

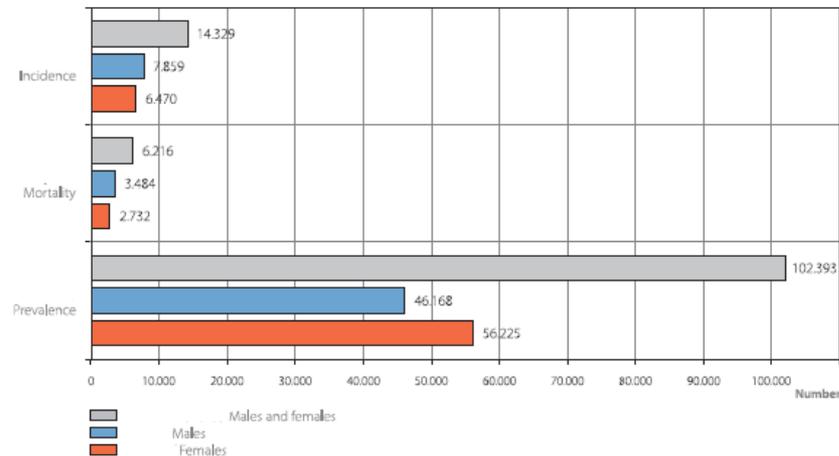
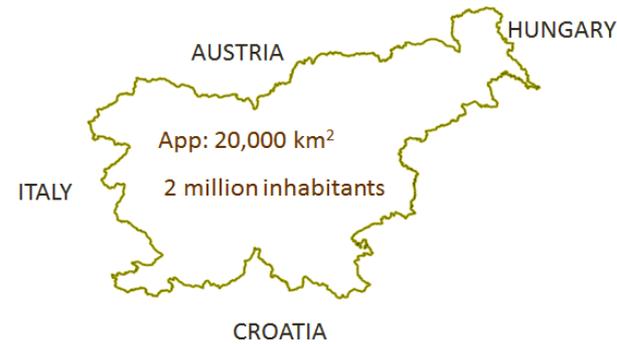
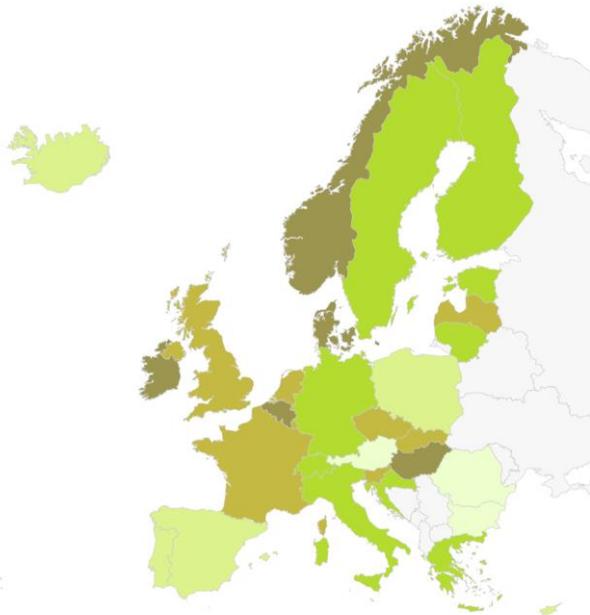
# ESTIMATING FRACTIONS OF CANCERS ATTRIBUTABLE TO SOCIOECONOMIC INEQUALITIES IN SLOVENIA

