

# Actualités et controverses en gastroentérologie

8 mars 2018

## Impact économique des MICI en Suisse

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# Topics

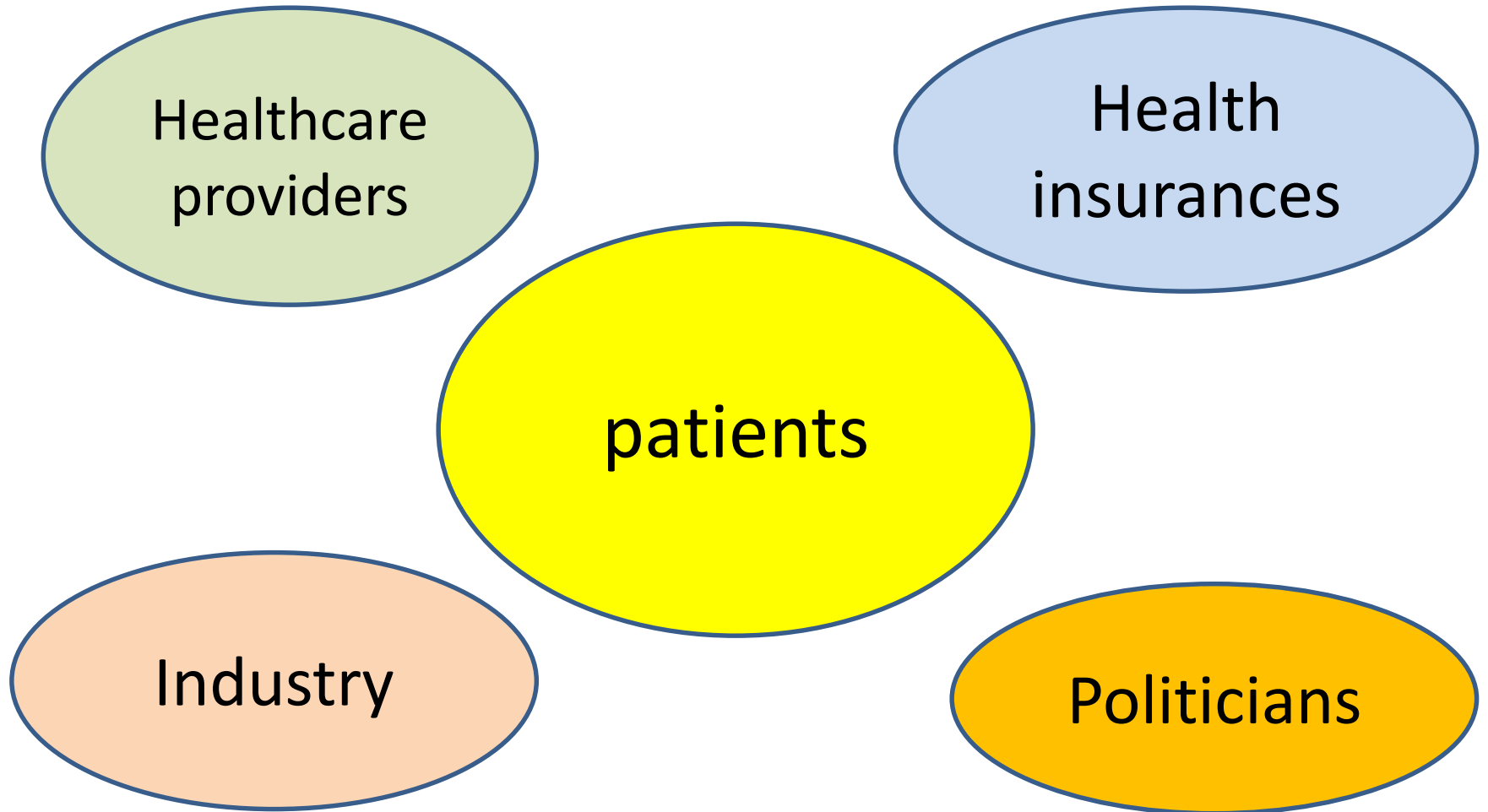
- Background
- Prevalence of IBD
- Health care costs
- Conclusions

# Why talk about numbers?





# Stakeholder interests



# Healthcare organization: the dream



# Healthcare organization: reality check



# Need for hard data on costs...





# Topics

- Background
- **Prevalence of IBD**
- Health care costs
- Conclusions

# Stakeholder interests

Healthcare  
providers

Health  
insurances



# Helsana

Bähler et al. *BMC Gastroenterology* (2017) 17:138  
DOI 10.1186/s12876-017-0681-y


