



The Epidemiological Regional Service: monitoring mortality, prevalence and incidence of chronic diseases.

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Area Sanita' e Sociale
Sistema Epidemiologico Regionale
VENEZIA



Healthcare data bases in Regione Veneto

- Our citizens health care is provided with a universal coverage system, financed by general taxation characterized by a single payer, the Region.
- Health care is provided by 9 Health Care Trusts and 3 Hospital trusts. Recent reform reduced the trusts from 21 to 9 in 2017.
- Data on health care use, diagnoses and services provided are regularly sent to the Region for monitoring and controlling purposes and then to the Ministry of Health in Rome.
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Healthcare data bases in Regione Veneto

- Data are collected during clinical encounters and diagnoses are coded by physicians, while service data are used as claims for reimbursing providers and for budgeting purposes.
- With anonymization procedures, record linkage based on individual IDs allows for data integration and indirect surveillance (no need for ad-hoc data collection)
- This information system allows for descriptive data to be produced on the entire population providing up-to-date data flows on mortality, prevalence and incidence rates (attack rates) for the most common diseases.



Healthcare Databases - Veneto Region

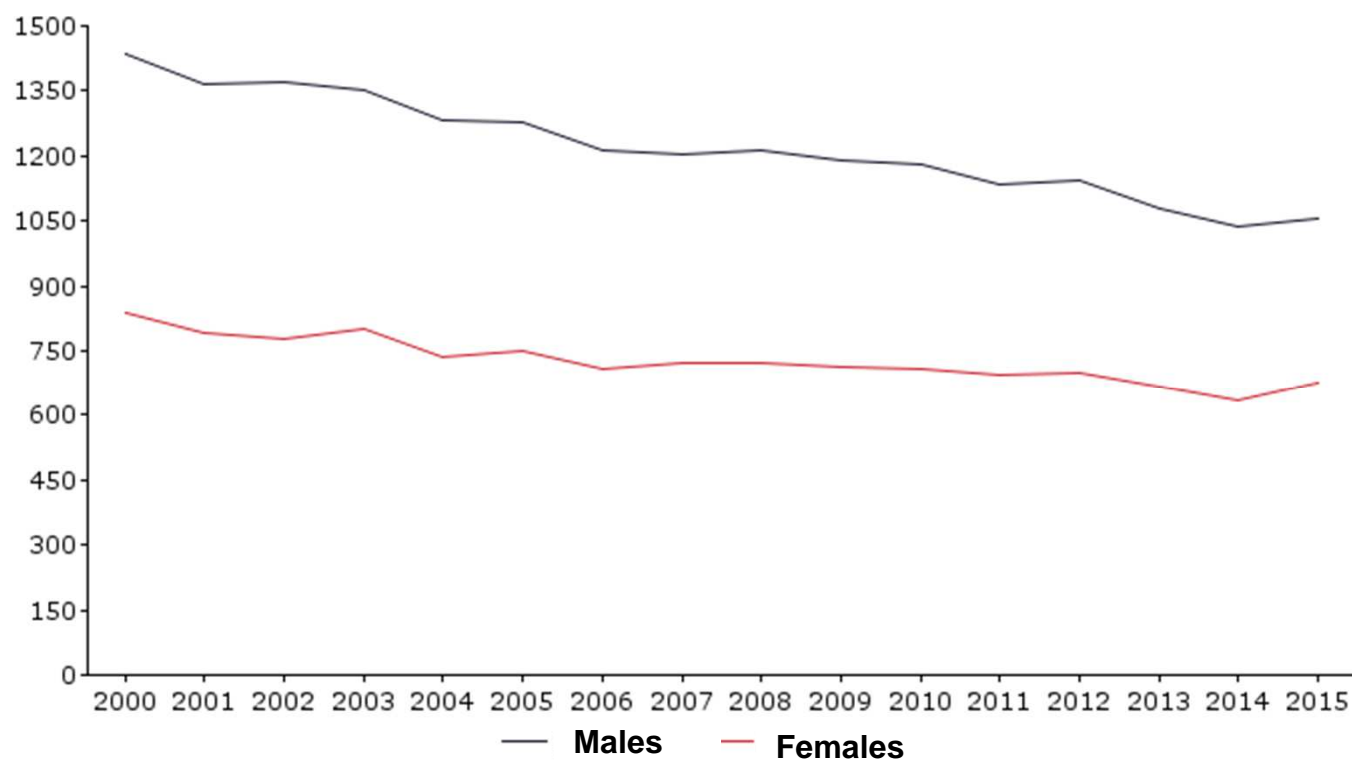
Dataset	Features	Availability
Population Registry (Anagrafe Sanitaria)	Demographic data Primary care Physician code	Operational data
Registry of patients with illnesses exempted from copayment (Esenzioni per patologia)	Diagnoses (regional code and ICD9)	Operational data (as part of the Population registry)
Hospital Discharge Records (SDO-Scheda di Dimissione Ospedaliera)	Clinical data on diagnoses (up to six – ICD9CM) and procedures performed (up to six)	Since 2000
ER Visits (Pronto Soccorso)	Clinical data on diagnoses (ICD9CM) and procedures	Since 2008
Outpatient Visits (Specialistica ambulatoriale)	Data on procedures performed (regional code).Diagnoses non available	Since 2010
Home Health Care (Cure domiciliari)	Clinical data on diagnoses (ICPC), functional disability	Since 2013
Nursing Home Care (Residenzialità extra-ospedaliera)	Clinical data on diagnoses (ICPC) and functional disability	Since 2014
Psychiatric Registry - Outpatient (Psichiatria territoriale)	Clinical data on diagnoses (ICD10) and services	Since 2009
Hospice Care (Hospice)	Clinical data on diagnoses (ICD9CM) Services.	Since 2013
Causes of Death Registry	Demographic data. Up to 22 causes of death (ICD10)	Since 2000
Cancer registry, Rare diseases, Birth defects registries.	Data from Pathology records , Clinical data from specialized outpatient clinics and Hosp-records	After year 2000.



Trends of mortality (2000-2015)

All causes

**Trend of Standardized Rate (direct standardization).
Standard population Veneto Region 1° January 2007**





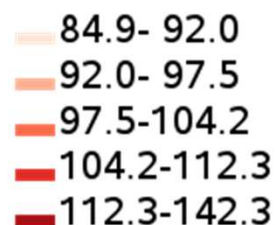
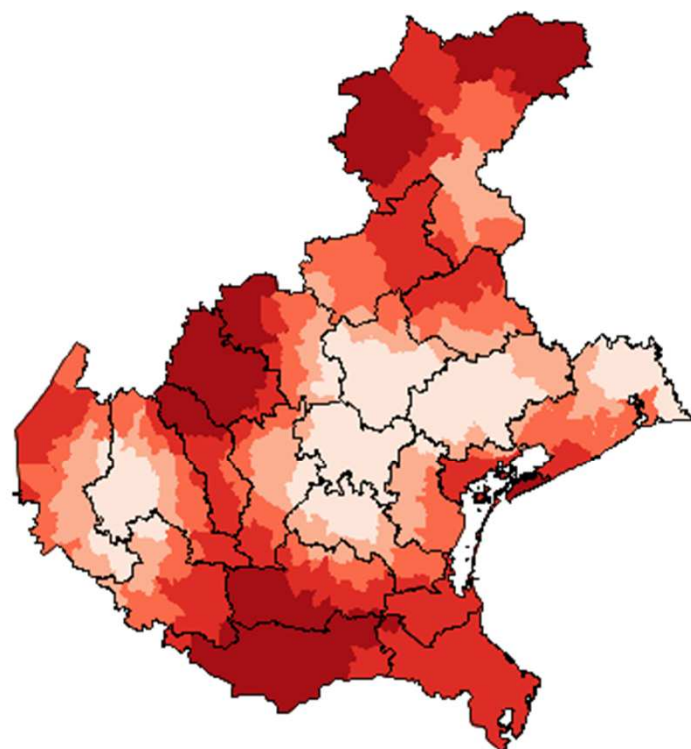
Maps and spatial analysis of mortality