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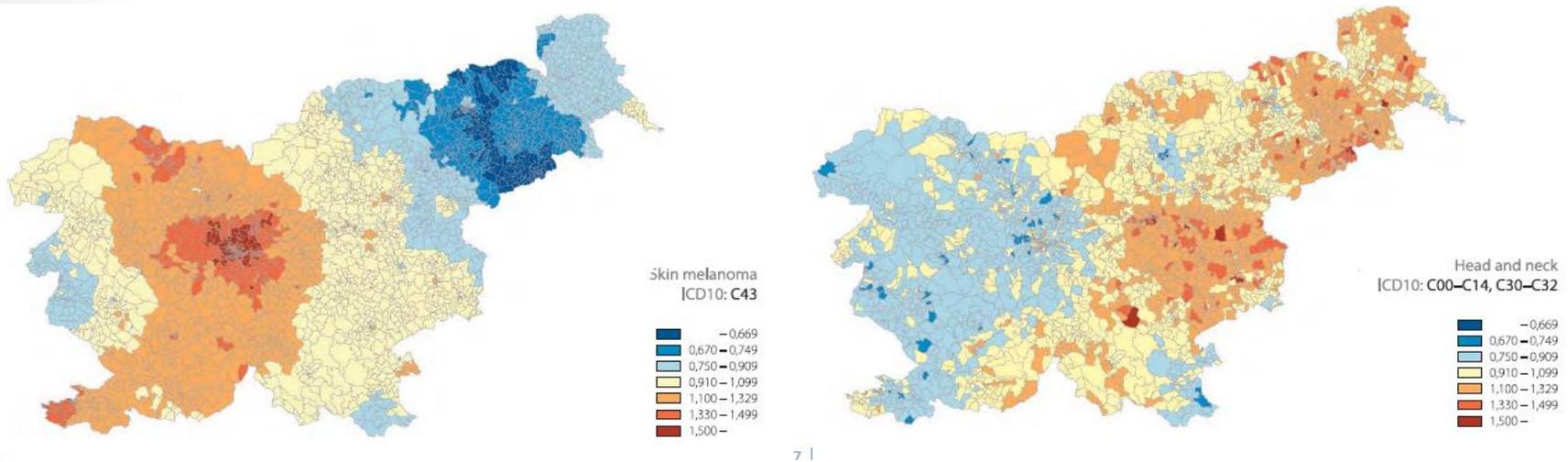
# Cancer burden in Slovenia



## CANCER REGISTRATION IN SLOVENIA

- Population based Cancer Registry of Slovenia
- Compulsory registration since 1950

# Geographical variation in cancer incidence

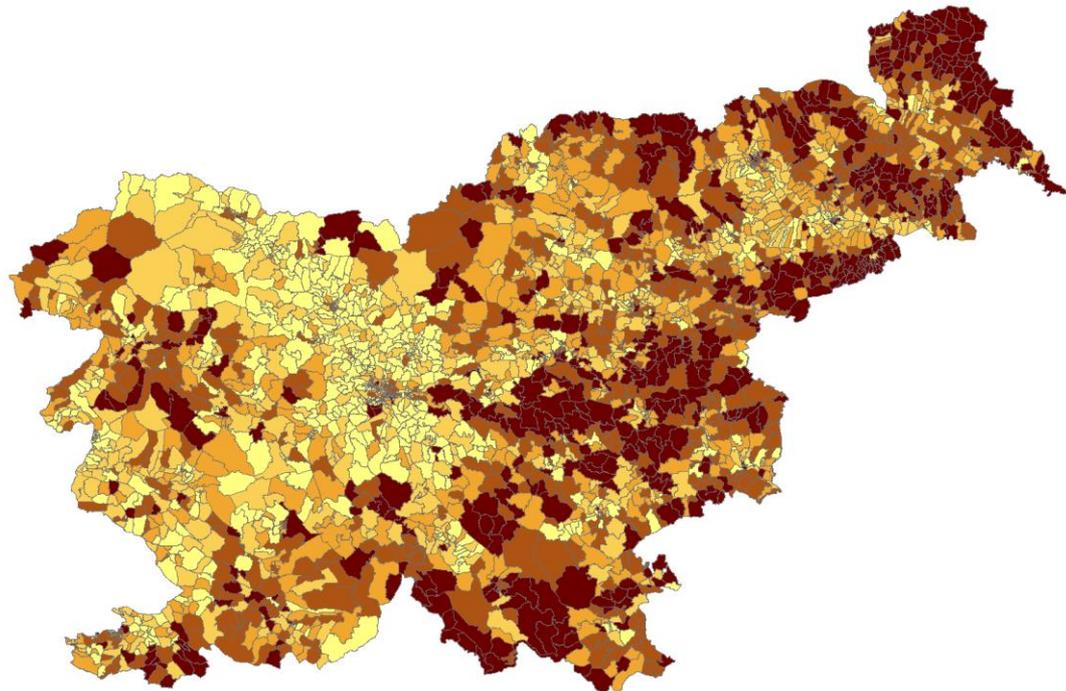
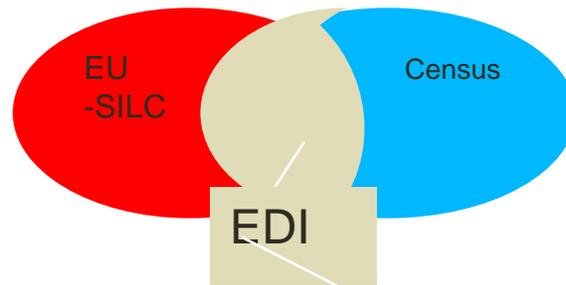