BMC Gastroenterology

RESEARCH ARTICLE

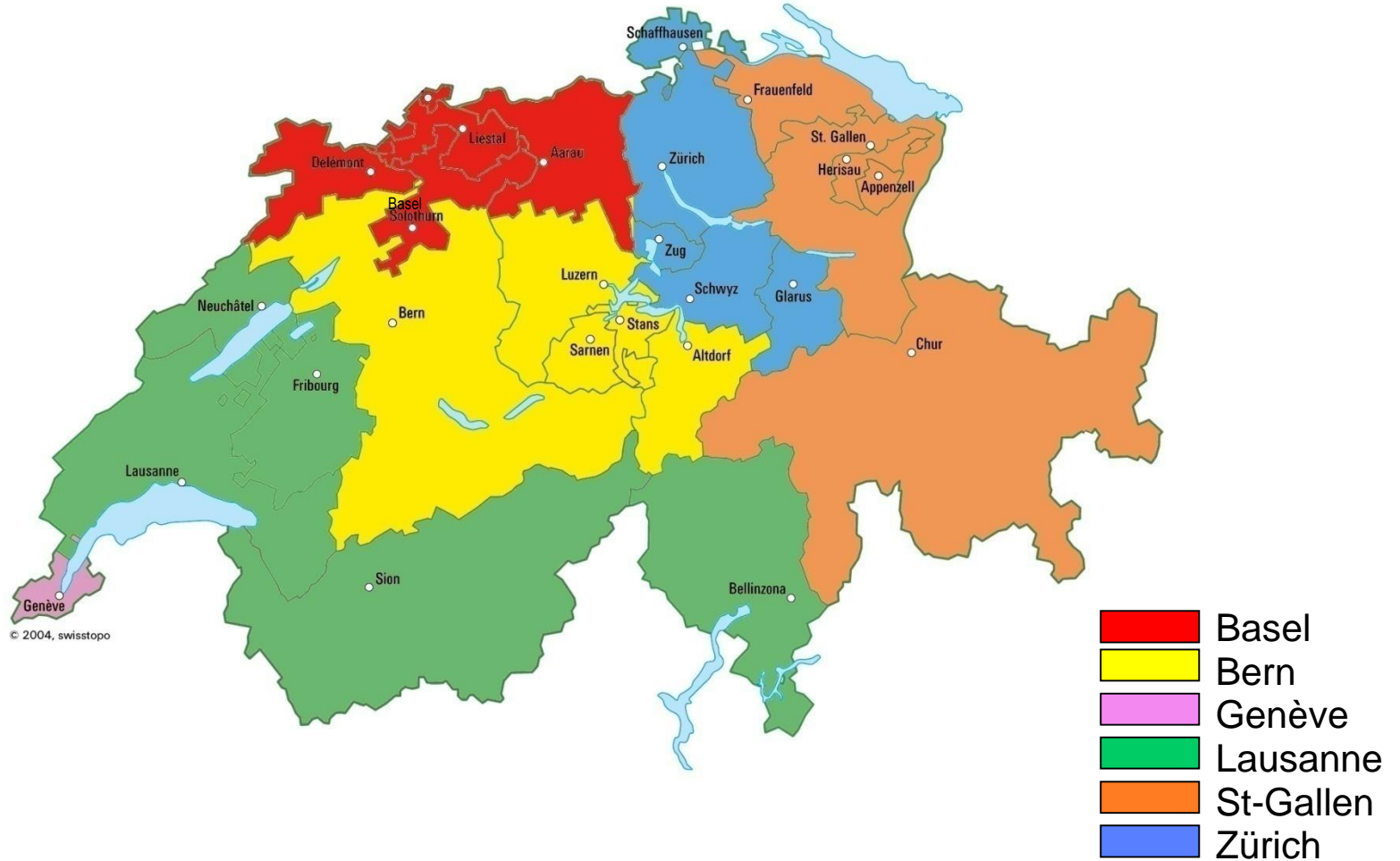
Open Access

Trends in prevalence, mortality, health care utilization and health care costs of Swiss IBD patients: a claims data based study of the years 2010, 2012 and 2014



Caroline Bähler<sup>1\*</sup> , Stephan R. Vavricka<sup>2</sup>, Alain M. Schoepfer<sup>3</sup>, Beat Brüngger<sup>1</sup> and Oliver Reich<sup>1</sup>