Circulatory diseases

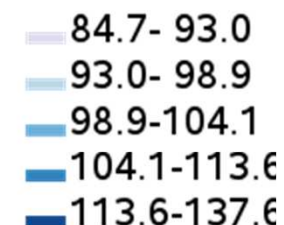
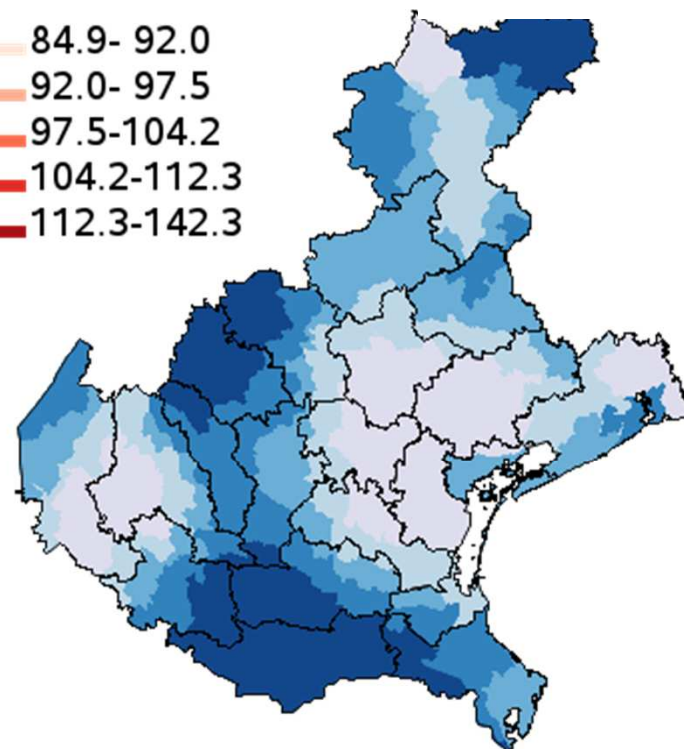
Kernel estimates of standardized mortality ratio (at municipality level).

