



Paying for diarrhoea: An estimation of healthcare costs due to acute gastroenteritis and campylobacteriosis in Switzerland

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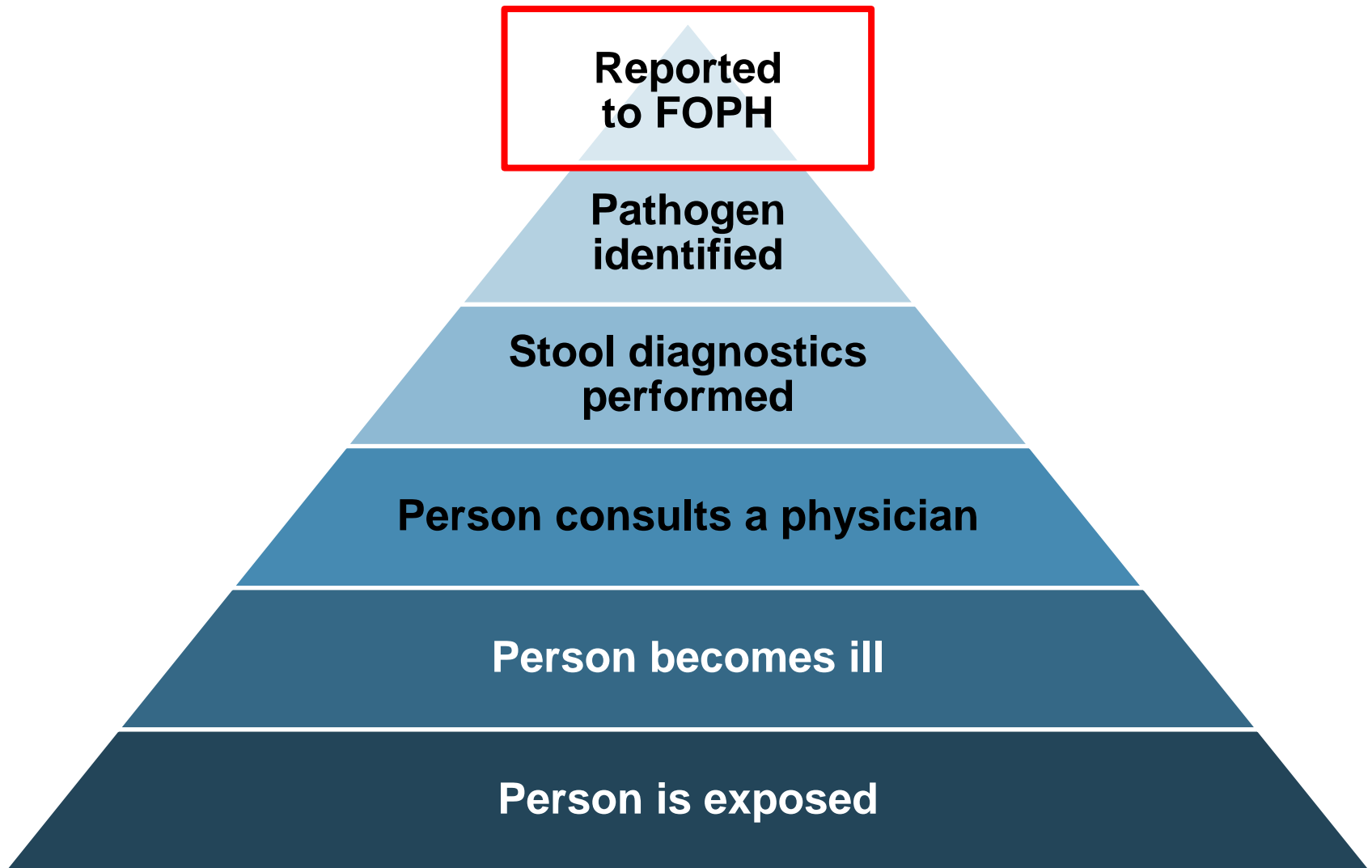
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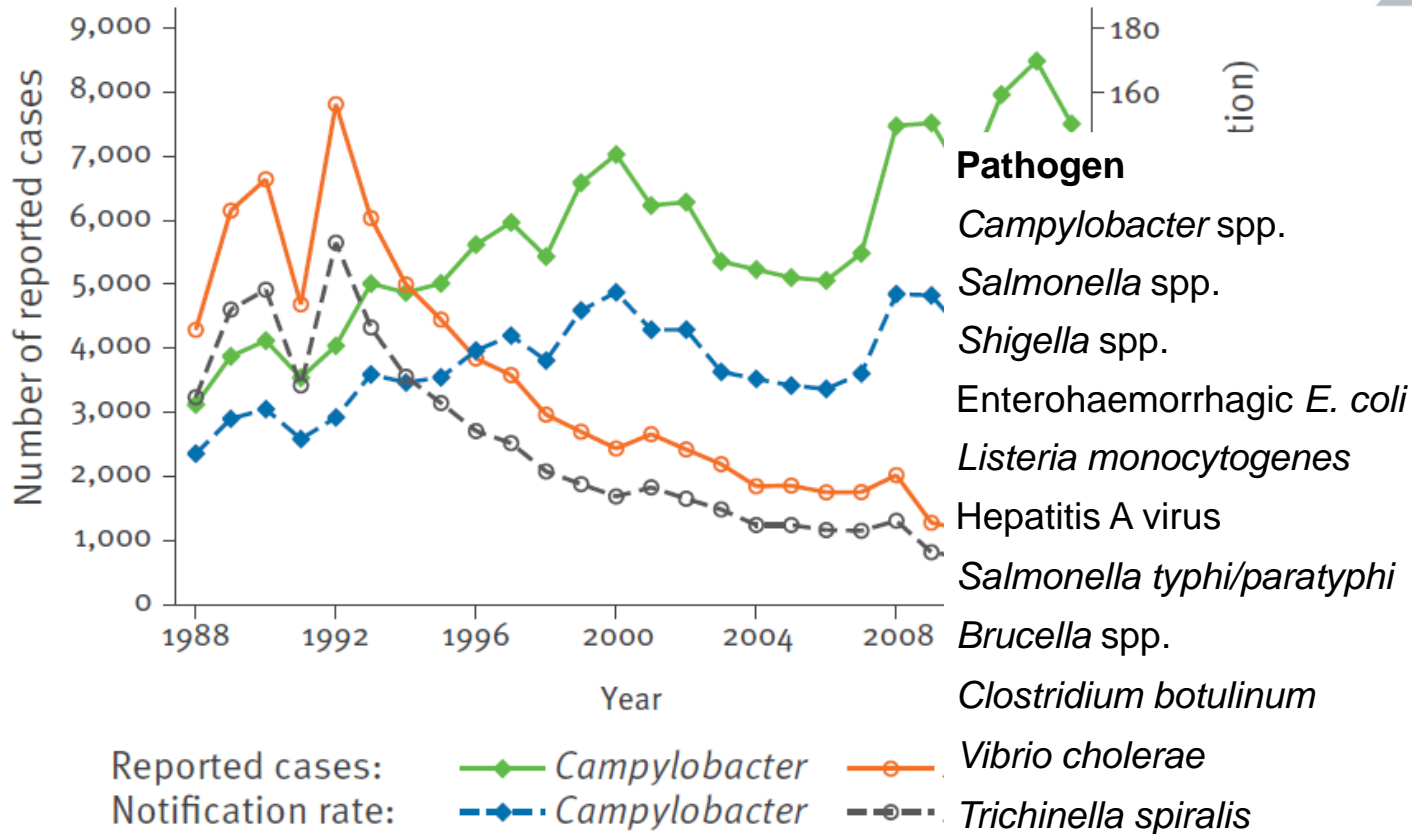
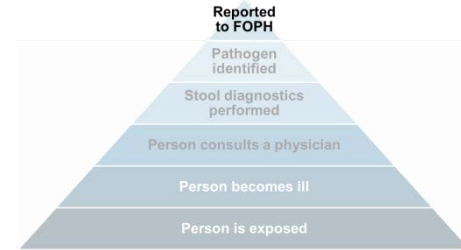
- ***Campylobacter*** enteritis: **2'993'142 DALYs** worldwide (GBD, 2015)
- Diarrhoeal disease **89'513'000 DALYs** worldwide (Murray et al. 2012)
- **Most commonly** reported gastrointestinal, bacterial pathogen in the EU
- **EU notification rate:** 65.5 /100'000 pop. or **229'000 confirmed cases**
- But **estimates of 9.25 million cases** in 27 EU member states (2009)
- Expenditures of public health systems and productivity losses of **EUR ~2.4 billion / year** (EFSA 2014)
- Campylobacter-associated **mortality:** 80 deaths in EU 2015 (GBD, 2015) – but – 80 deaths in NL alone (Havelaar, 2005)...