# SWISS IBD cohort study



# La Cohorte Vaudoise

Adults in Canton de Vaud (494 202 inhabitants)

**PREVALENCE : 205,6 IBD patients / 10<sup>5</sup> inhab. (0.2%)**

**51% Crohn's disease  
49% ulcerative colitis**

**1 person out of 500**

**For the entire Swiss population : 16,000 patients**

Juillerat et al, *Journal of Crohn's and Colitis* 2008;2:131–141

# La Cohorte Vaudoise

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# IBD prevalence in Switzerland

**Table 1** Prevalence estimates of IBD extrapolated to the general Swiss population for the years 2010, 2012, and 2014

	2010	2012	2014
Prevalence /100.000 (CI)			
Total	318 (308-329)	376 (365-388)	408 (396-420)
Men (all ages)	284 (270-298)	338 (322-353)	372 (356-388)
1-17	0.32%	0.38%	0.5%
18-40			
41-60	373 (343-403)	447 (412-481)	469 (435-504)
60+	495 (458-532)	567 (527-606)	627 (585-669)
Women (all ages)	352 (337-366)		
1-17	20 (11-30)		
18-40	299 (273-325)		
41-60	445 (413-476)		
60+	535 (502-568)	616 (580-653)	648 (611-685)

1/200 with IBD => 40'000 patients in Switzerland



**Table 2** Characteristics of the study population in 2014

n (%)	Total <i>n</i> = 1,125,050	IBD <i>n</i> = 4812	Non-IBD <i>n</i> = 1,120,238	<i>p</i> <sup>a</sup>
Female sex	581,598 (51.7)	2695 (56.0)	578,903 (51.7)	<0.001
Age				
Total (mean, SD)	44.0 (23.5)	54.8 (18.0)	43.9 (23.5)	<0.001
Men (mean, SD)	42.3 (22.8)	54.2 (17.5)	42.2 (22.8)	
Women (mean, SD)	45.5 (24.0)	55.4 (18.5)	45.5 (24.0)	
Language area <sup>b</sup>				
German	840,900 (74.7)	3778 (78.5)	837,122 (74.7)	<0.001
French	209,719 (18.6)	687 (14.3)	209,032 (18.7)	
Italian	74,413 (6.6)	347 (7.2)	74,066 (6.6)	
Type of residence (urban area)	874,640 (77.7)	3799 (78.9)	870,841 (77.7)	0.04
Chronic conditions (median, IQR)	0.0 (2.0)	3.0 (3.0)	0.0 (2.0)	<0.001
Home care nursing dependency	30,669 (2.7)	285 (5.9)	30,384 (2.7)	<0.001
Health insurance plan				
Managed care	649,992 (57.8)	2340 (48.6)	647,652 (57.8)	<0.001
Higher deductible	308,642 (27.4)	522 (10.8)	308,120 (27.5)	<0.001
Accident coverage	677,107 (60.2)	2871 (60.0)	674,236 (60.2)	ns
Supplementary hospital insurance	208,661 (18.5)	1020 (21.2)	207,641 (18.5)	<0.001

# Drugs impact costs...

**Table 3** Percentage of IBD patients with at least one of the listed medical claims (*n* = 13,451)

%	Total	2010	2012	2014
5-ASA <sup>a</sup>	87.4	96.8	84.8	82.2
Immunosuppressants <sup>b</sup>	23.2	18.7	24.4	25.9
Biologics <sup>c</sup>	9.7	5.3	10.2	12.8
Steroids <sup>d</sup>	35.0	32.8	36.5	35.3

<sup>a</sup>mesalazine, sulfasalazine

<sup>b</sup>methotrexate, azathioprine, mercaptopurine

<sup>c</sup>infliximab, adalimumab, golimumab, certolizumab pegol

<sup>d</sup>prednisone, prednisolone, methylprednisolone, budesonide



# Mortality of IBD patients

Item	IBD	Non-IBD	P
Mortality	1.3%	0.8%	0.234
Age at death (years)	81.0 (IQR 13.8)	83.0 (IQR 16.0)	0.001

# Hospitalization rate of IBD patients

Item	IBD	Non-IBD	P
≥1 hosp./year	23.1%-24.2%	10.8%-10.9%	<0.001
Days of hospitalization	7 (IQR 14)	5 (IQR 9)	ND