Age <85 years. Veneto Region 2011-2015

Females

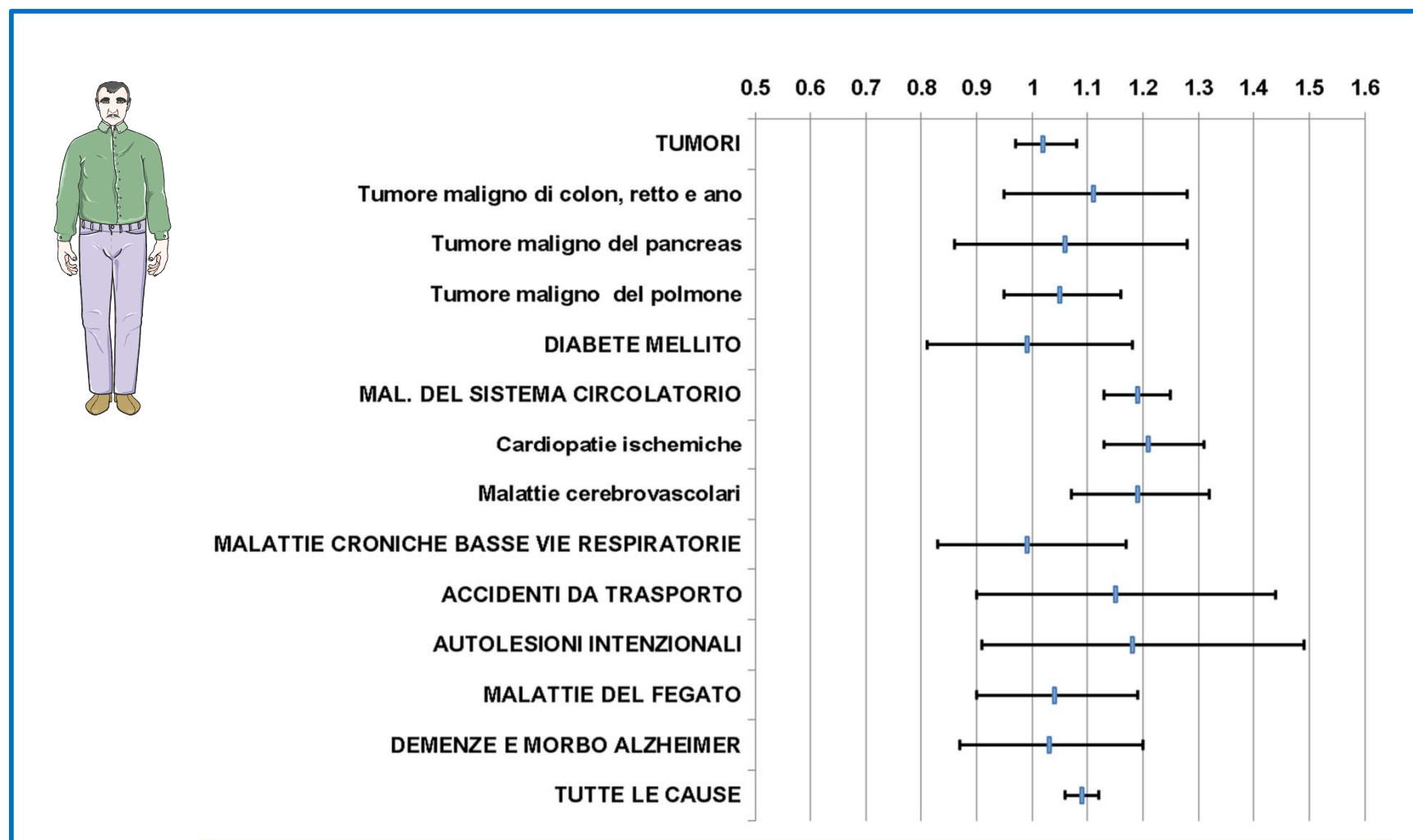


Males





SMR in the exposed population vs regional population years 2007-2014

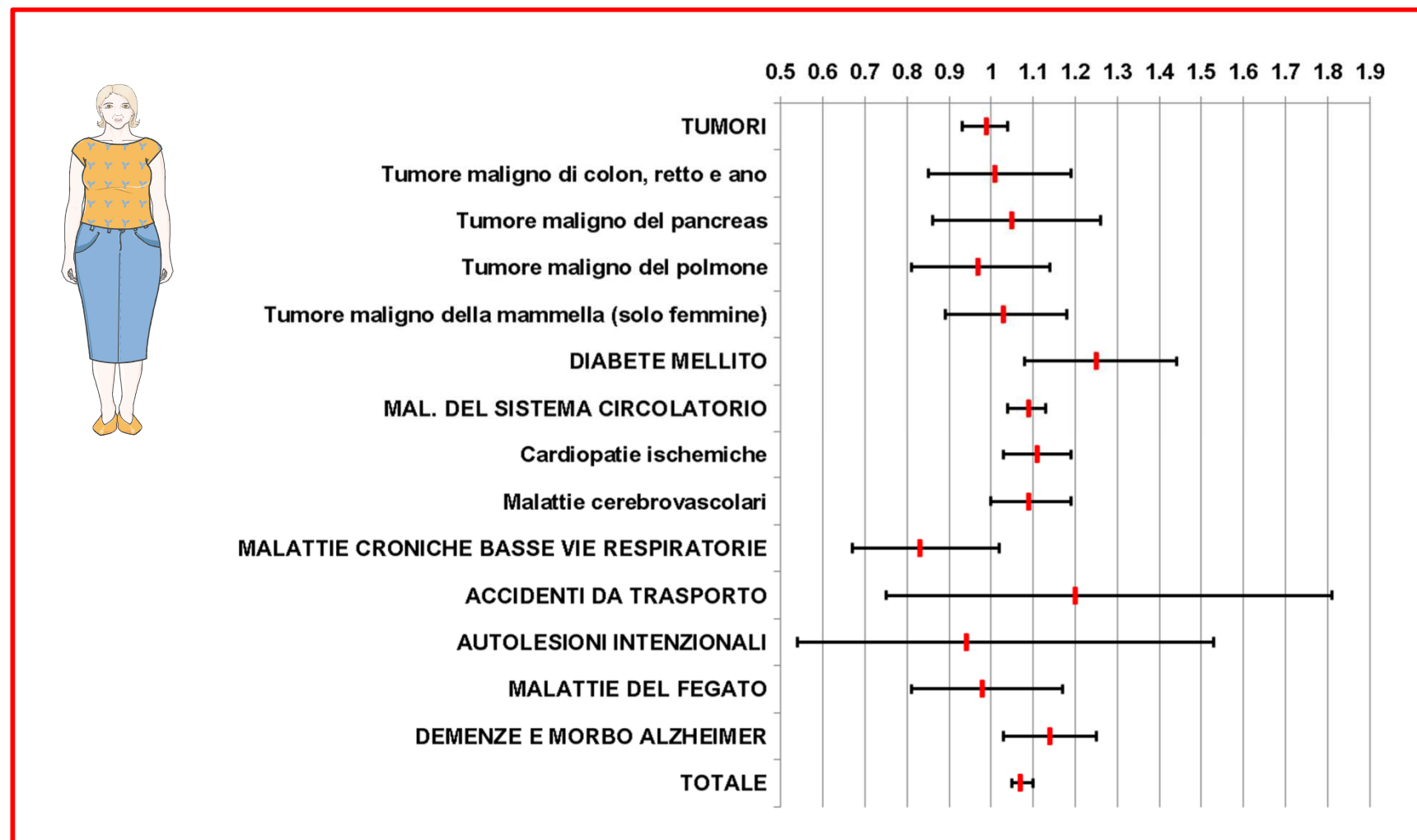


21 Municipalities ~ 109.000 persons

Sistema Epidemiologico Regionale



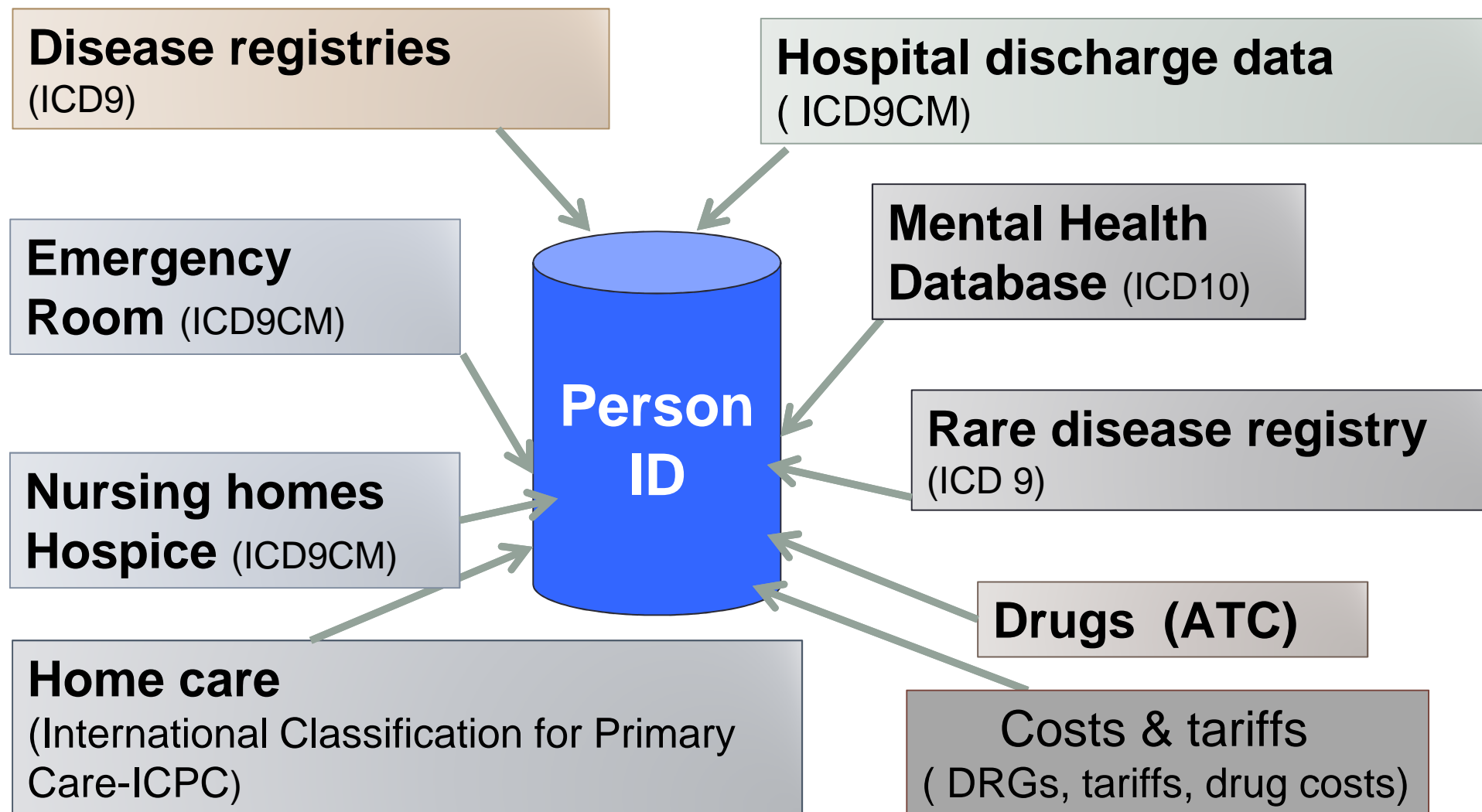
SMR in the exposed population vs regional population years 2007-2014 (Mortality Registry)



