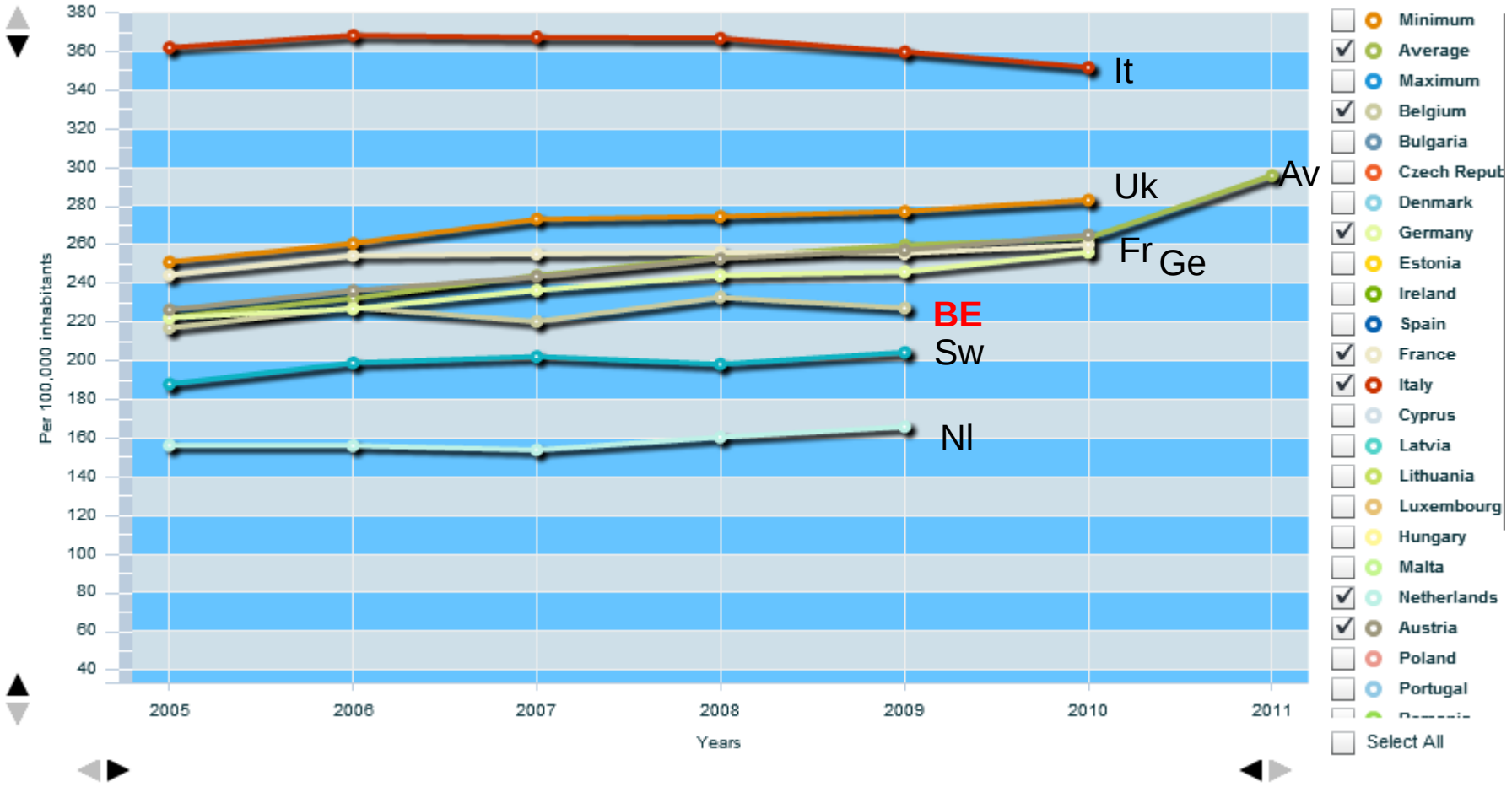
III. Explanations / hypothesis to explore
1-2. Gynecology : C section (2013, per 100 live births)



III. Explanations / hypothesis to explore
1-2. C Section (international /HEIDI)

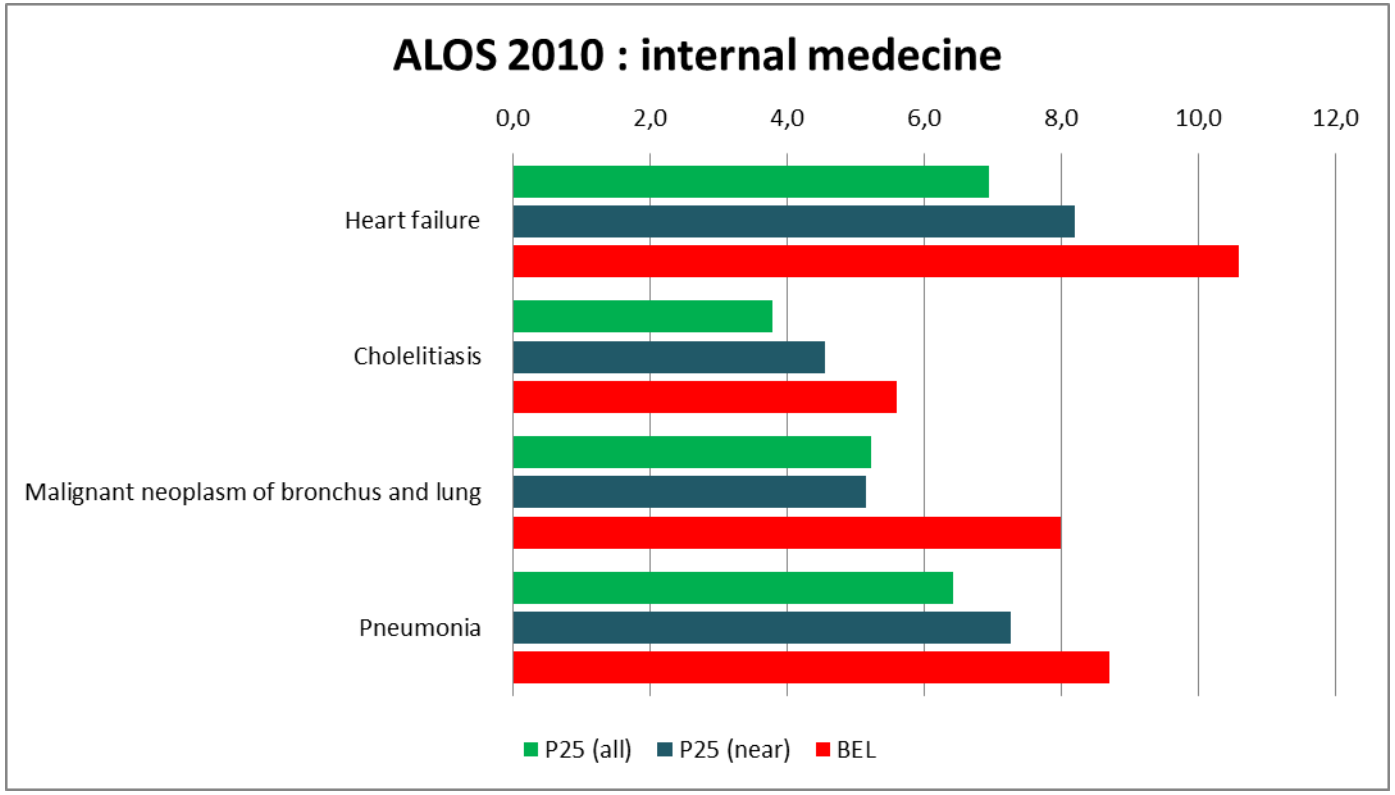
Number of caesarean section per 100,000 inhabitants, time series of 6 years

The indicator on selected surgeries gives the number of surgical operations and procedures performed in hospitals, including day-cases as well as in-patient surgerie... more



III. Explanations / hypothesis to explore
1-2. ALOS 2012: MEDICAL CONDITIONS

	NEAR								ALL						
Case	DEU	AUT	ITA	FRA	LUX	BEL	ESP	CHE	IRL	FIN	SWE	GBR	DNK	NOR	NLD
Heart failure	10	7,4	8,4	8,4	9,4	10,6	7,6	9,4	8,5	6,8	4,9	8,9	4,4	4,4	
Cholelitiasis		4,5	7,3	4,9	4,5	5,6	6,5	4,6		3,8	3	3,8	2,1		
Malignant neoplasm of bronchus and l	5,3		10	5	7,9	8	8,6	4,8	6,4	6,7	5,7	7,6	3,9		
Pneumonia	8,7	7,5	9,2	8,2	8,2	8,7	6,5	6,6	7,4	6,4	4,7	7,4	4,6	4,9	