Burden of disease in Switzerland largely unknown

Restricted to **notifiable foodborne pathogens** registered in the **National Notification System for Infectious Diseases (NNSID)** at the Federal Office of Public Health



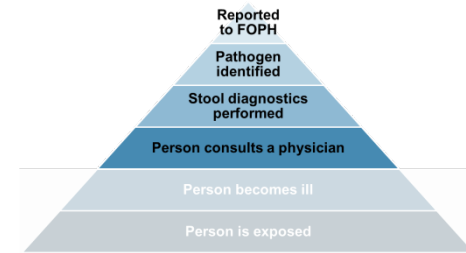
Campylobacter and *Salmonella* in NNSID



Case numbers 2016

<i>Campylobacter</i> spp.	7779
<i>Salmonella</i> spp.	1507
<i>Shigella</i> spp.	183
Enterohaemorrhagic <i>E. coli</i>	471
<i>Listeria monocytogenes</i>	52
Hepatitis A virus	41
<i>Salmonella typhi/paratyphi</i>	23
<i>Brucella</i> spp.	7
<i>Clostridium botulinum</i>	2
<i>Vibrio cholerae</i>	1
<i>Trichinella spiralis</i>	0

Four patient models – from mild to severe



Case A

- **GP** consultation
- **No** stool test

Case B

- **GP** consultation
- Campylobacter-**negative** stool test

Case C

- **GP** consultation
- Campylobacter-**positive** stool test

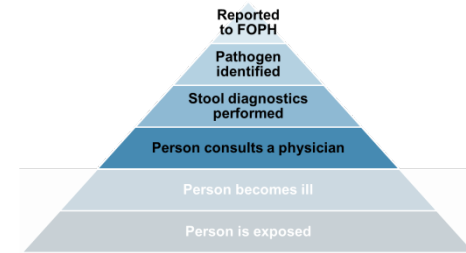
Case D

- **GP** consultation
- Campylobacter-**positive** stool test
- **Hospital** stay

Acute gastroenteritis

**Campylobacteriosis
NNSID**

Four patient models – individual costs



Case A

- 1-2 consultation
- 1 medication
- (Blood sample: CRP & haemog)

Case B

- 1-2 consultation(s)
- 1 telephone cons.
- Stool culture (neg)
- 1 medication
- Blood sample: CRP & haemogram
- Reviewing patient (Antibiotic)
- (Pharmacy fees)

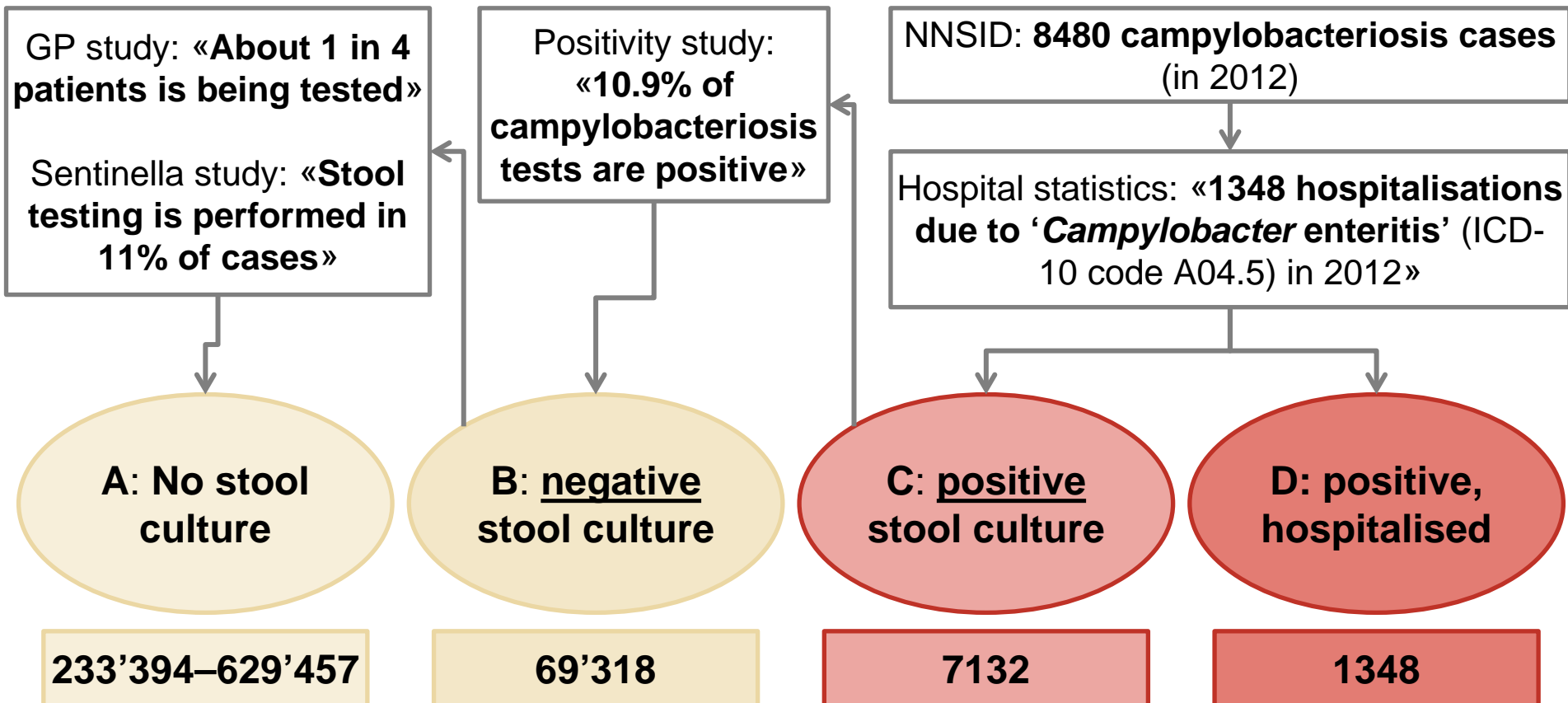
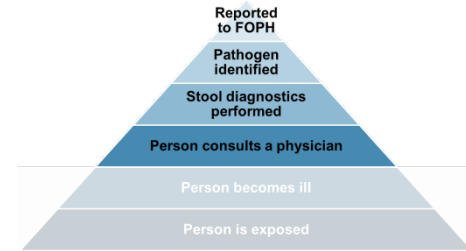
Case C