21 Municipalities ~ 109.000 persons

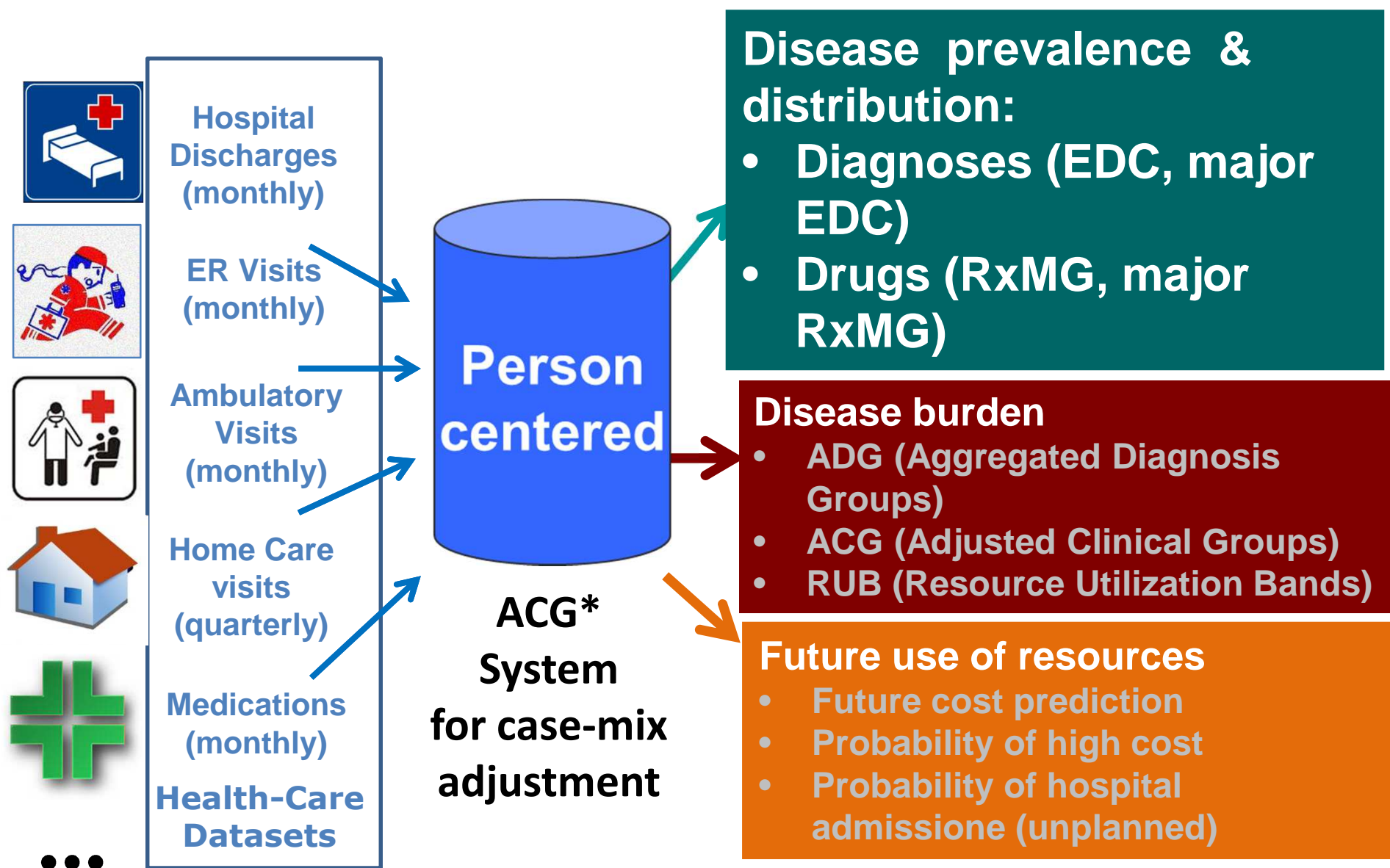


Person centered data collection and integration



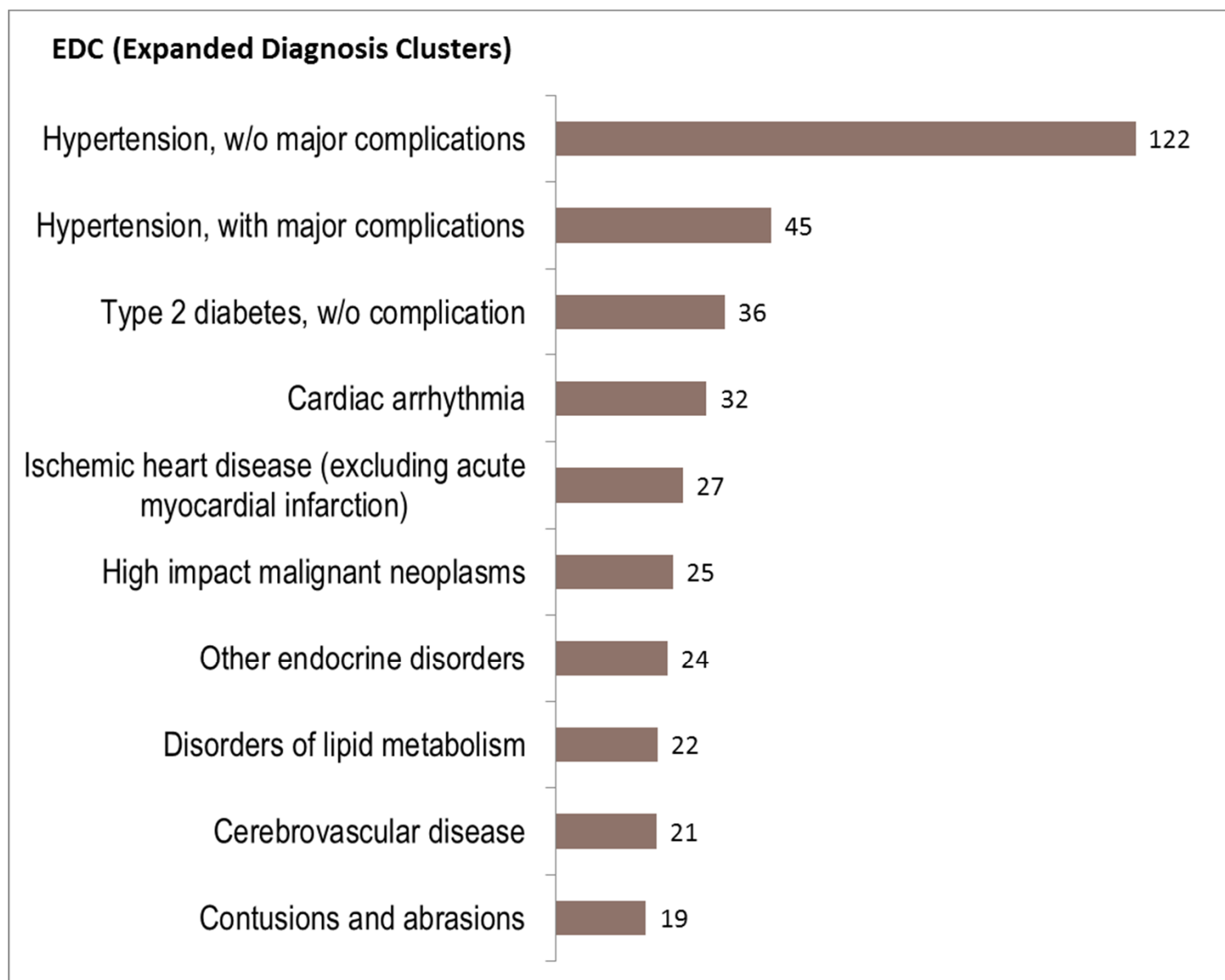