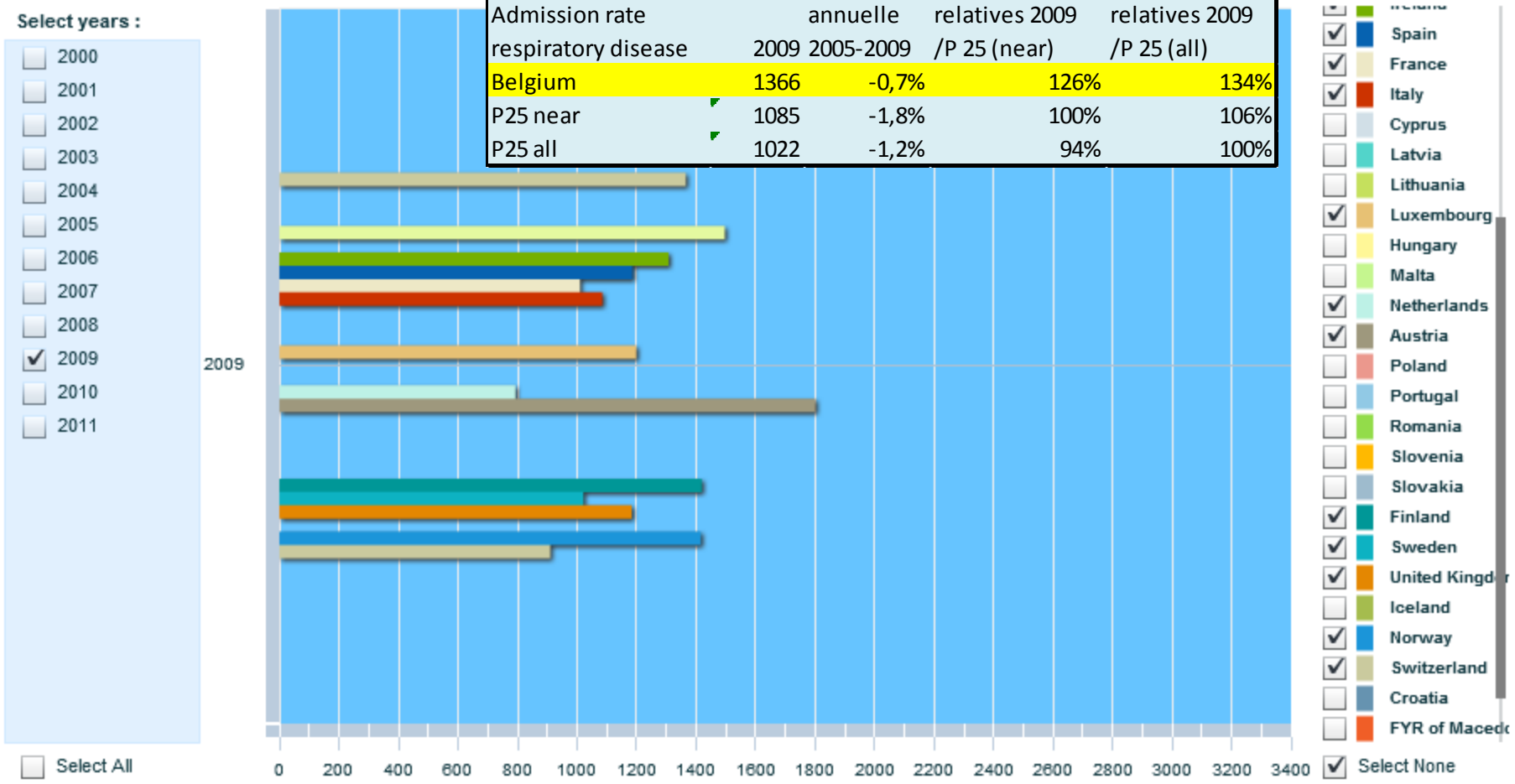
III. Explanations / hypothesis to explore
1-2. Admissions for respiratory diseases

Hospital discharges, in-patients, for diseases of the respiratory system (ISHMT code 1000 = ICD-10 codes , time series of 11 years

The indicator on hospital in-patient discharges for selected

art by : Year

Admission rate respiratory disease	2009	evolution annuelle 2005-2009	admissions relatives 2009 /P 25 (near)	admissions relatives 2009 /P 25 (all)
Belgium	1366	-0,7%	126%	134%
P25 near	1085	-1,8%	100%	106%
P25 all	1022	-1,2%	94%	100%



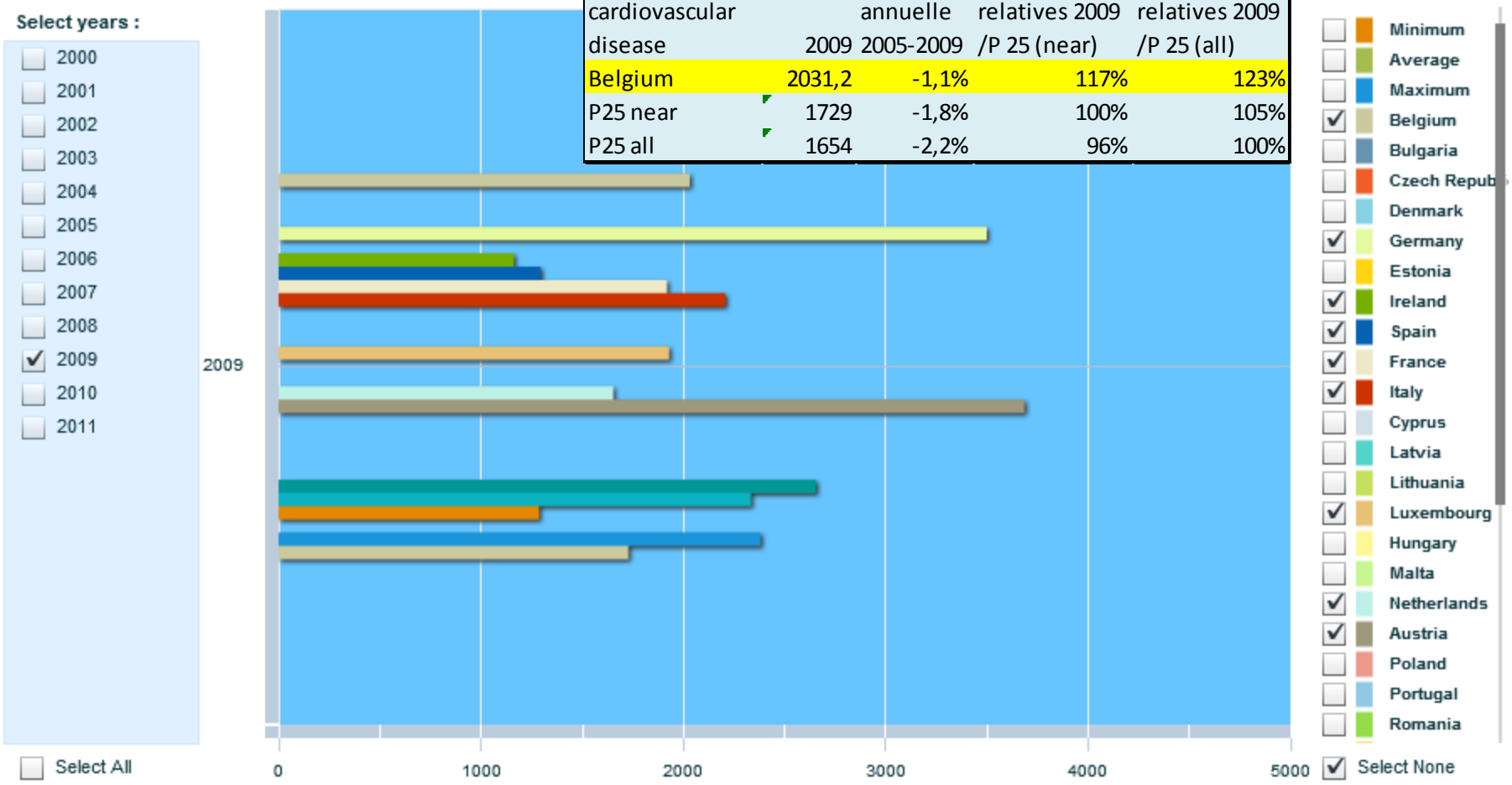
III. Explanations / hypothesis to explore
1-2. Admissions for cardiovascular diseaşes

Hospital discharges, in-patients, for diseases of the circulatory system (ISHMT code 0900 = ICD-10 codes , time series of 11 years