# Health care costs

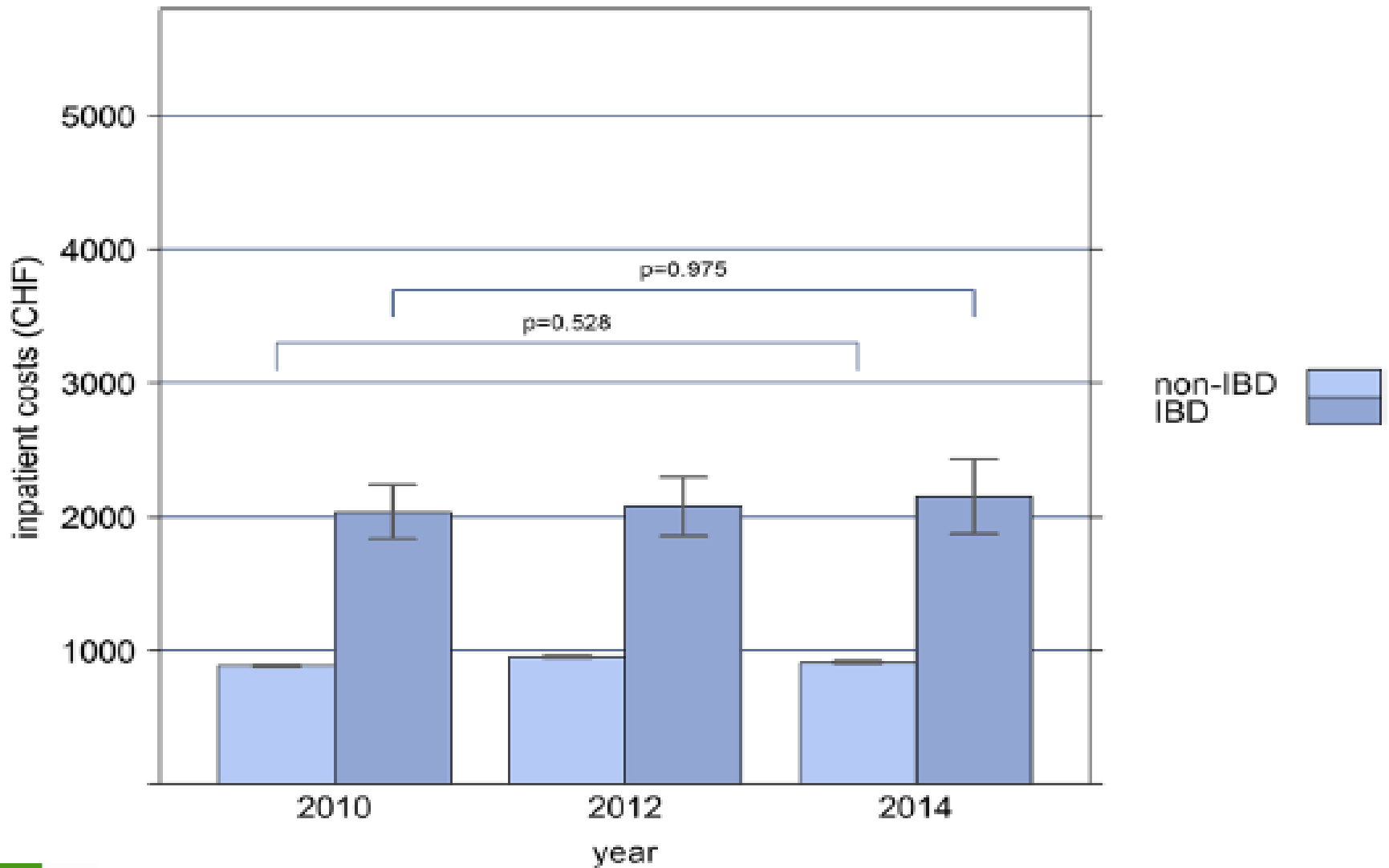
**Table 4** The extrapolated health care costs (in Swiss Francs) in IBD versus non-IBD patients between 2010 and 2014