- **Point data (x,y coordinates) available for cancer cases and for the population.**
- **Agregated analysis for 3014 polling stations (average population size: 600).**
- **Bayesian spatial smoothing of incidence rate (indirect standardization).**

# Socioeconomic inequalities in Slovenia

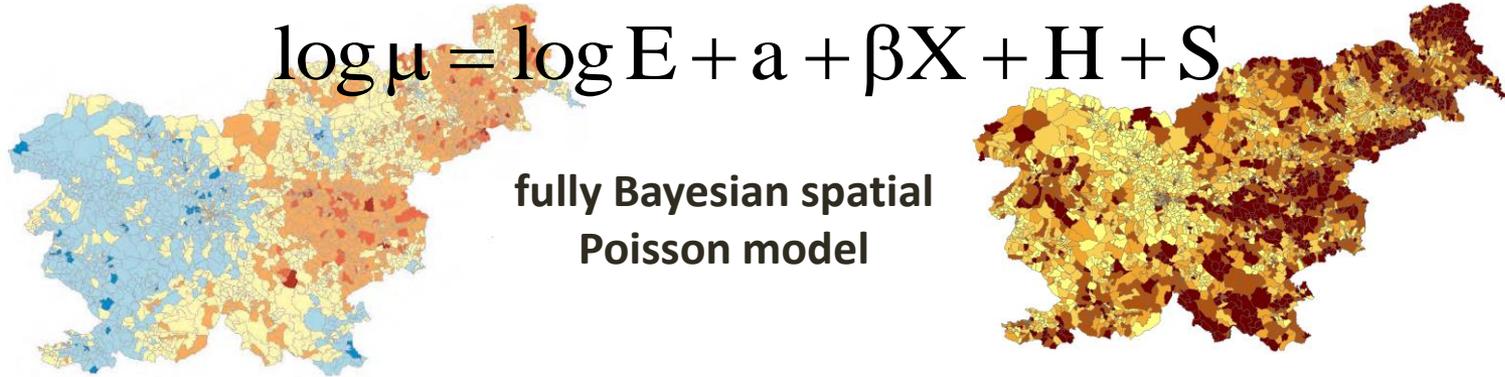
## SI-EDI

### European Deprivation Index – Slovenian version



# Cancer burden attributable to SE inequalities?

$$\log \mu = \log E + a + \beta X + H + S$$



## PAF (population attributable fraction)

SI-EDI in quintiles, risk calculated for the situation having the population most deprived/affluent

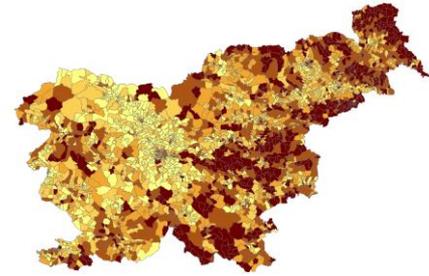
$$PAF = 1 - \frac{1}{\sum_{i=1..5} p_i RR_i}$$

# Data

<b>Cancer incidence cases</b>	<b>2005-2014</b> (127,827 )
<b>EDI</b>	<b>2011</b> (EU-SILC + census)
<b>Area</b>	Polling station (N=3104, $\mu=600$ )
<b>Location</b>	<b>22 sites</b> (ICD10)
<b>Maps</b>	5 classes, equal interval, outliers if 3xSD
<b>Results comparisson</b>	Bryere et al BMC Cancer 2014 Bryere et al EJCP 2016