The indicator on hospital in-patient discharges for selected diagnoses g

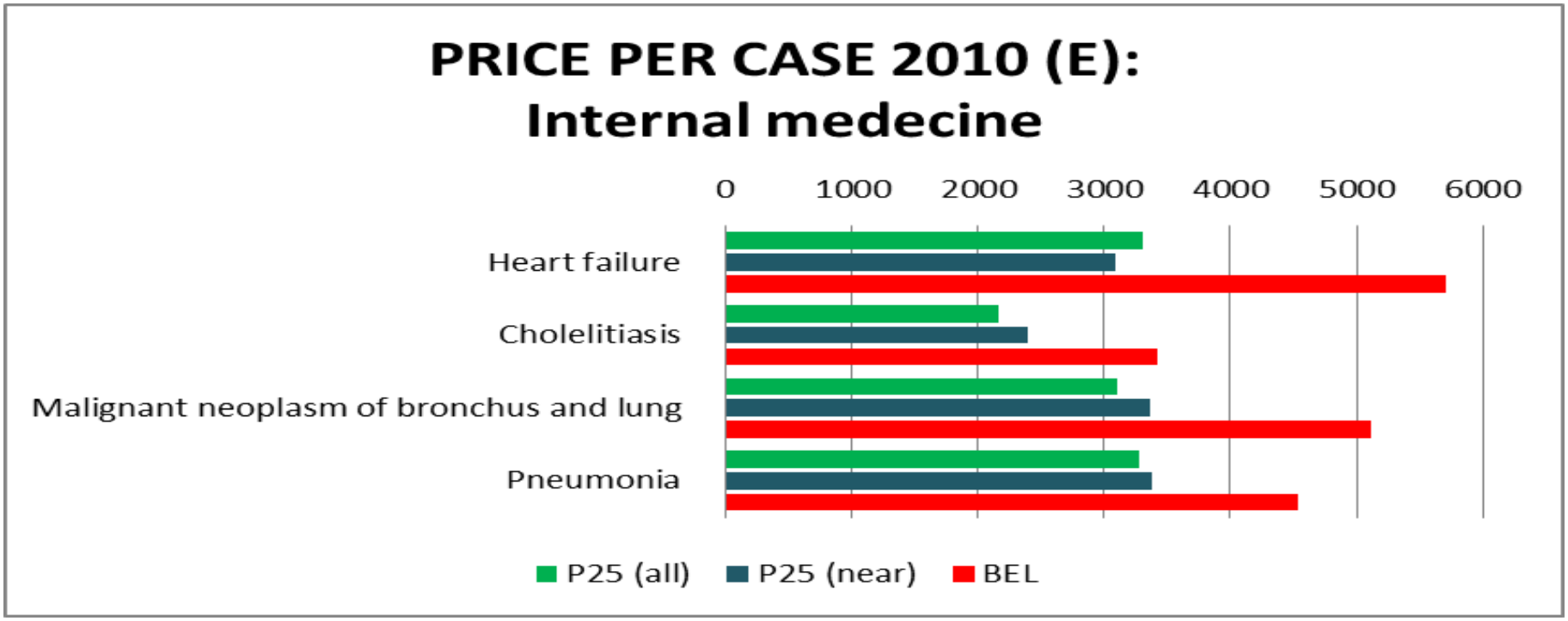
t by : Year

Admission rate cardiovascular disease	2009	evolution annuelle 2005-2009	admissions relatives 2009 /P 25 (near)	admissions relatives 2009 /P 25 (all)
Belgium	2031,2	-1,1%	117%	123%
P25 near	1729	-1,8%	100%	105%
P25 all	1654	-2,2%	96%	100%

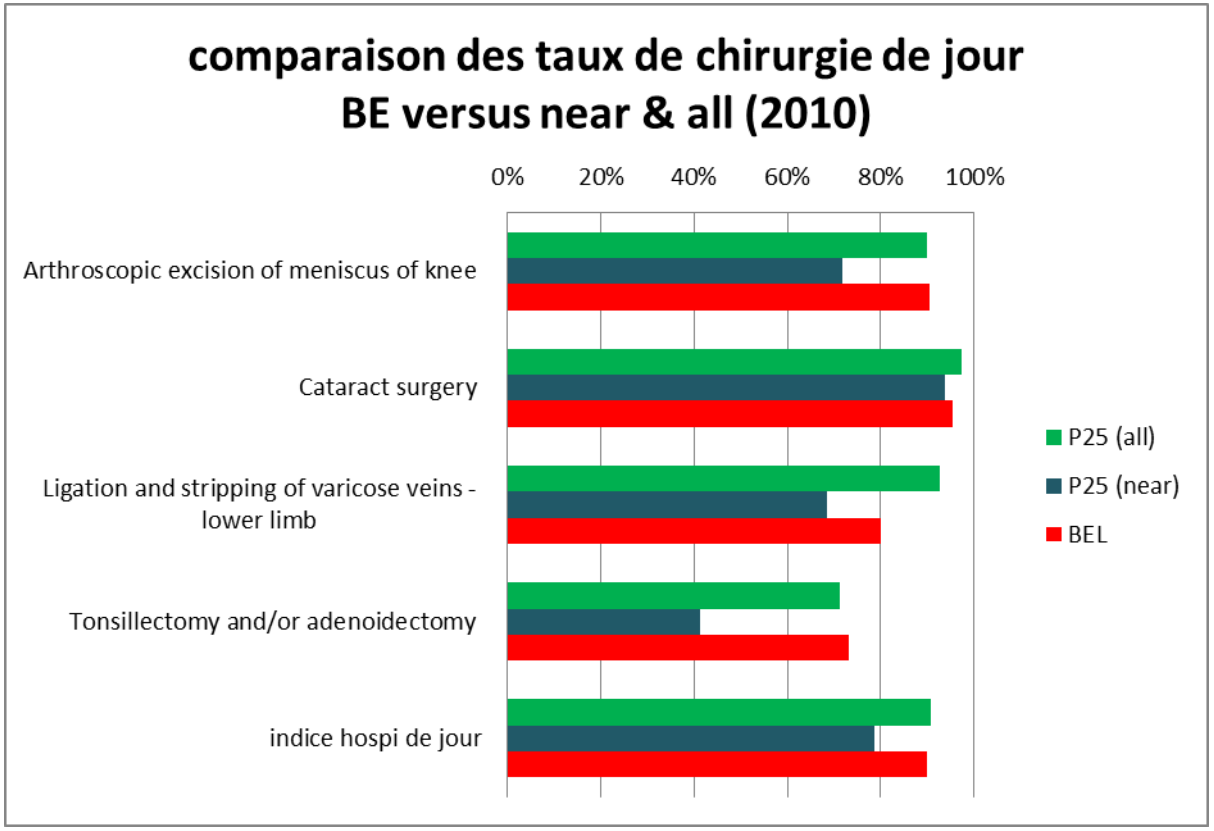


III. Explanations / hypothesis to explore
1-2. PRICE PER CASE 2012: medical conditions

					NEAR								ALL						
Price (euros) per case	P25 (near)	Percent 25	P25 (all)	Percent	DEU	AUT	ITA	FRA	LUX	BEL	ESP	CHE	IRL	FIN	SWE	GBR	DNK	NOR	NLD
Heart failure	3096	84%	3310	72%	2995	3109	3055	3703	8261	5708	3856	7349	5719	3180	3547	3440	4153	6587	4366
Cholelitiasis	2400	43%	2159	59%		2312	2167	2488	3511	3424	3780	4411		1572	2667	2133	1576		4051
Malignant neoplasm of bronchus	3358	52%	3099	65%	2033		4161	2555	5752	5119	4257	5013	5711	2787	4894	3607	3203		
Pneumonia	3374	34%	3280	38%	2847	3484	3044	3962	5891	4531	3636	5678	5415	3171	3468	2702	3389	5926	4591