Mean (CI, median)	IBD	non-IBD	<i>p</i> <sup>a</sup>
2010			
Total	9590 (9210-9970, 5390)	3160 (3140-3170, 750)	<0.001
Inpatient	2040 (1830-2240, 0)	890 (880-890, 0)	<0.001
Outpatient	3920 (3790-4040, 2810)	1510 (1500-1510, 490)	<0.001
Medication	3630 (3430-3830, 0)	760 (750-770, 0)	<0.001
2012			
Total	11,680 (11,270-12,090, 6810)	3540 (3520-3560, 870)	<0.001
Inpatient	2080 (1870-2430, 0)	910 (900-920, 0)	<0.001
Outpatient	4470 (4300-4640, 3510)	1830 (1830-1840, 610)	<0.001
Medication	5130 (4840-5420, 1900)	800 (790-800, 110)	<0.001
2014			
Total	12,790 (12,270-13,300, 6810)	3540 (3520-3560, 870)	<0.001
Inpatient	2150 (1870-2430, 0)	910 (900-920, 0)	<0.001
Outpatient	5280 (5070-5490, 3510)	1830 (1830-1840, 610)	<0.001
Medication	5360 (5100-5620, 1900)	800 (790-800, 110)	<0.001

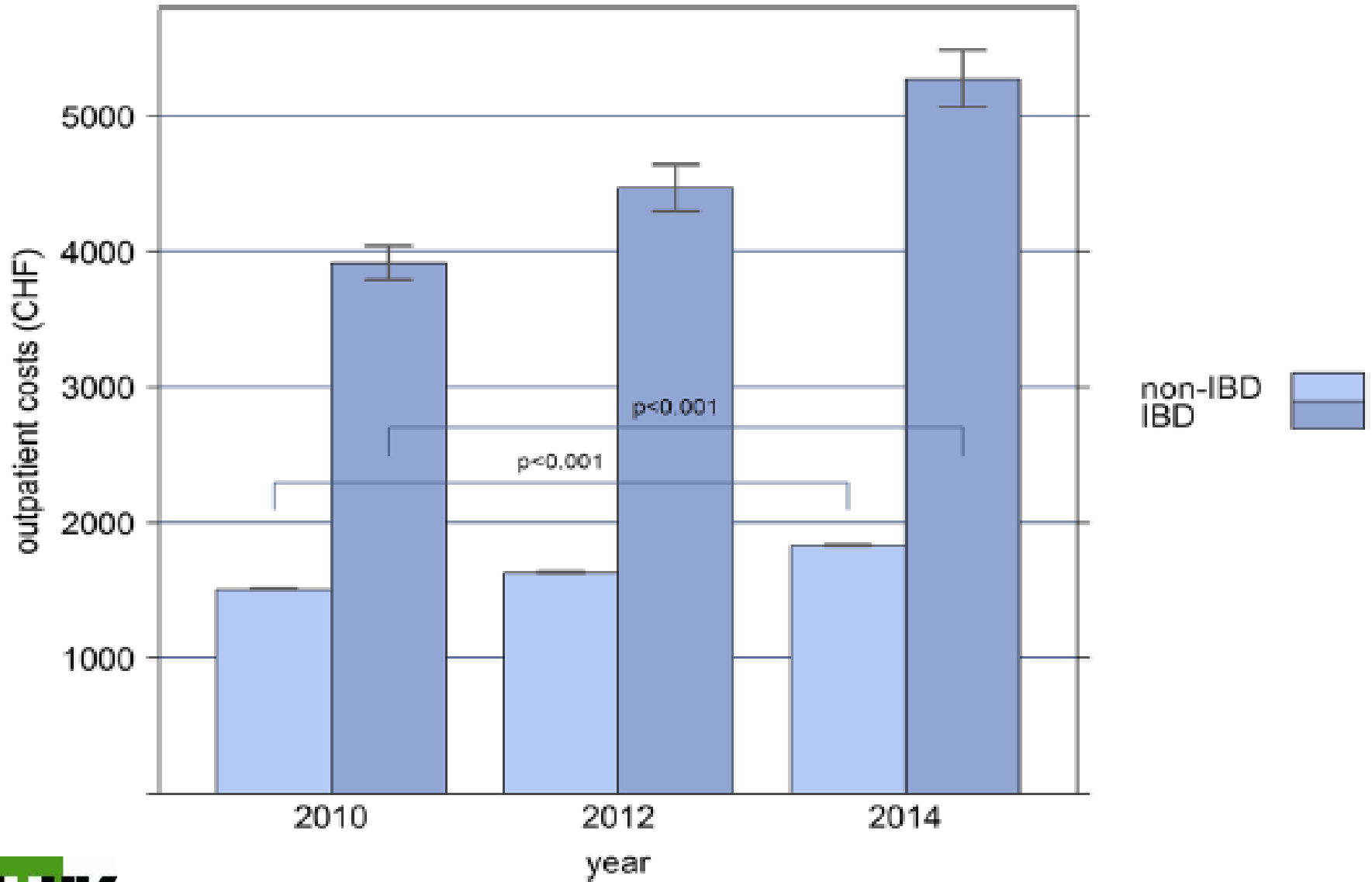
Annual cost increase by 6% in IBD patients versus 2.4% in non-IBD patients