ACG is person centered : population grouper for stratification



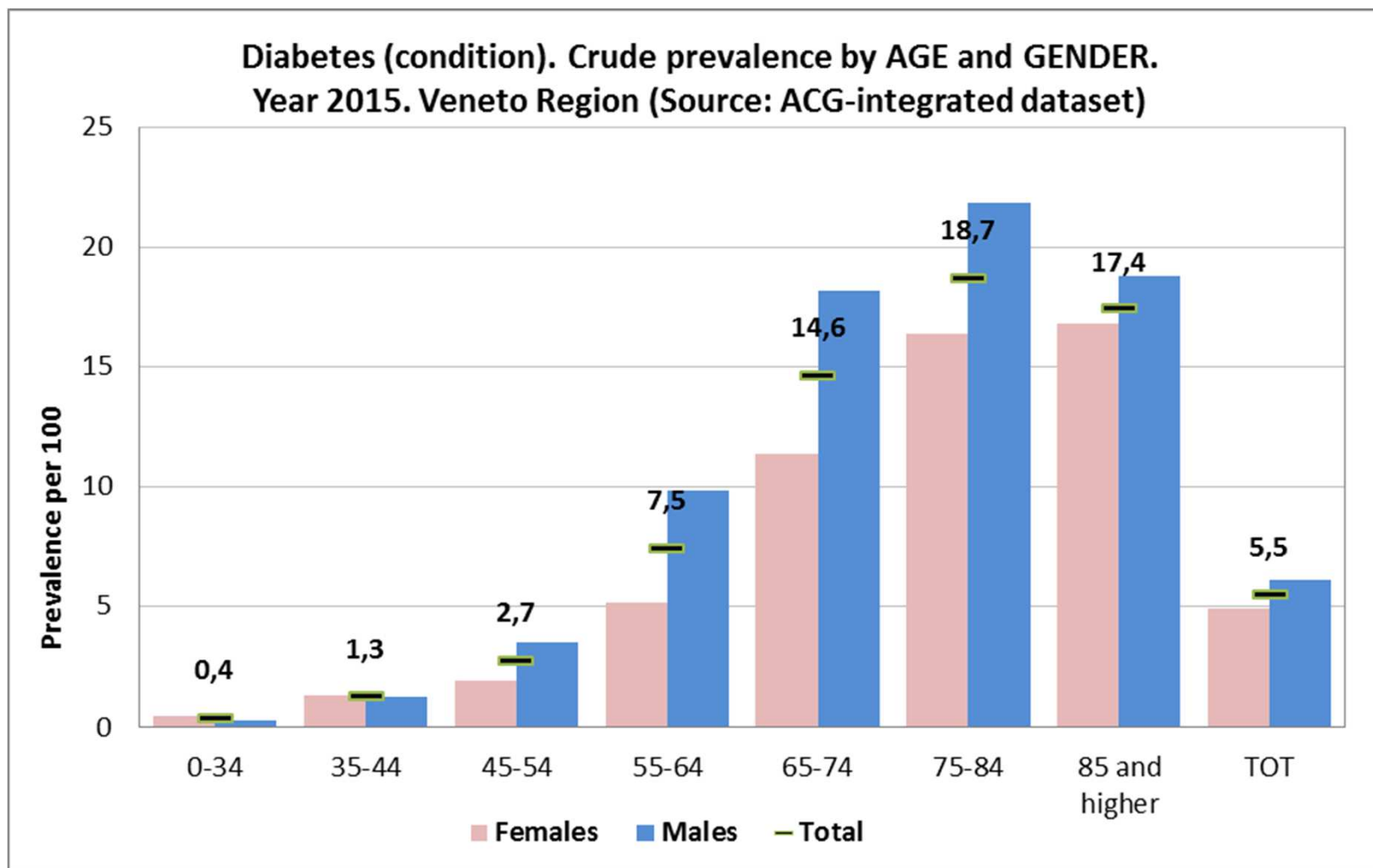


Expanded Diagnosis Clusters – EDCs - Prevalence per 1.000



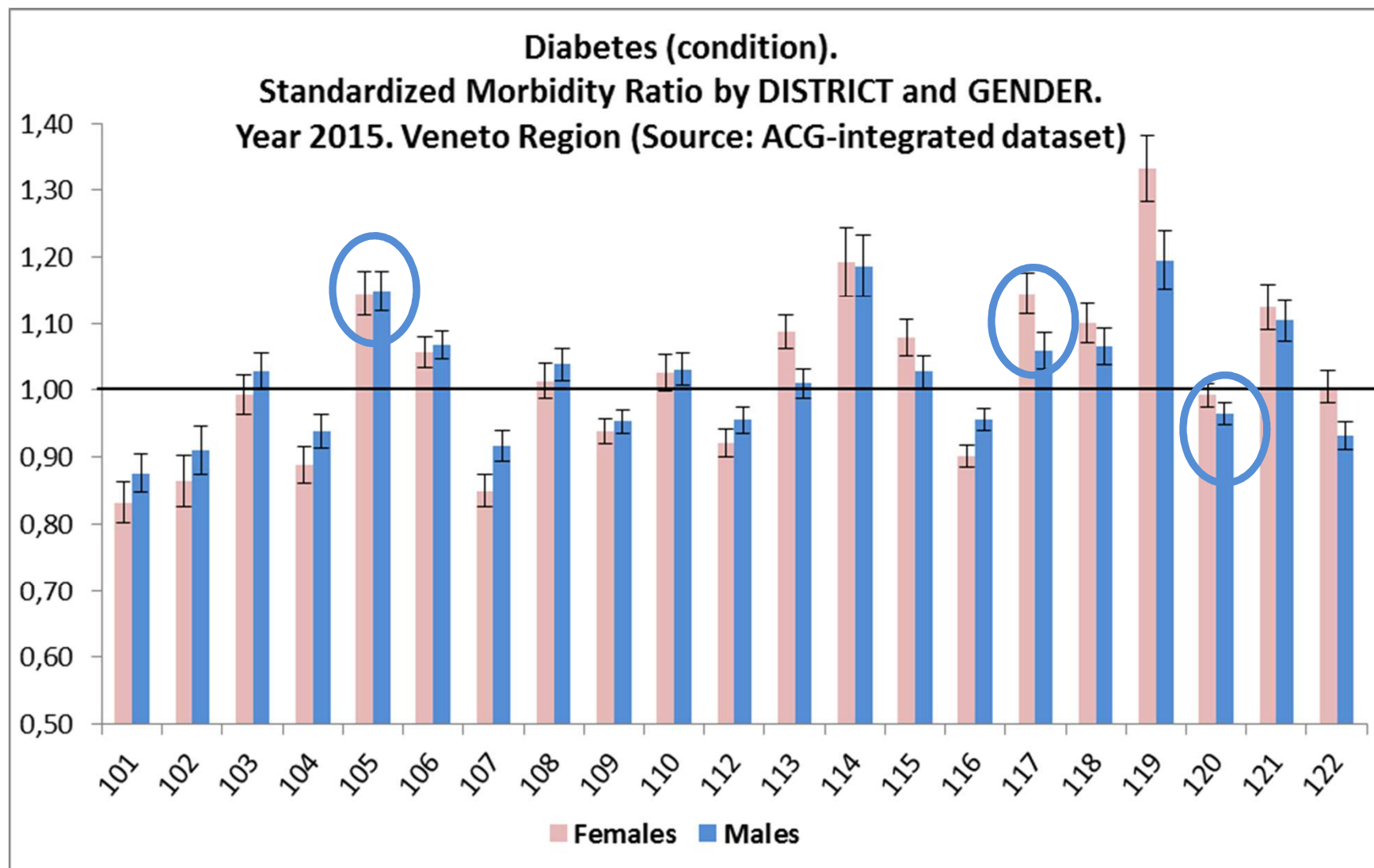