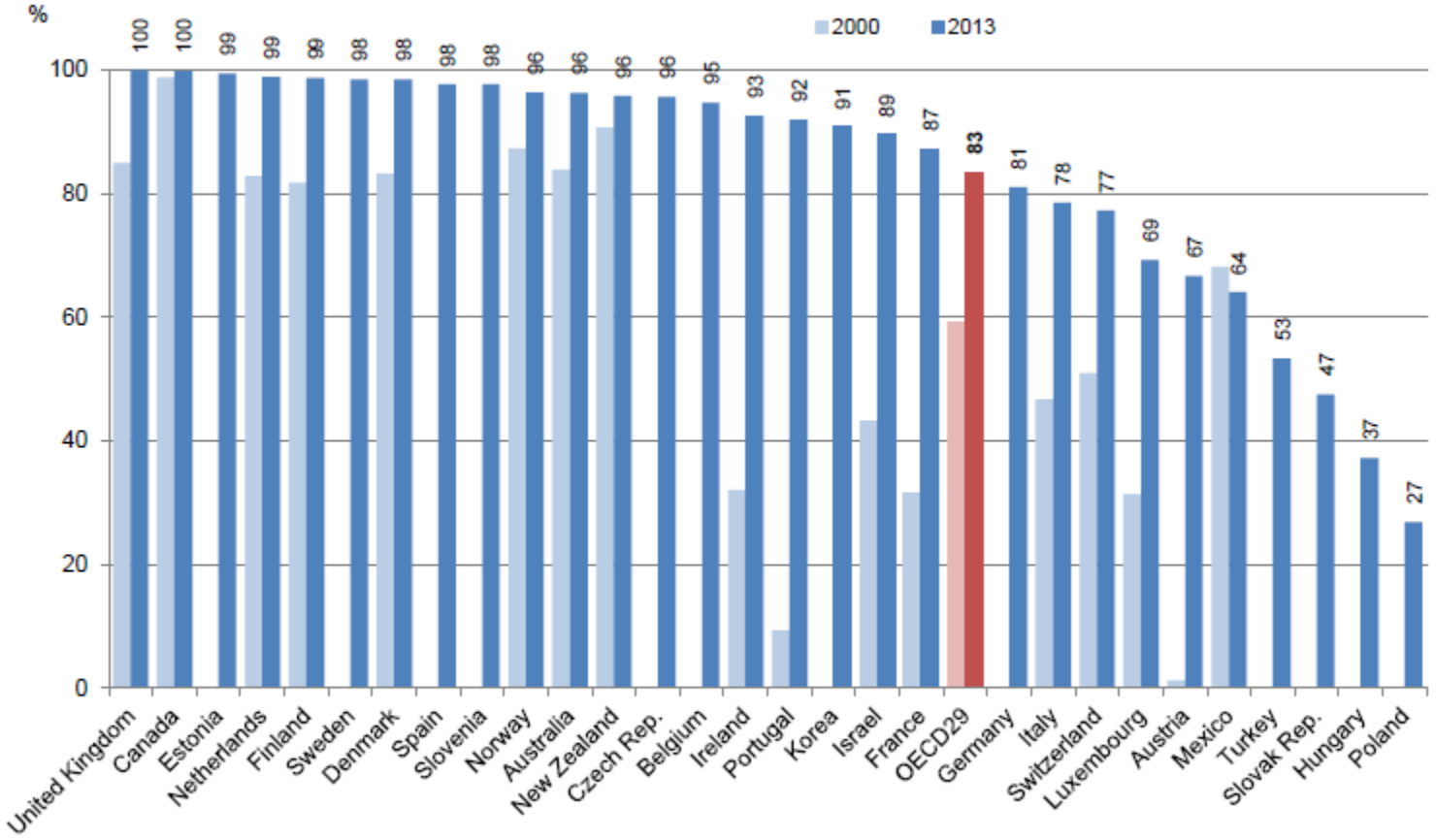


III. Explanations / hypothesis to explore
3. One-day substitution



III. Explanations / hypothesis to explore
3. One-day substitution

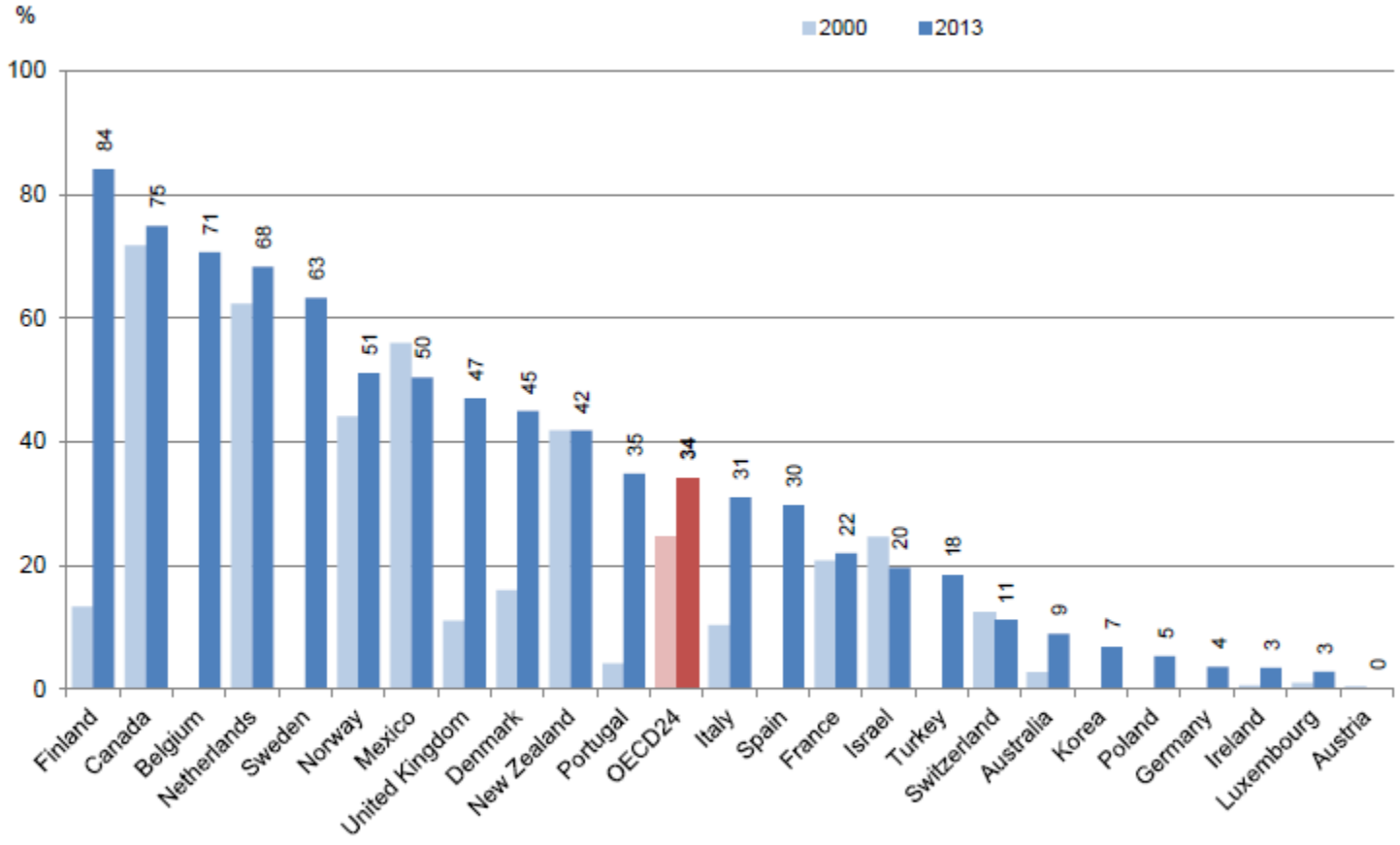
6.24. **Share of cataract surgeries carried out as ambulatory cases, 2000 and 2013 (or nearest years)**



Source: *OECD Health Statistics 2015.*

III. Explanations / hypothesis to explore
3. One-day substitution

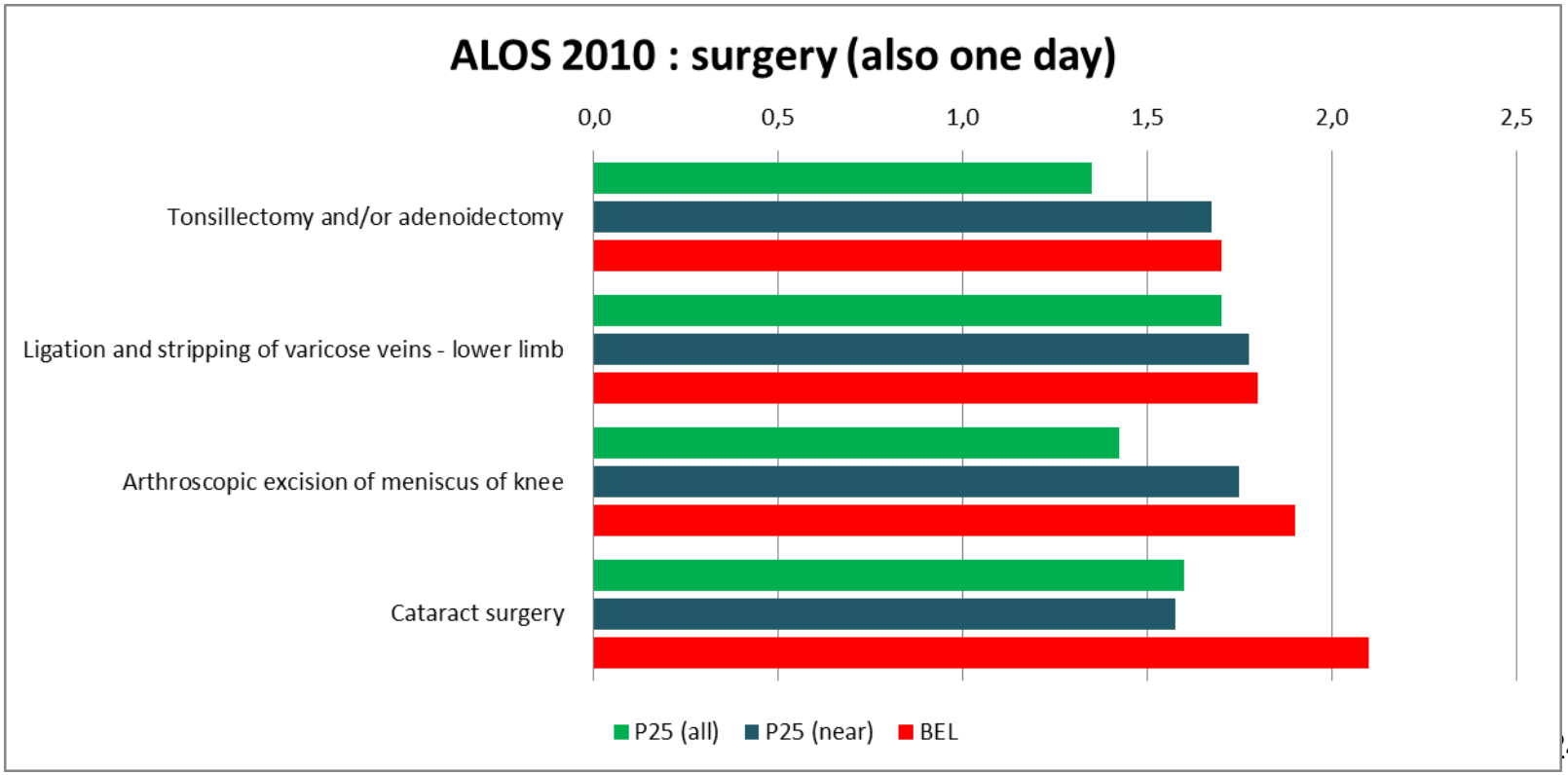
6.25. **Share of tonsillectomy carried out as ambulatory cases, 2000 and 2013 (or nearest years)**