<sup>a</sup>*p-values* were calculated using multivariate linear regression (adjusted for age group, sex, and canton of residence)

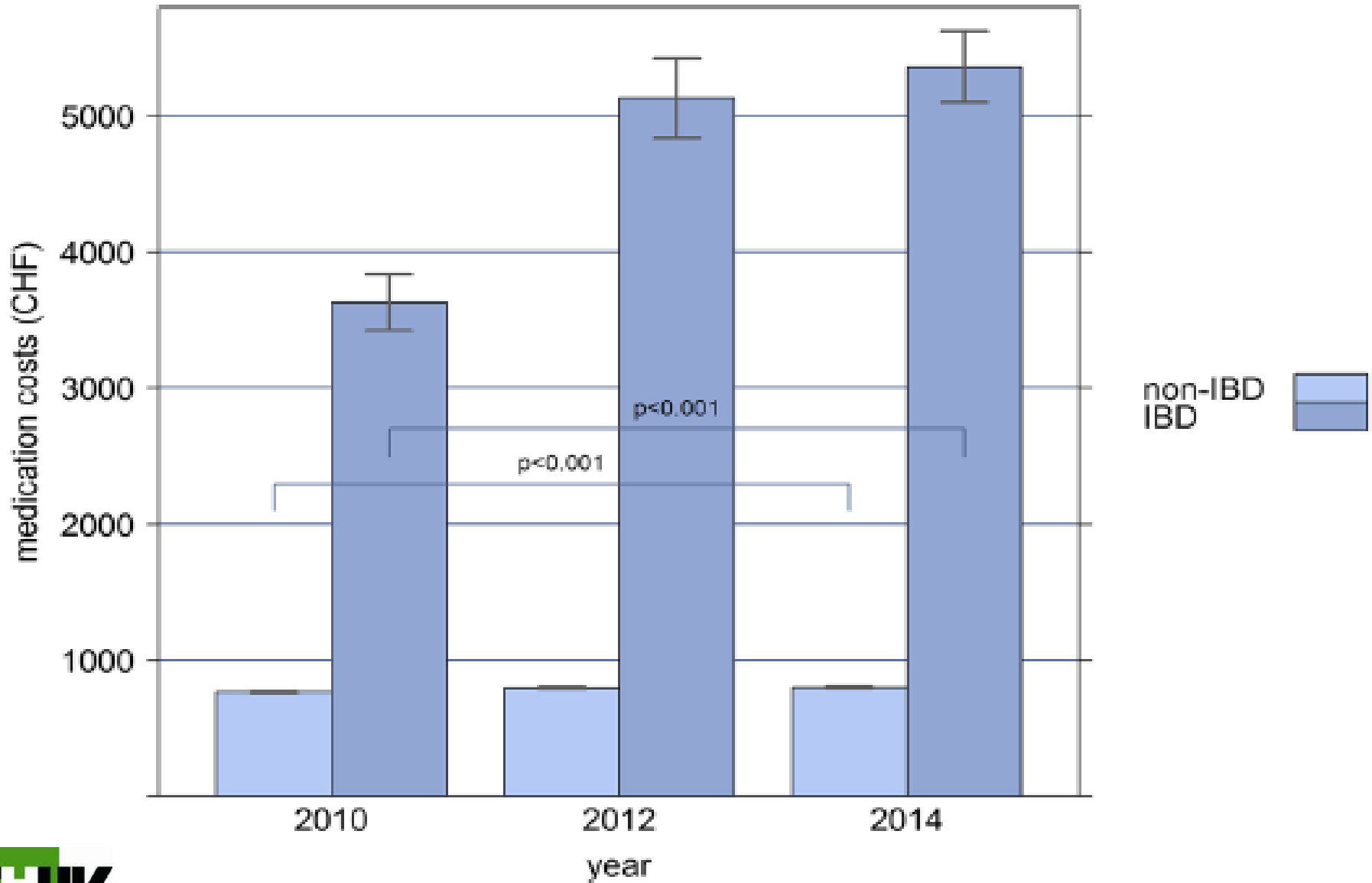
# Inpatient costs (CHF)