DIABETES PREVALENCE



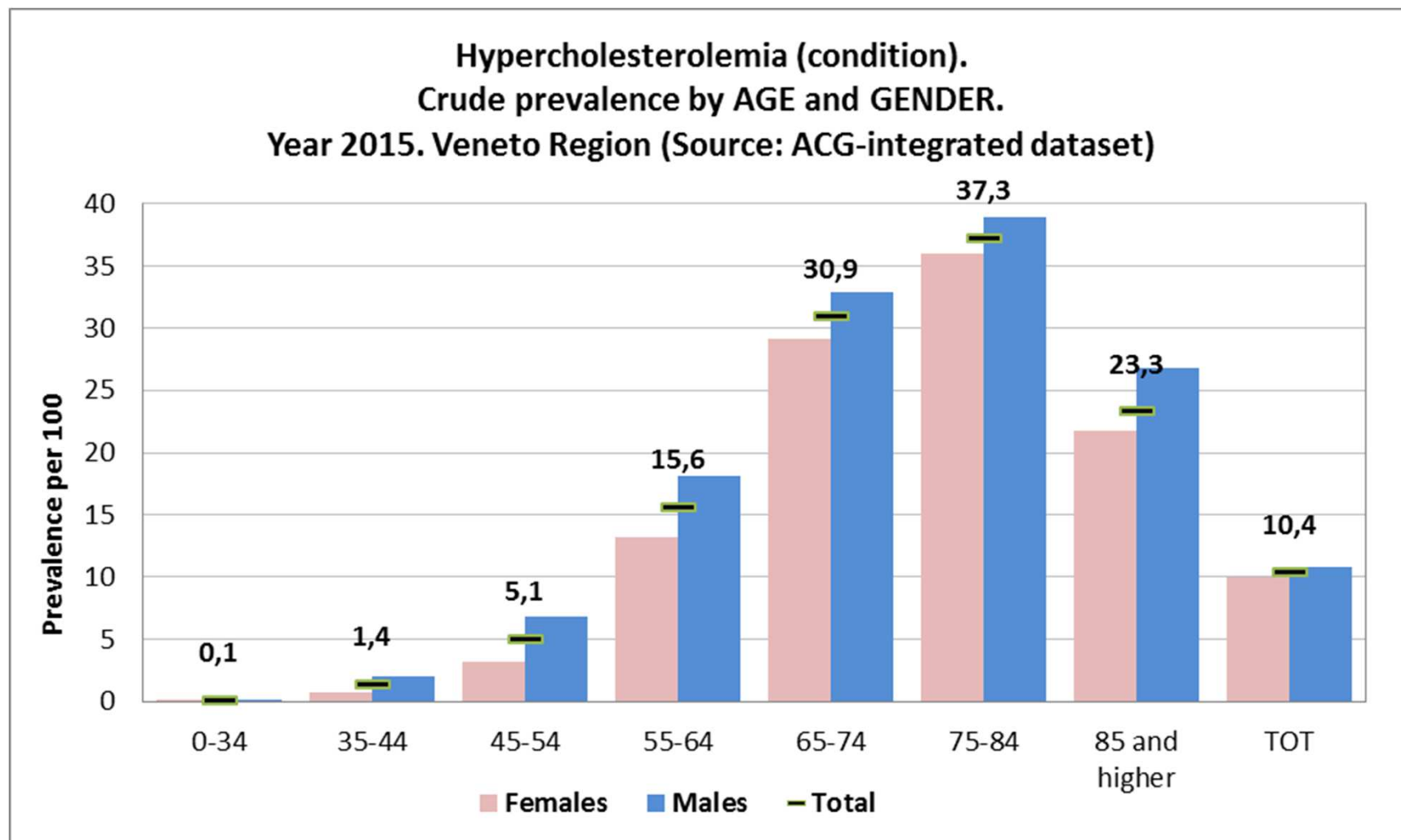


DIABETES PREVALENCE



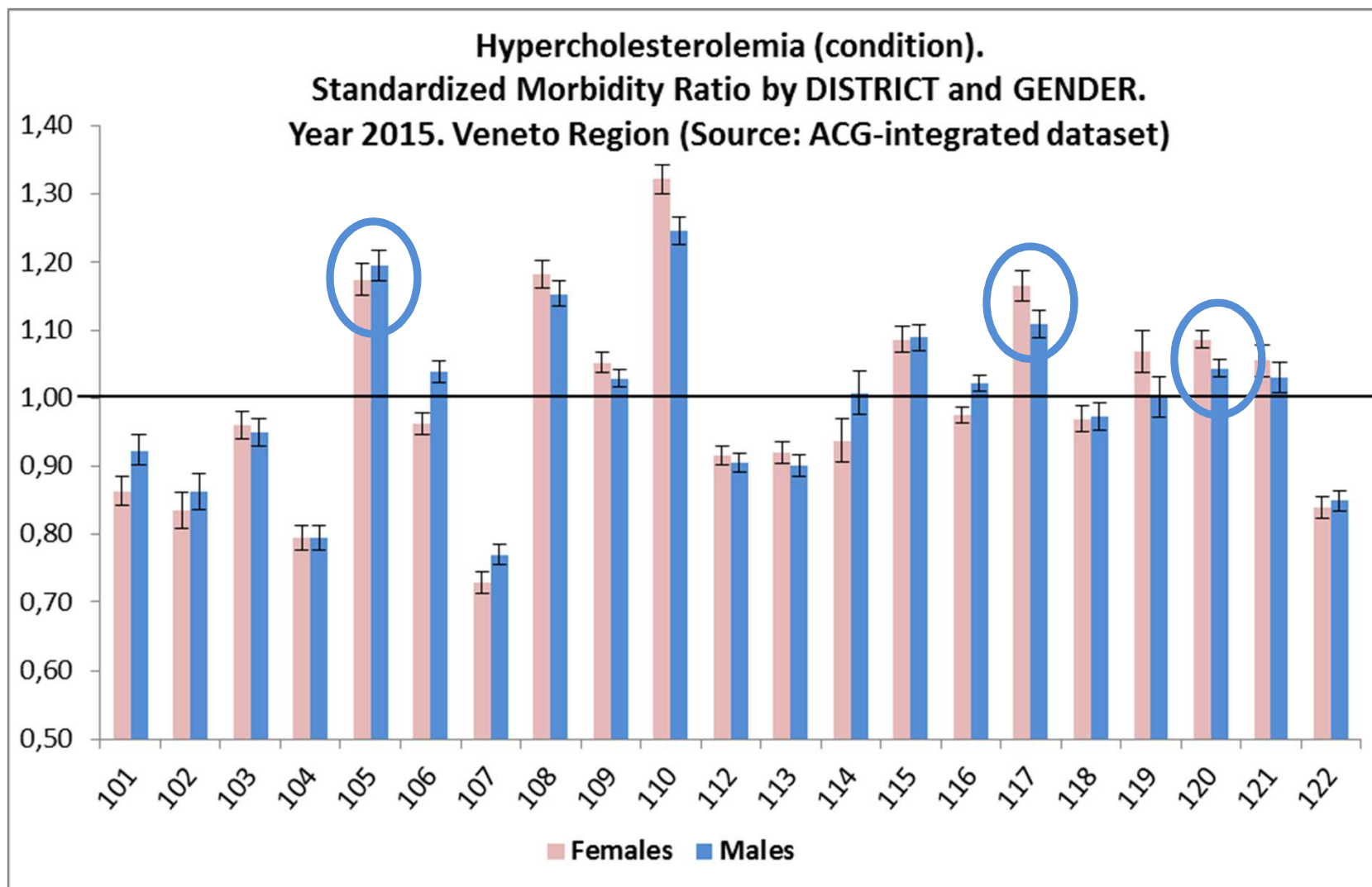


HYPERCHOLESTEROLEMIA - 1



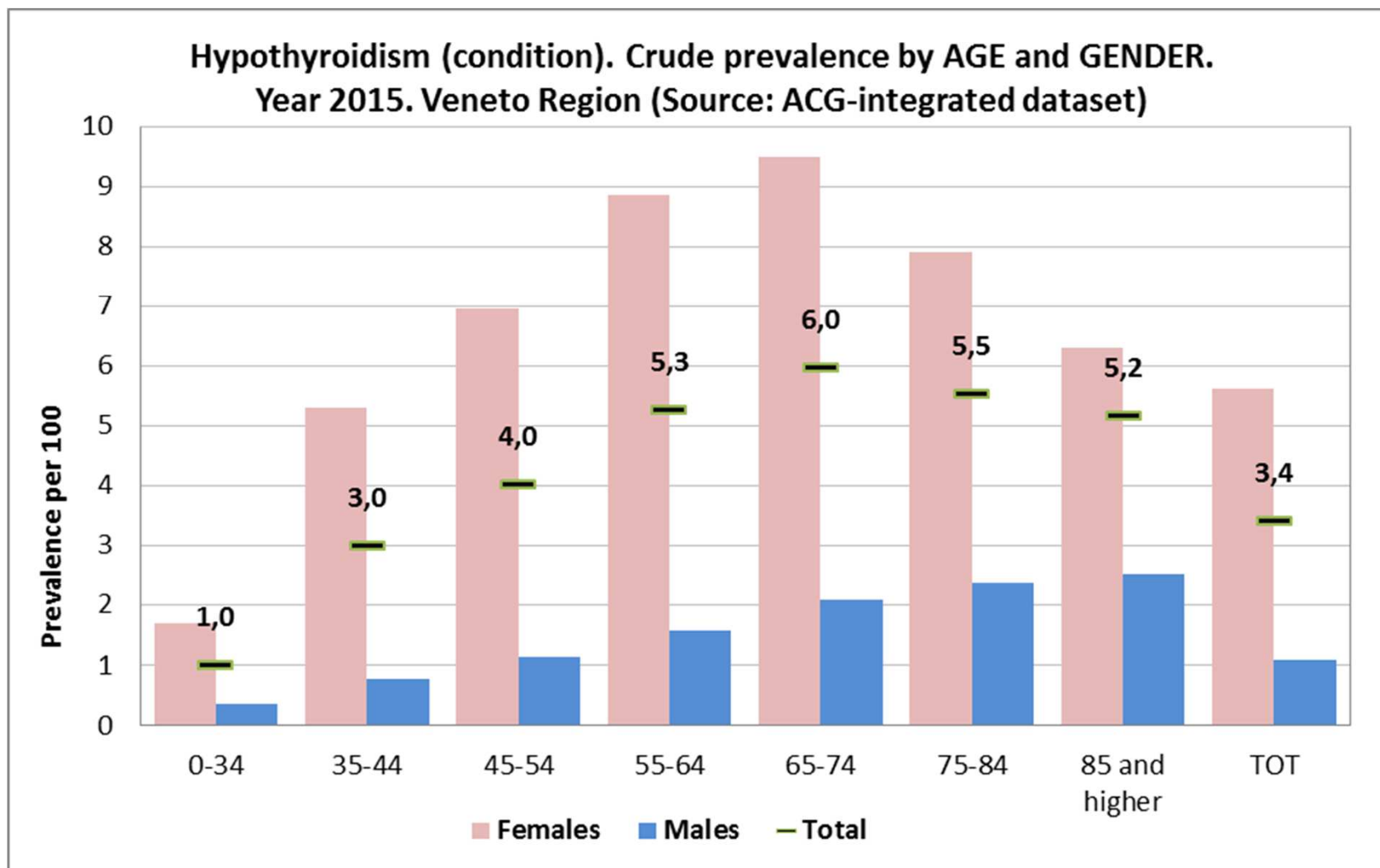