Source: *OECD Health Statistics 2015.*

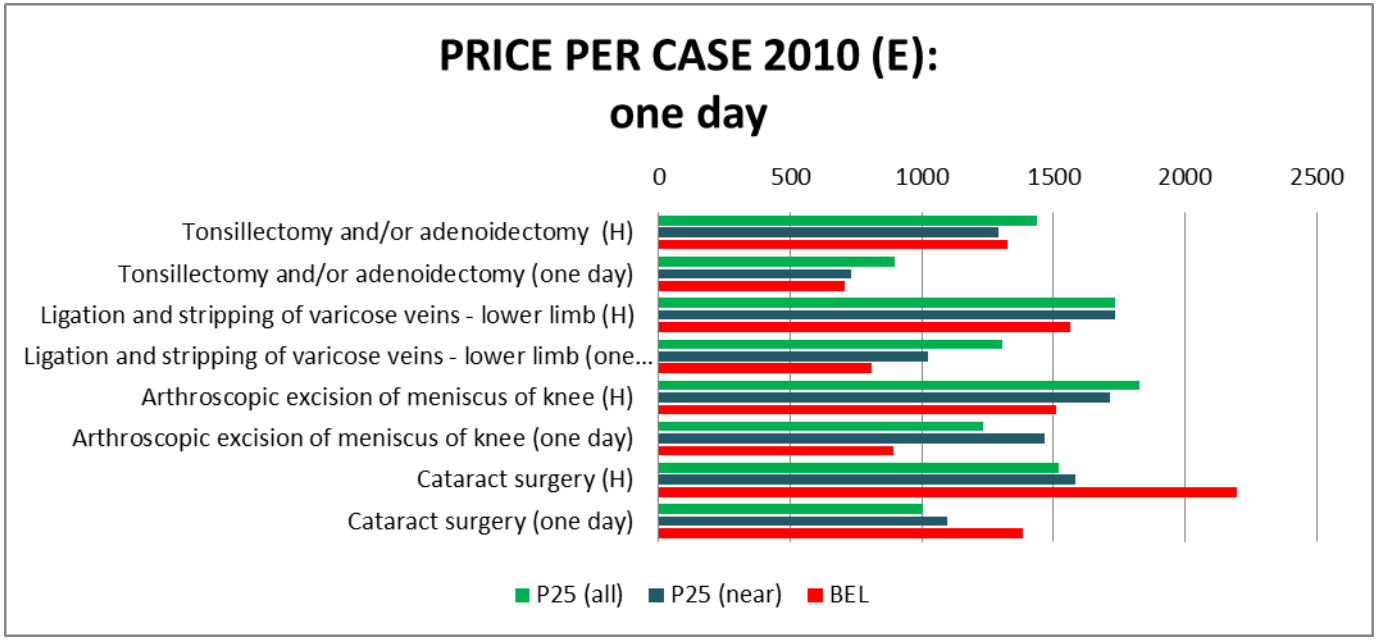
III. Explanations / hypothesis to explore
3. One-day substitution

	NEAR								ALL						
Case	DEU	AUT	ITA	FRA	LUX	BEL	ESP	CHE	IRL	FIN	SWE	GBR	DNK	NOR	NLD
Tonsillectomy and/or adenoidectomy	4,9	3,1	2,5	1,6	1,7	1,7	1,5	2,5	1,5	2	1,3	1,1	1,3	1,3	
Ligation and stripping of varicose veins	2,4	2,4	2,4	1,7	2,1	1,8	1,2	1,9	1,5	1,8	1,7	1,7	1,5	1,7	
Arthroscopic excision of meniscus of knee			2,7	2	2,3	1,9	1,4	1,7		1,5	1,4	4,4	1,2		
Cataract surgery	2,2	1,6	2,5	1,5	1,7	2,1	1,7	1,5	1,8	1,1	2,1	1,9	1,6	2	