# Outpatient costs (CHF)



# Drug costs (CHF)



# Which are the cost drivers?

	$\beta$ (95% CI)	<i>p</i>
Age group by males		
1-17 (male)	1.00	
18-40 (male)	0.59 (0.39-0.91)	0.016
41-60 (male)	0.47 (0.30-0.71)	<0.001
60+ (male)	0.44 (0.29-0.67)	<0.001
Age group by females		
1-17 (female)	1.00	
18-40 (female)	1.04 (0.72-1.49)	0.840
41-60 (female)	0.79 (0.55-1.13)	0.195
60+ (female)	0.59 (0.41-0.85)	0.004
Number of chronic conditions	1.31 (1.29-1.33)	<0.001
Nursing dependency	1.89 (1.69-2.12)	<0.001
Language area		
German	1.00	
French	1.03 (0.96-1.11)	0.375
Italian	0.86 (0.78-0.95)	0.003
Health insurance plan		
Higher deductible class	0.65 (0.60-0.71)	<0.001
Accident coverage	1.10 (1.03-1.18)	0.004
Managed care	0.87 (0.83-0.92)	<0.001
Supplementary insurance	1.06 (0.99-1.14)	0.061

# Co-morbidities in IBD

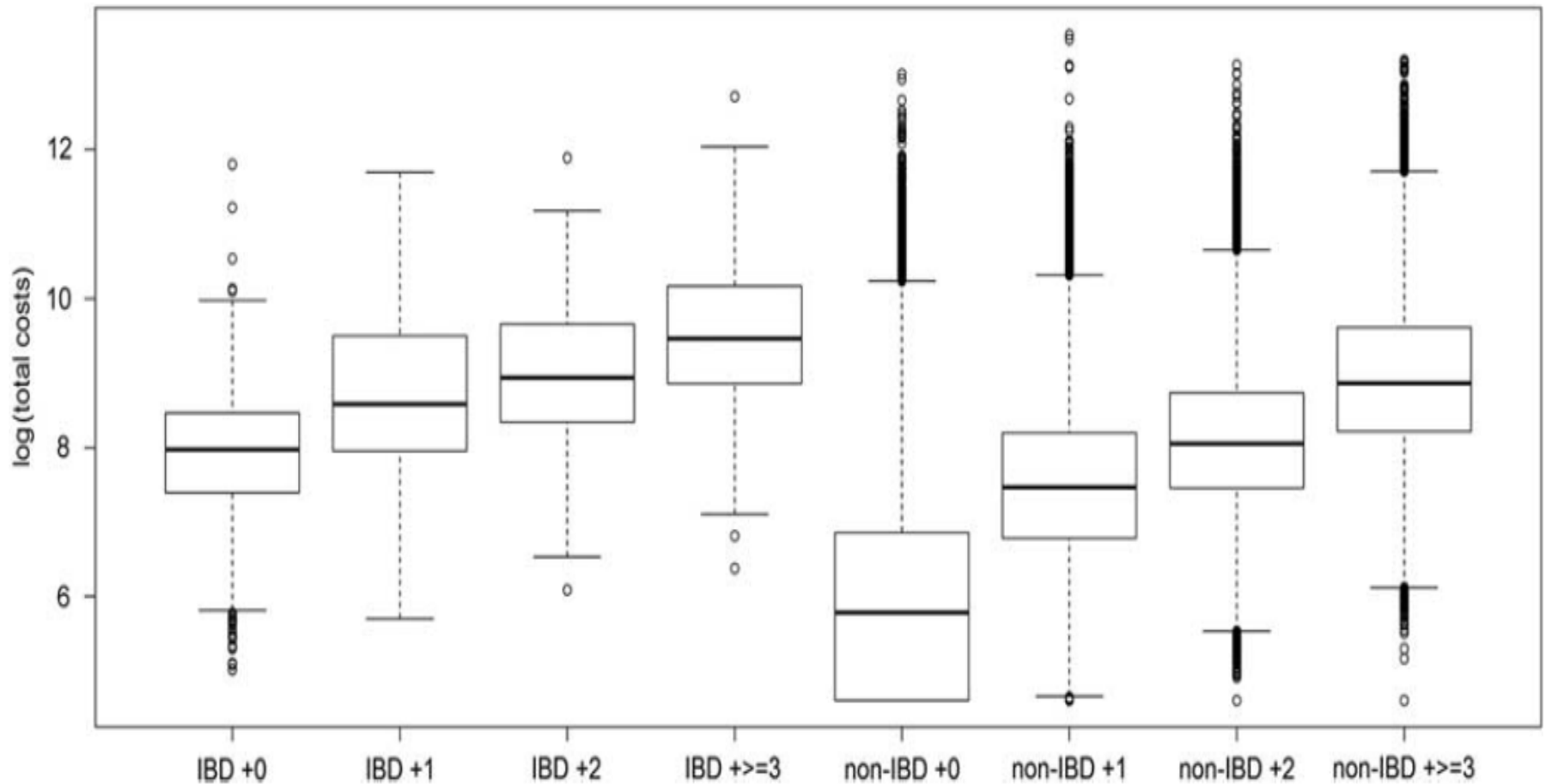
**Table 2.** (Co)morbidities in individuals with inflammatory bowel disease, 2014 ( $n = 111$ )