HYPERCHOLESTEROLEMIA PREVALENCE



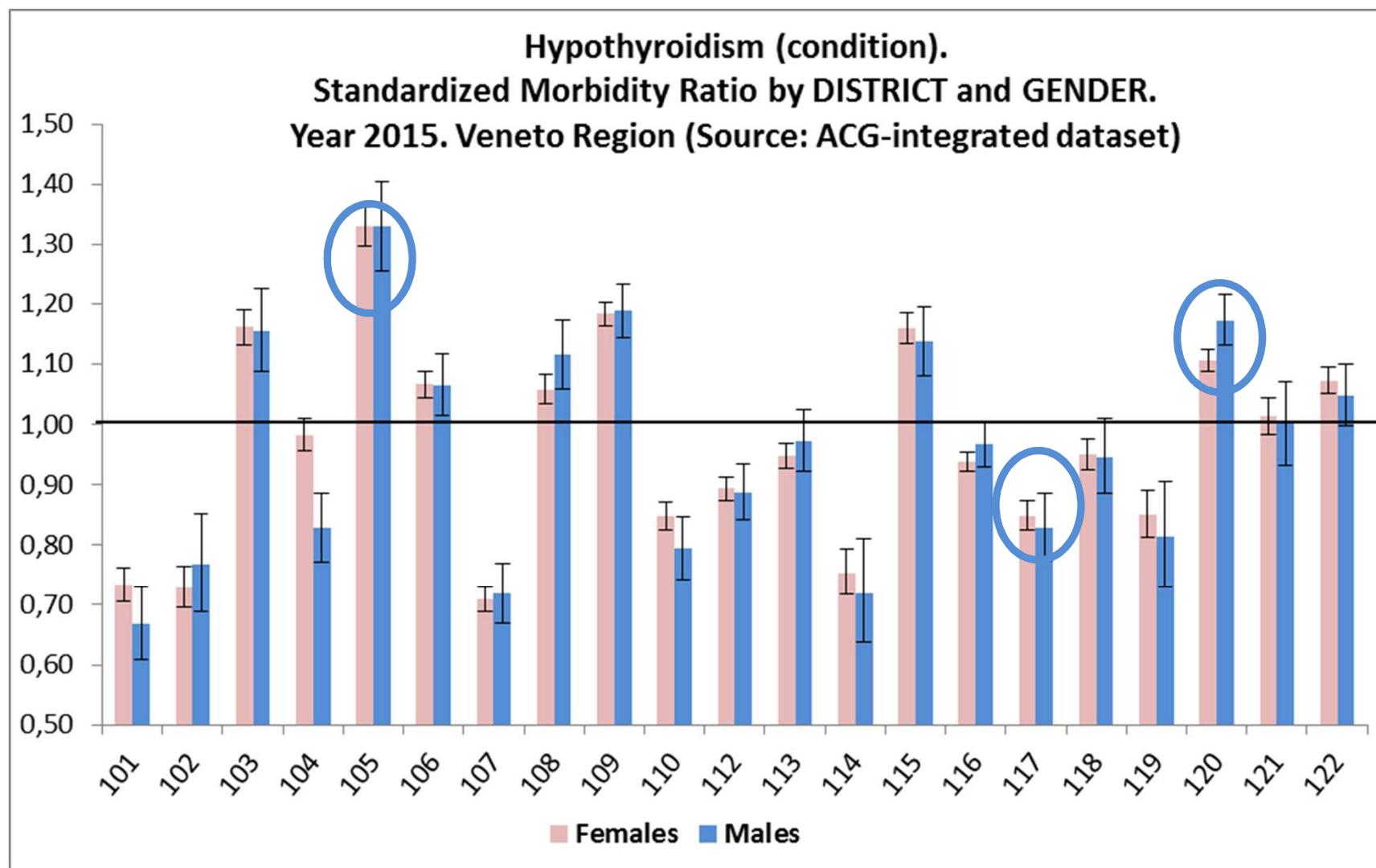


HYPOTHYROIDISM - PREVALENCE



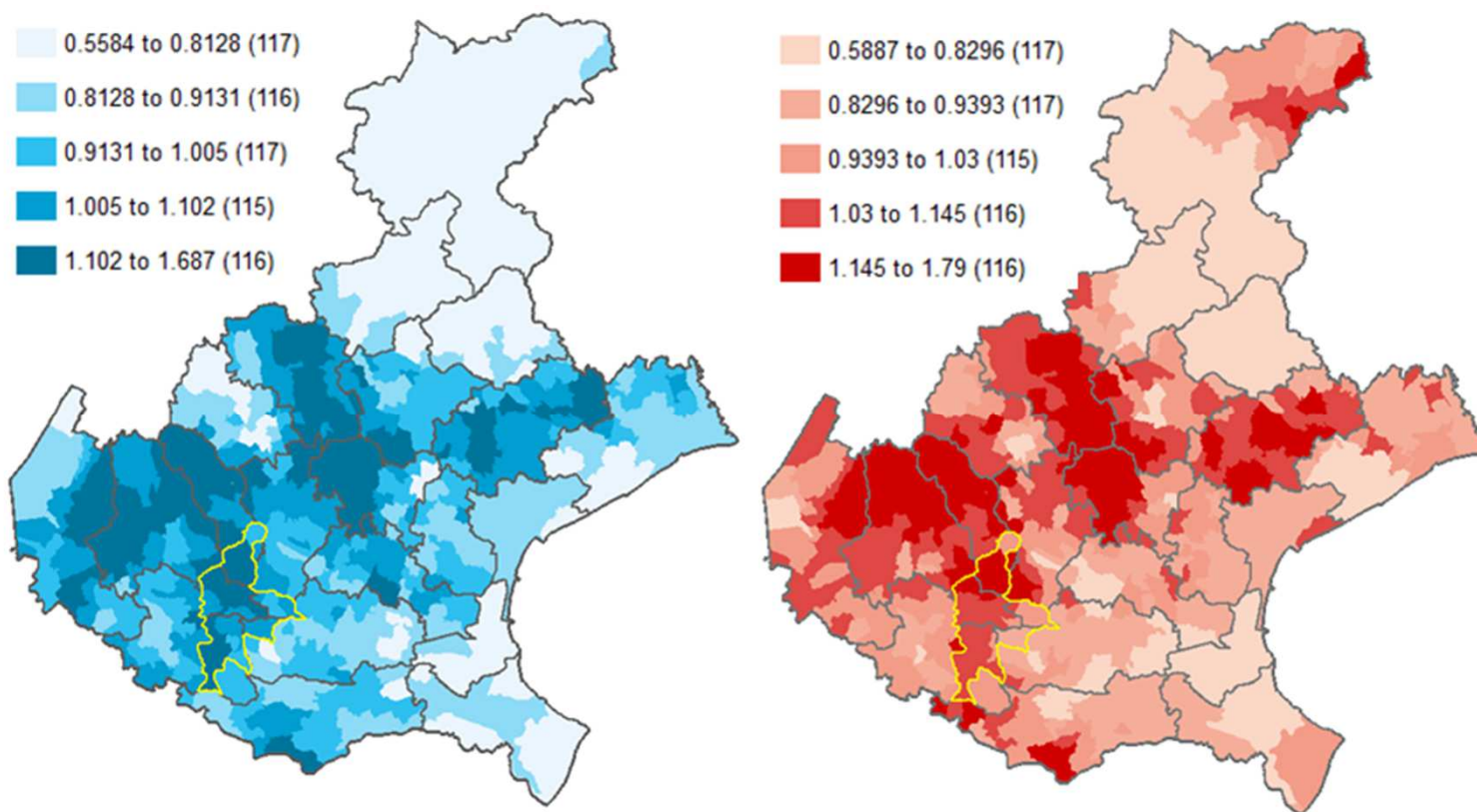


HYPOTHYROIDISM - 3