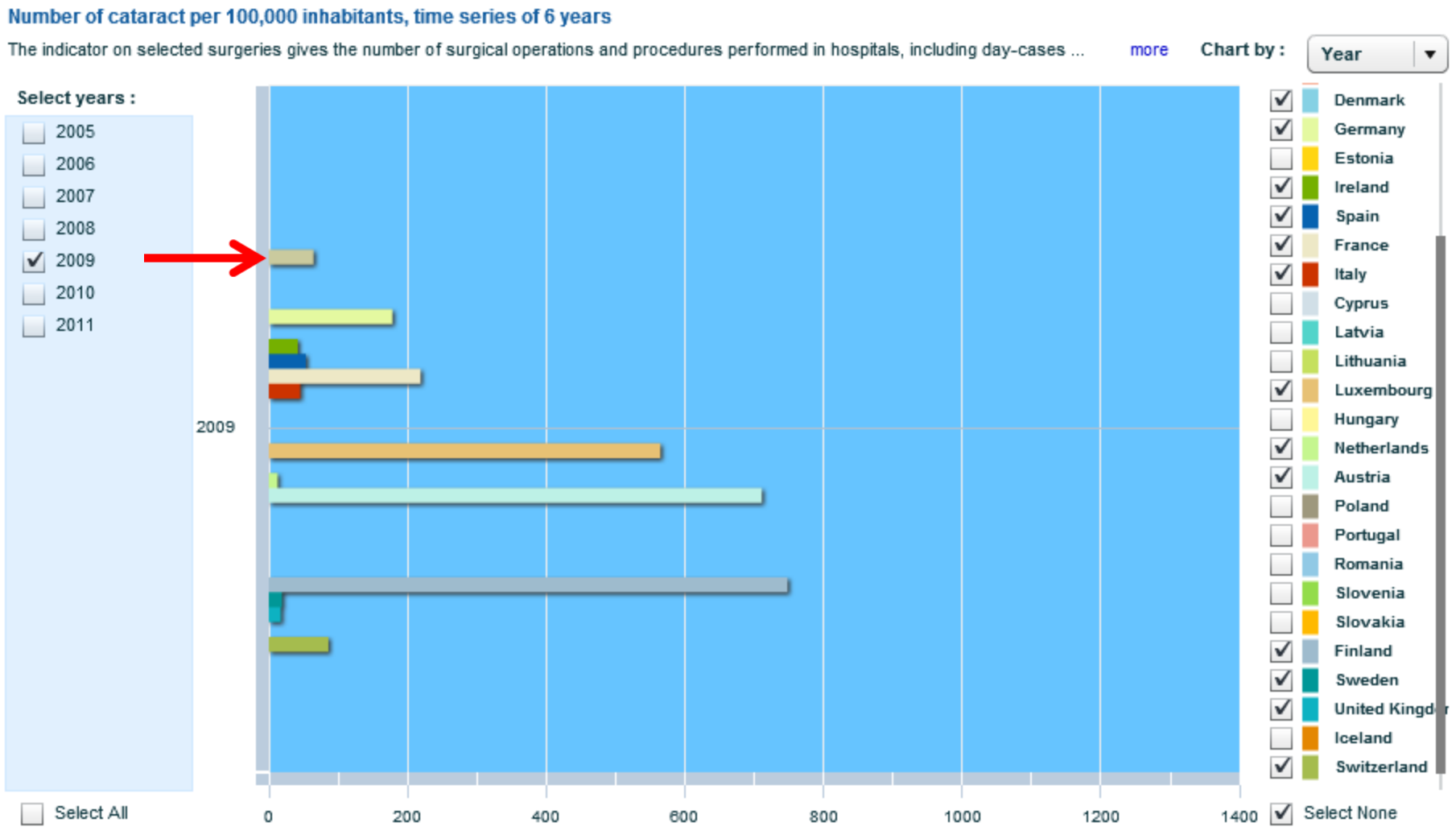


III. Explanations / hypothesis to explore
3. One-day substitution (price per case 2012

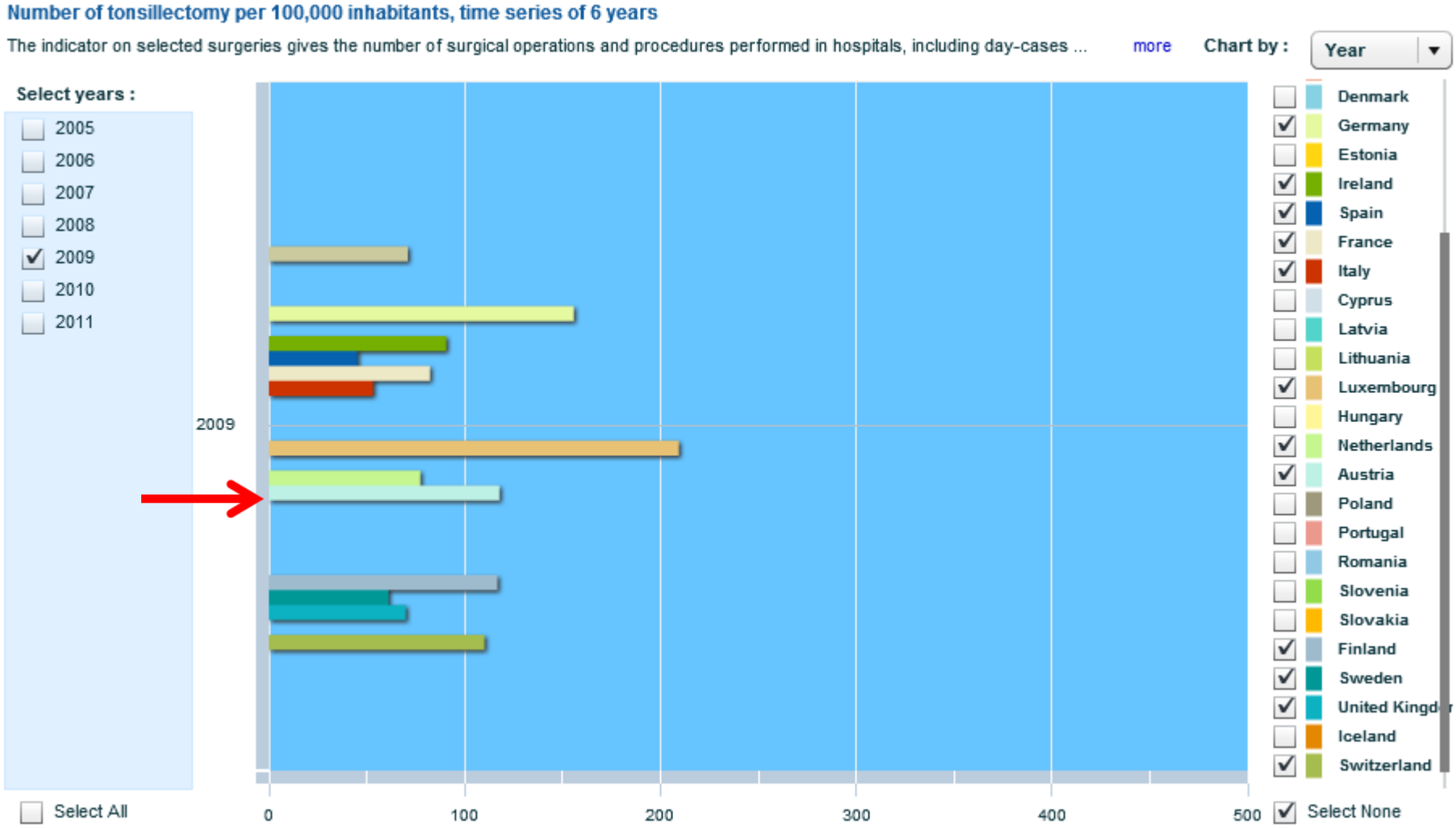
					NEAR								ALL						
Price (euros) per case	P25 (near)	Percent 25	P25 (all)	Percent 25	DEU	AUT	ITA	FRA	LUX	BEL	ESP	CHE	IRL	FIN	SWE	GBR	DNK	NOR	NLD
Tonsillectomy and/or adenoidectomy (H)	1292	3%	1439	-8%	1841	1810	861	1187	2754	1327	2493	3645	3072	1607	2223	1416	2014	2316	1462
Tonsillectomy and/or adenoidectomy (one day)	729	-3%	899	-22%			729	899	2455	705	1073			1075	975	1261	1103		899
Ligation and stripping of varicose veins - lower limb (H)	1736	-10%	1734	-10%	2062	2431	1407	1793	3227	1565	1800	4182	3510	1655	3996	1726	2070	1742	2654
Ligation and stripping of varicose veins - lower limb (one	1024	-21%	1306	-38%		2413	1558	1647	2500	810	846			1489	1744	1426	947	1539	1770
Arthroscopic excision of meniscus of knee (H)	1713	-12%	1830	-17%			1996	1619	3637	1510	3330	3182		1711	4847	1948	2274		4553
Arthroscopic excision of meniscus of knee (one day)	1468	-39%	1232	-27%			1958	1468	2748	894	1481			1462	1326	1138	1044	1565	2036
Cataract surgery (H)	1585	39%	1518	45%	1538	1600	975	1717	3371	2196	3642	3830	3653	1272	3162	1131	1498	2412	1792
Cataract surgery (one day)	1097	26%	1002	38%		1600	1002	1403	1699	1383	950		1223	1144	636	1054	605	2388	1279



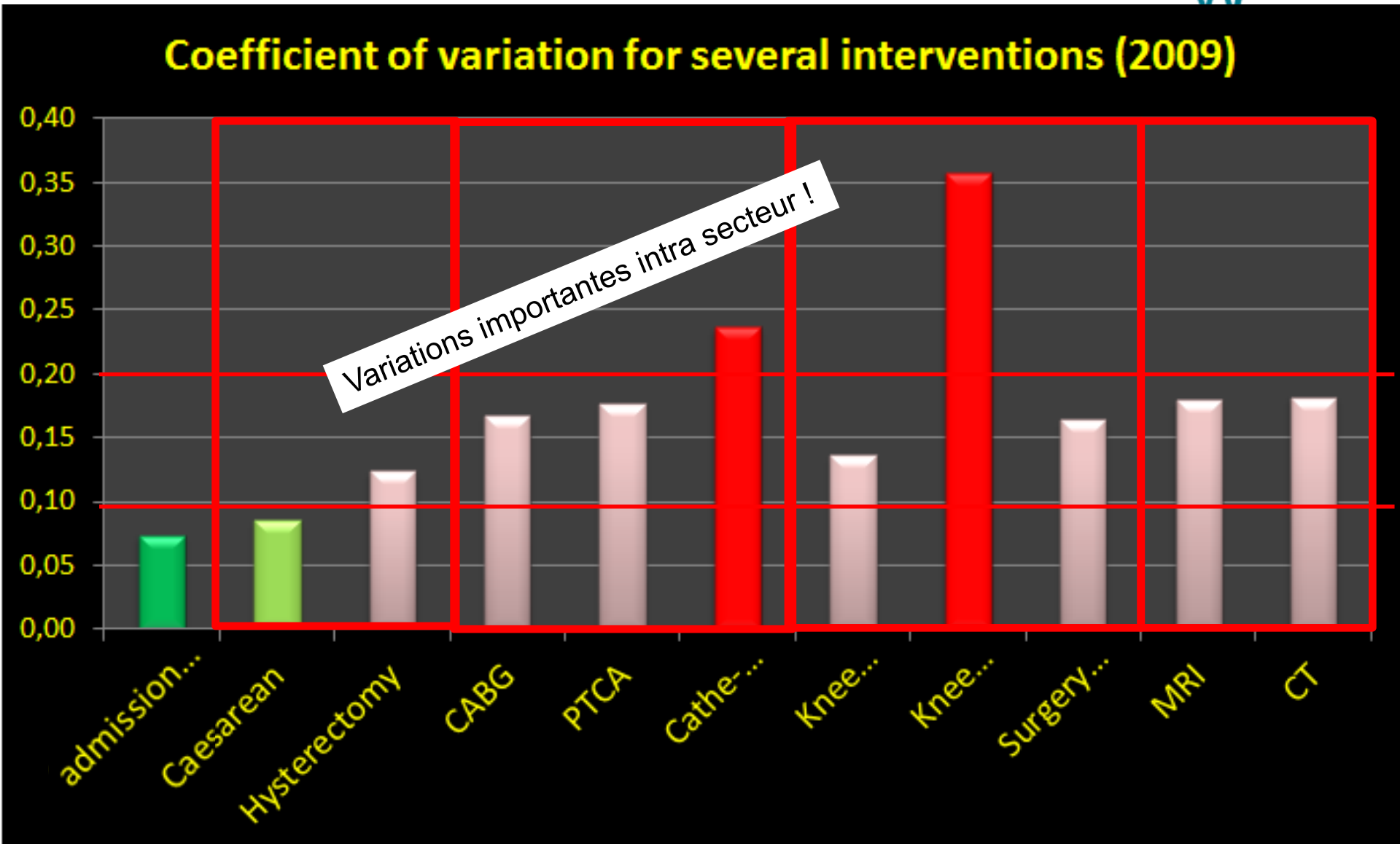
III. Explanations / hypothesis to explore
3. One-day substitution (cataract for inpatients)



III. Explanations / hypothesis to explore
3. One-day substitution (tonsillectomy, inpatients)



III. Explanations / hypothesis to explore
4 - Coefficient of variation for several interventions between belgian provinces



III. Explanations / hypothesis to explore
4 - Some considerations about geographic variations

Provinces	admission rate	Caesarean	Hysterectomy	CABG	PTCA	Cathe-terization	Knee replacements	Knee arthroscopy	Surgery after hip fracture	MRI	CT
Average rate (unweighted	10305	194	3,17	93	283	831	206	460	93	6886	22582
Q10	9133	178	2,72	79	243	648	185	313	76	5076	18198
Q90	11080	204	3,61	106	332	981	248	668	112	8219	27263
Q75	10605	197	3,42	100	302	917	213	599	101		
Q25	10048	186	2,92	86	252	688	189	328	82		
Coefficient of variation	**0,07**	**0,09**	**0,12**	**0,17**	**0,18**	**0,24**	**0,14**	**0,36**	**0,16**	**0,18**	**0,18**