- 1-2 consultation
- 1 telephone con
- Stool culture (p
- 1 medication
- Blood sample: CRP & haemog
- Reviewing patie
- (Antibiotic)
- (Pharmacy fees)

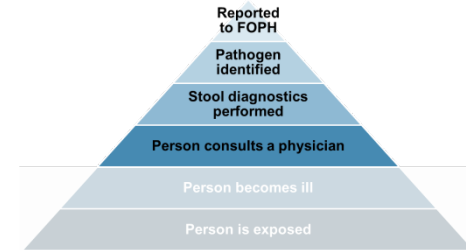
Case D

- Hospital stay (DRG)
- 1-2 consultation(s)
- (Blood sample: CRP & haemogram)
- (Review patient file)

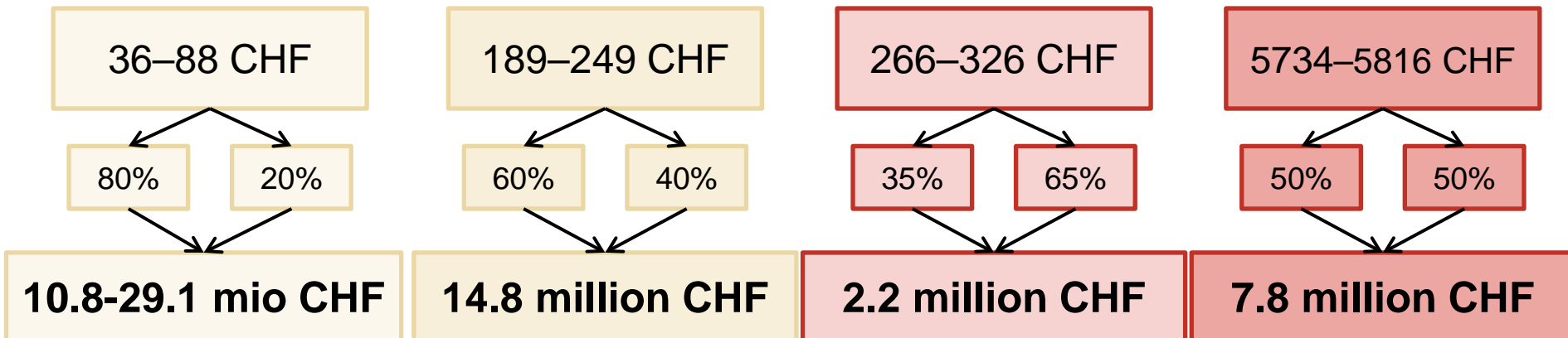
Frequency of patient models



Extrapolated costs per patient model



In total: CHF 36-54 million
in 2012 in Switzerland
(€ 29-45 million)





- **Healthcare costs** for acute gastroenteritis & campylobacteriosis amount to **CHF 36-54 million** (in 2012) representing 1‰ of Swiss total health expenditures
- Estimates **do not include expenses of patients not consulting** a physician
- Estimates **do not include healthcare costs due to long-term sequelae**
- Non-healthcare costs such as **work loss** **not considered**
- Comparison with other countries difficult → other basis for cost calculations (costs and/or pathogens included)

Potential for cost savings inside and outside the healthcare sector should be considered when planning **interventions aiming to reduce AG and/or campylobacteriosis** in Switzerland