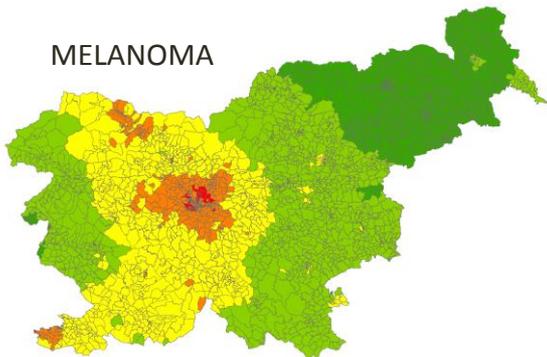
# Affluent cancers

## 6/22

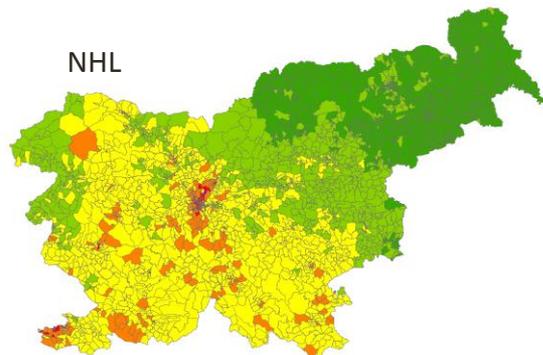


Location	PAF (%)
C43: melanoma	15.9
C44: non-melanoma skin	8.9
C61: prostate	10.4
C8285: NHL	12.9
C50: breast	9.5
C1920: rectum	3.6

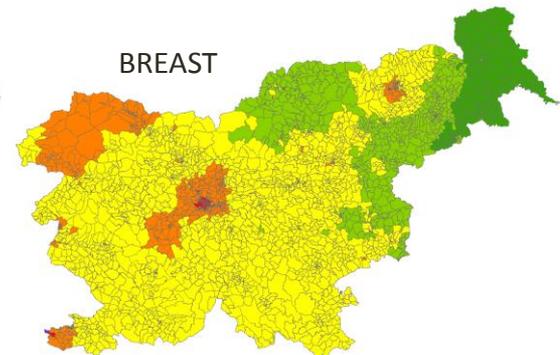
MELANOMA



NHL

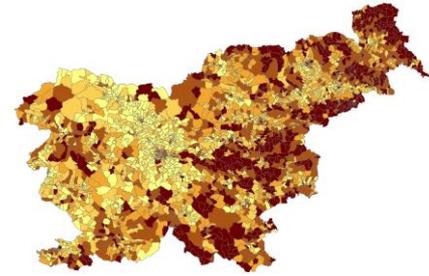


BREAST

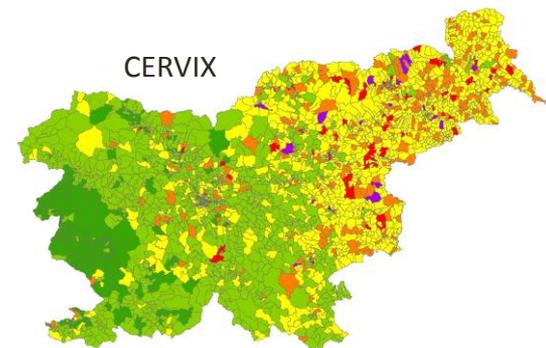
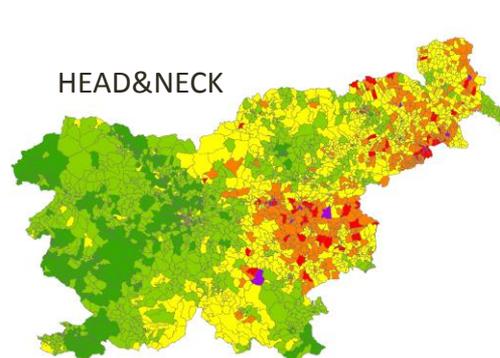
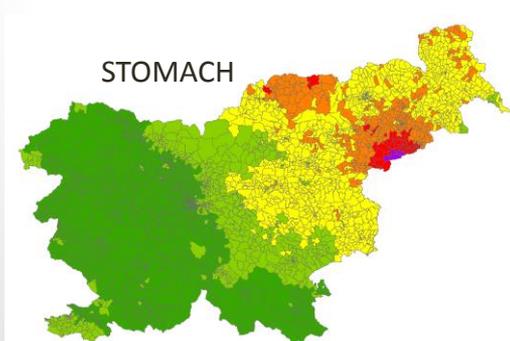