Provinces	admission rate	Caesarean	Hysterectomy	CABG	PTCA	Cathe-terization	Knee replacements	Knee arthroscopy	Surgery after hip fracture	MRI	CT
West-Vlaanderen	10325	189,1	3,76	88	265	937	264	668	80	8219	20525
Oost-Vlaanderen	9912	191,4	3,37	106	268	858	248	705	102	7779	20429
Antwerpen	10183	192,8	3,61	86	284	898	195	589	77	7720	18159
Limburg	10595	194,6	3,46	97	332	1298	196	608	72	8764	18759
Brabant Flamand	9133	199,8	2,85	91	274	738	190	562	90	7351	18198
Brussels	10556	171,4	2,45	79	256	618	169	316	99	7008	22435
Brabant Wallon	9062	183,2	2,72	86	321	794	185	348	83	6201	20116
Hainaut	11655	204,0	3,28	86	225	648	213	345	105	6309	29158
Liège	10616	234,5	3,15	71	243	702	188	313	99	6428	26282
Namur	11080	177,5	3,19	129	400	981	208	269	116	4896	27080
Luxembourg	10235	191,1	2,99	102	247	675	213	340	79	5076	27263
TOTAL	10337	194,4	3,24	90	275	835	210	502	91	7203	21889
ecart MAX-MIN	**29%**	**37%**	**53%**	**82%**	**78%**	**110%**	**56%**	**162%**	**61%**	**79%**	**61%**

III. Explanations / hypothesis to explore
4 - Some considerations about geographic variations

OECD Health Policy Studies

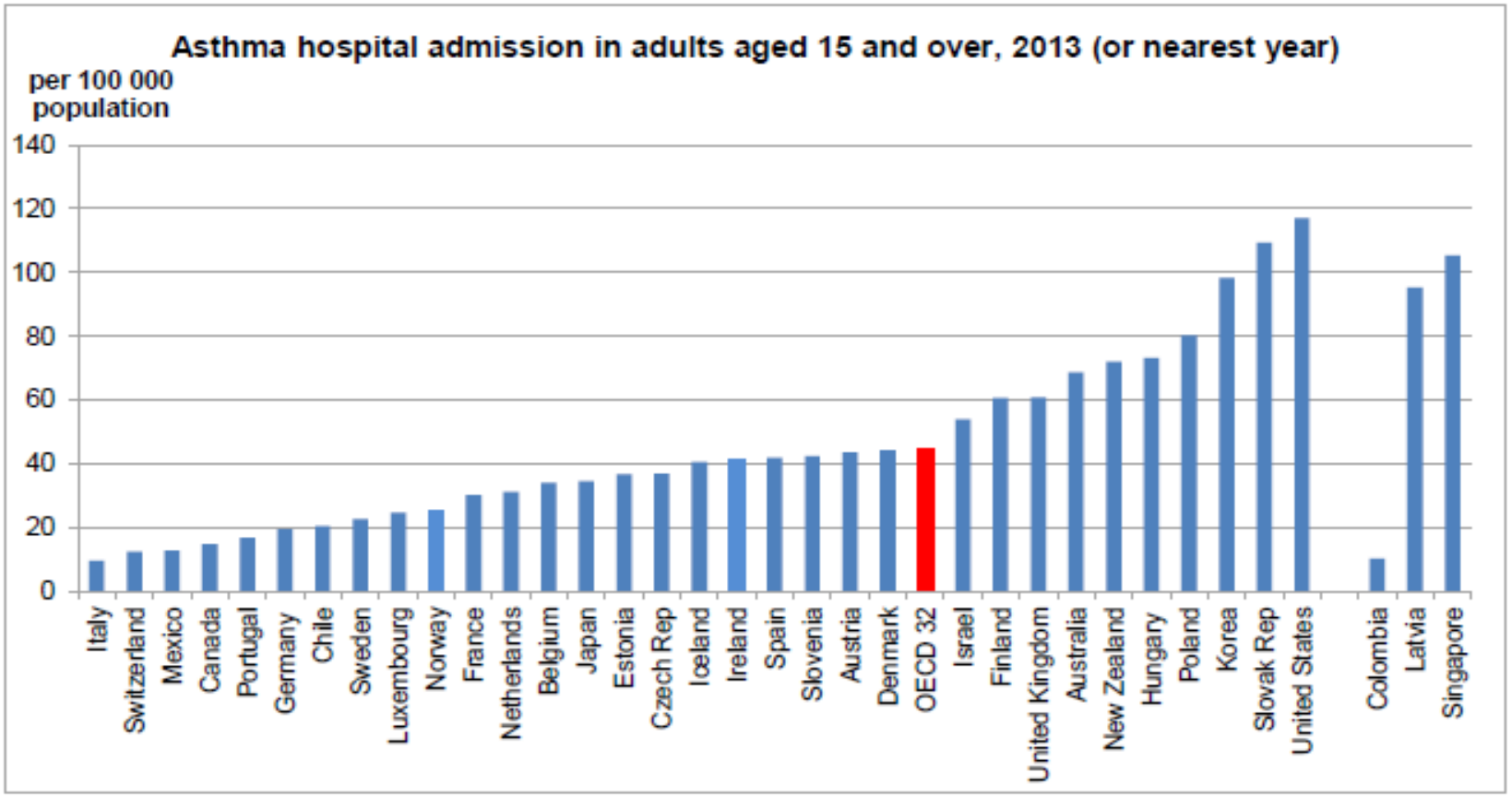
AUSTRIA??

Geographic Variations in Health Care

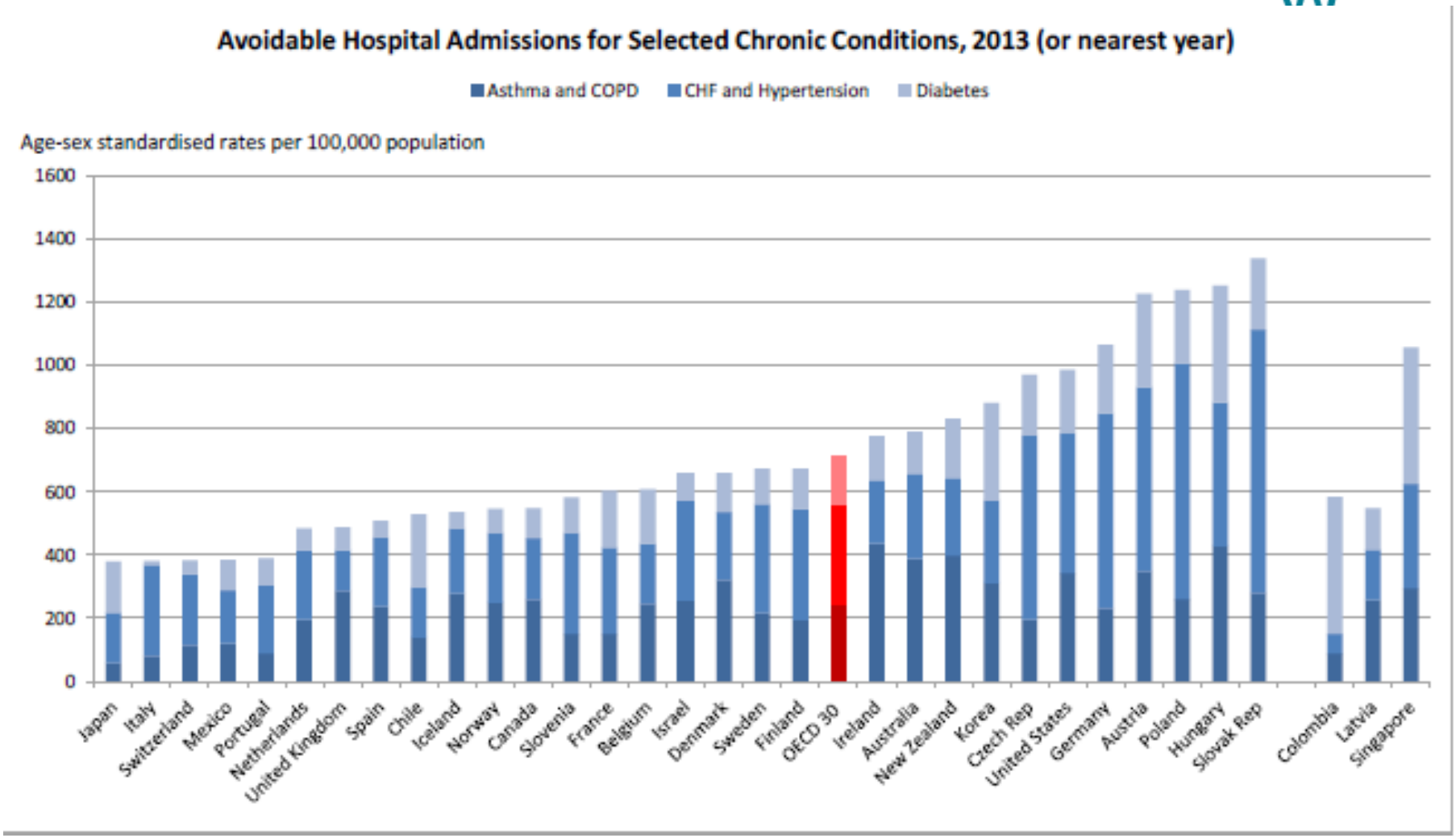
WHAT DO WE KNOW AND WHAT CAN BE DONE TO IMPROVE HEALTH SYSTEM PERFORMANCE?