Chronic conditions (%)				
Acid-related disorders				
Bone diseases (osteoporosis)				
Cancer				
Cardiovascular diseases				
Dementia				
Diabetes mellitus				
Epilepsy	2.7	5.6	<b>1.45</b>	1.20–1.76
Glaucoma	3.3	6.2	1.05	0.89–1.24
Gout/hyperuricemia	1.5	2.8	1.05	0.82–1.35
HIV	0.2	0.4	1.70	0.81–3.75
Hyperlipidemia	10.6	18.7	1.07	0.96–1.19
Iron-deficiency anemia	2.6	4.7	<b>1.77</b>	1.42–2.21
Migraines	1.1	2.2	<b>1.81</b>	1.32–2.52
Pain	9.6	25.8	<b>2.12</b>	1.91–2.35
Parkinson's disease	0.9	1.5	0.92	0.67–1.27
Psychological disorders (depression)	9.8	20.9	<b>1.45</b>	1.30–1.61
Psychoses	2.6	3.4	0.83	0.67–1.02
Respiratory illness (asthma, COPD)	7.9	13.2	<b>1.43</b>	1.26–1.63
Rheumatologic conditions	12.7	36.3	<b>2.59</b>	2.36–2.85
Thyroid disorders	3.5	6.7	<b>1.24</b>	1.05–1.47
Tuberculosis	0.06	0.4	<b>4.12</b>	1.54–14.01

Median of 3  
co-morbidities in  
IBD patients



# Co-morbidities in IBD drive costs



# Costs according to biologics

**Table 7** Health care costs (in Swiss Francs) of IBD patients treated with or without biologics in 2014 ( $n = 4812$ )

Mean (SD, median)	No Biologics	Biologics	$p^a$
Total	10,437 (15,146, 5833)	28,265 (12,970, 25,779)	<0.001
Inpatient	2308 (8340, 0)	1887 (4790, 0)	0.3
Outpatient	5163 (6912, 3368)	6303 (4830, 4956)	<0.001
Primary care physicians	635 (777, 417)	551 (769, 285)	<0.001
Specialists	1516 (1854, 941)	2026 (2191, 1509)	<0.001
Others (e.g. paramedical)	3012 (6044, 1401)	3726 (3630, 2692)	<0.001
Medications	2966 (5464, 1644)	20,075 (9486, 19,316)	<0.001

<sup>a</sup> $p$ -values were calculated using Wilcoxon rank sum test

# Conclusions

- ✓ IBD prevalence is increasing
- ✓ Mortality rate not different from non-IBD patients
- ✓ 24% of IBD patients get hospitalized within one year
- ✓ Annual cost increase by 6% in IBD patients versus 2.4% in non-IBD patients
- ✓ Cost increase mainly related to outpatient costs
- ✓ Higher costs in IBD patients under biologics
- ✓ Over 70% of total costs attributed to biologics compared to 28% in patients without biologics

# Outlook

- Limited resources
- Assessment of health resource utilization and costs necessary to provide a rationale basis for discussion among stakeholders



# Acknowledgments



**MSD**

Ms Maria Virant, MSc  
Dr. Urs Arnet

**Helsana**

Dr. Caroline Bähler  
Beat Brüngger  
PD Dr. Eva Blozik  
Dr. Oliver Reich

**Thank you!**



# Disclosures

- This study was funded by MSD Merck Sharp & Dohme AG (Switzerland).
- The sponsor reviewed, discussed and approved the protocol CH-LCE-6247/2016-ms-3882.
- Conduction, analysis and interpretation of the data, preparation and submission of the manuscript were solely in the responsibility of the authors, without any obligations to the sponsor.