# Deprived cancers

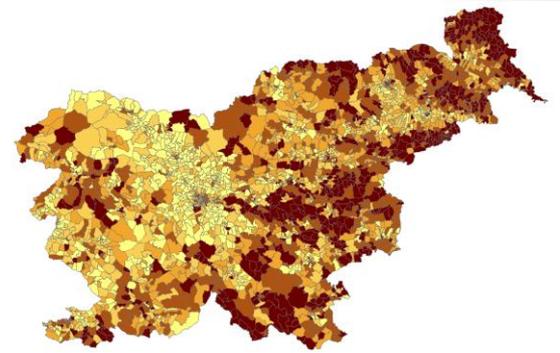
## 6/22



Location	PAF (%)
C15: esophagus	<b>18.6</b>
C0014C3032: head&neck	<b>8.1</b>
C22: liver	<b>6.2</b>
C3334: lung	<b>8.6</b>
C16: stomach	<b>11.6</b>
C53: cervix	<b>9.2</b>



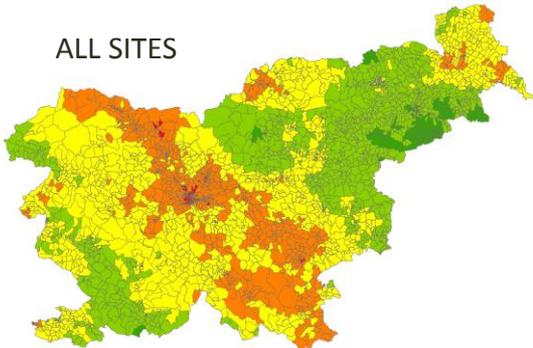
# Cancers with NO correlation to SES 10/22



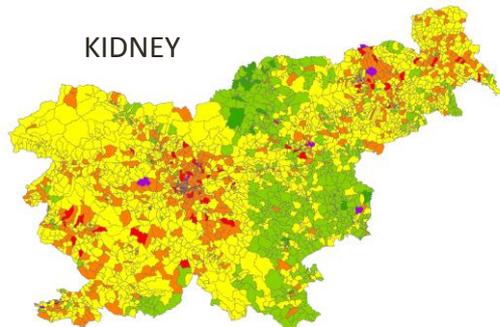
## Location

C18: colon, C25: pancreas, C6465: kidney, C67: bladder, C54: corpus uteri, C56: ovary, C62: testis, C73: thyroid, C9195: leukemia, C0096: all sites

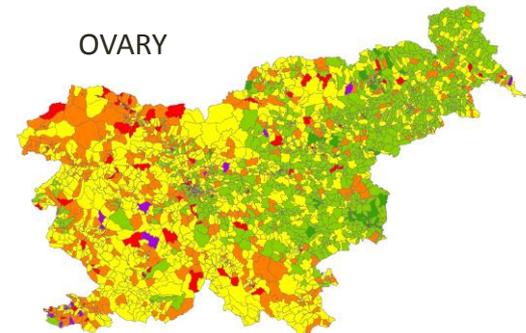
ALL SITES



KIDNEY



OVARY



# Results comparisson

Bryere et al BMC Cancer 2014

Bryere et al EJCP 2016

	Good match (12 /18)	Moderate match (5/12)	No match (1/12)
Positive correlation (affluent cancers)	3 breast, melanoma, prostate	2 ovary, testis	1 NHL
Negative correlation (deprived cancers)	4 head&neck, liver, lung, cervix	2 stomach, esophagus, bladder	
No correlation	5 pancreas, kidney, uterus, thyroid, leukemia	1 colorectum	

# Conclusion



SKIN  
NHL  
BREAST  
PROSTATE

H&N  
ESOPHAGUS  
STOMACH  
CERVIX  
LIVER  
LUNG