III. Explanations / hypothesis to explore
5 – Avoidable admissions: Asthma

Avoidable Asthma Hospital Admissions

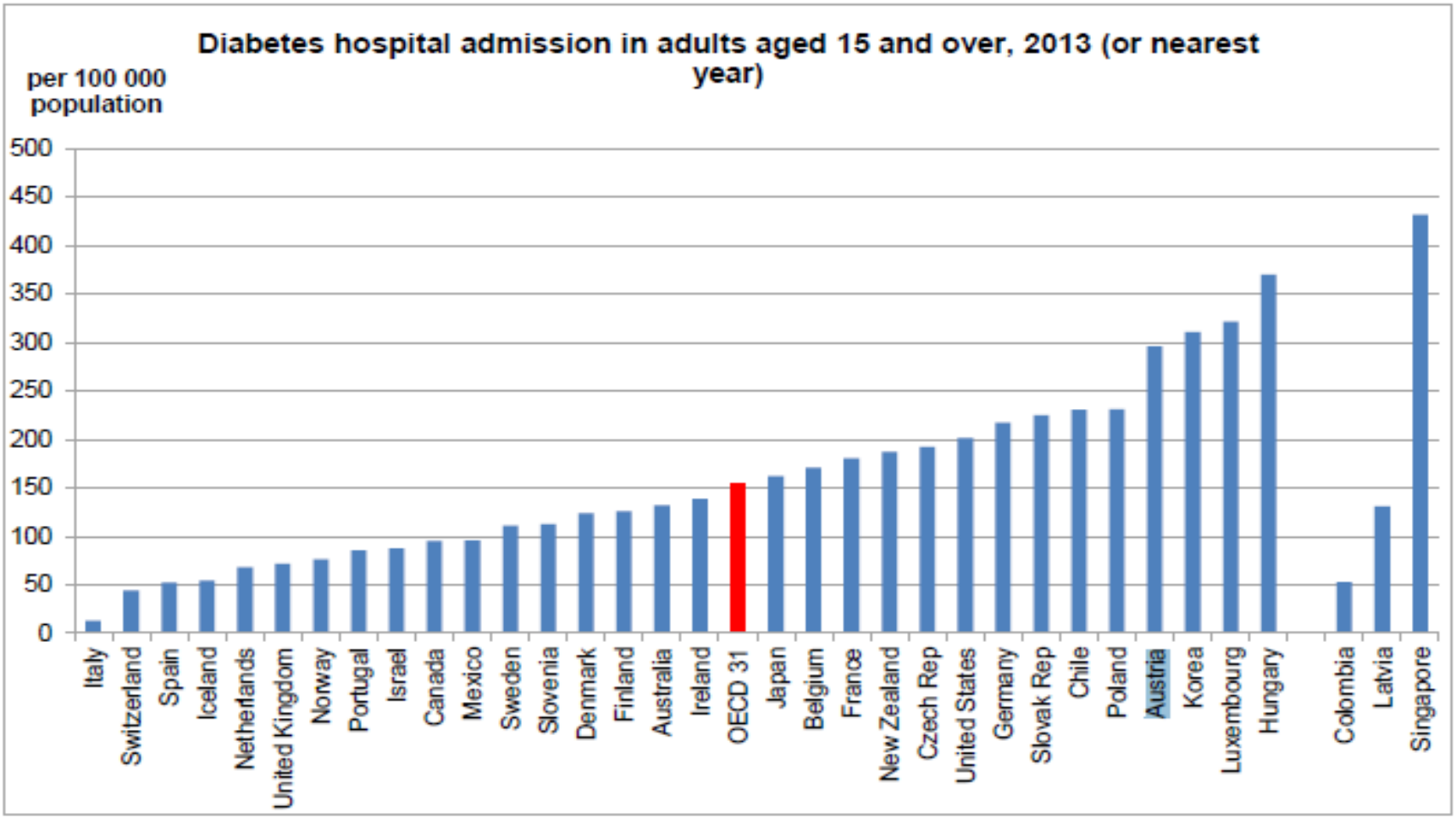


III. Explanations / hypothesis to explore
5 – Avoidable admissions: selected chronic conditions

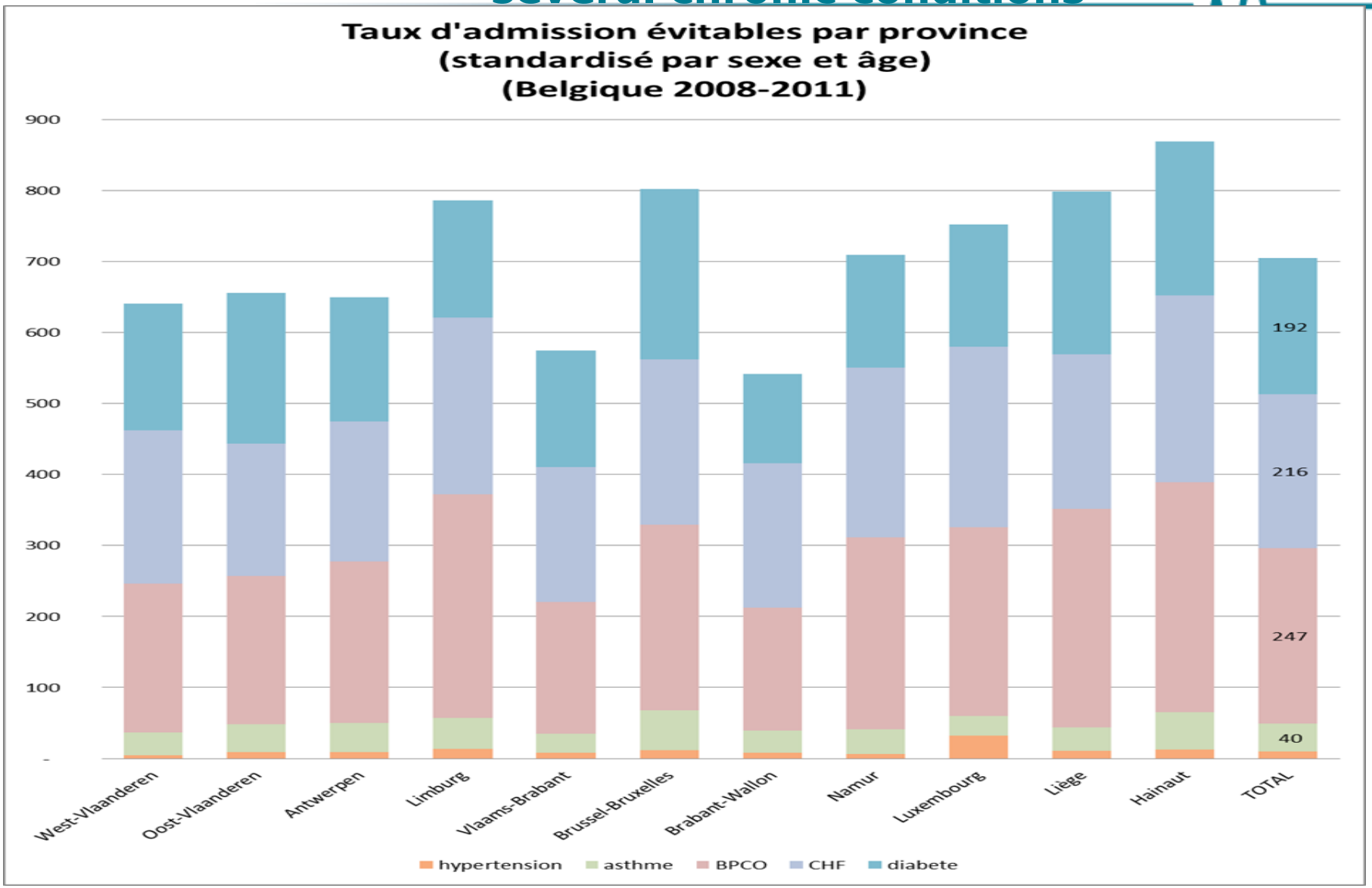


III. Explanations / hypothesis to explore
5 – Avoidable admissions: diabetes

Avoidable Diabetes Hospital Admissions



III. Explanations / hypothesis to explore
5 – Avoidable admissions: several chronic conditions



IV. Solutions

1. High admission rates with high variations within country
   - Benchmarking on most appropriate medical practice
   - Strengthen first line in order to avoid useless admissions (« clinical pathway » for asthma and diabetes)
   - Improve/support & supervise substitution rates with one-day clinic
   - « Home hospitalization »
   - Reducing beds numbers (hospital beds => rest homes)
   - Ambulatory intervention instead of hospital admission (mental health)
   - ….
2. Longer ALOS
   - Systematize clinical pathway within hospital
   - Benchmark on shortest length of stay (instead of on average)
   - Reduce financing (normal delivery => -0,5 day!)
   - …
3. Higher price
   - Adjust medical cost in function of international comparison (cataract)

Bibliography

- **General statistics :**
  - **OECD health at a glance 2015 (not yet published)**
- **Admissions :**
  - **Eurostat , Heidi 2012**
  - **OECD Geographic variations**
- **Cost and ALOS :**
  - **PPP project (OECD - Eurostat 2007-2015)**
  - **OECD 2013 (health data)**