Hypothyroidism (20-74 anni) Standardized bayesian prevalence rates (Veneto, 2014 - Fonte: elaborazioni SER su archivio ACG Veneto)

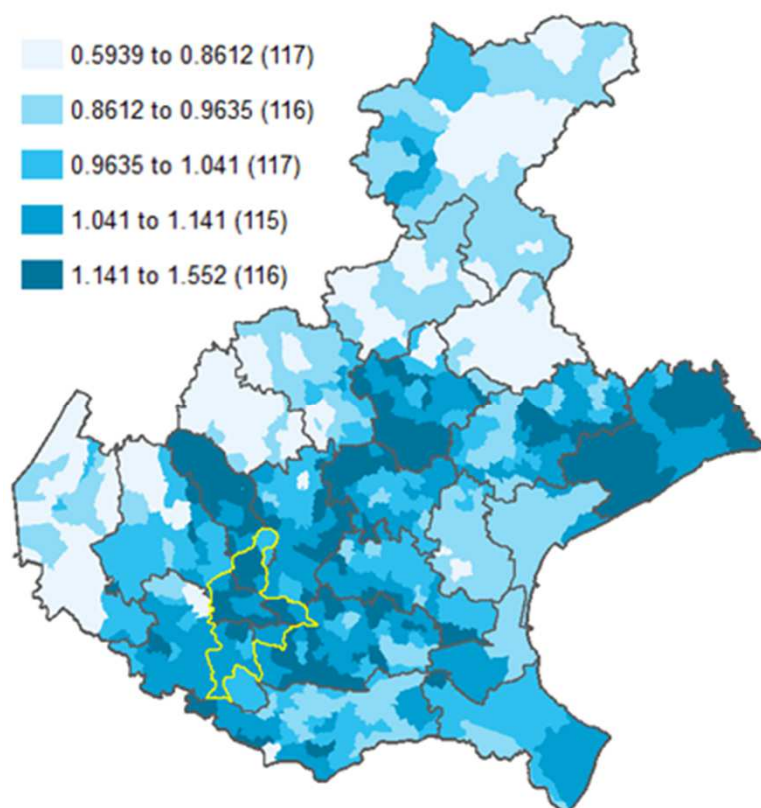


SPR 1.15(95%1.12-1.18)

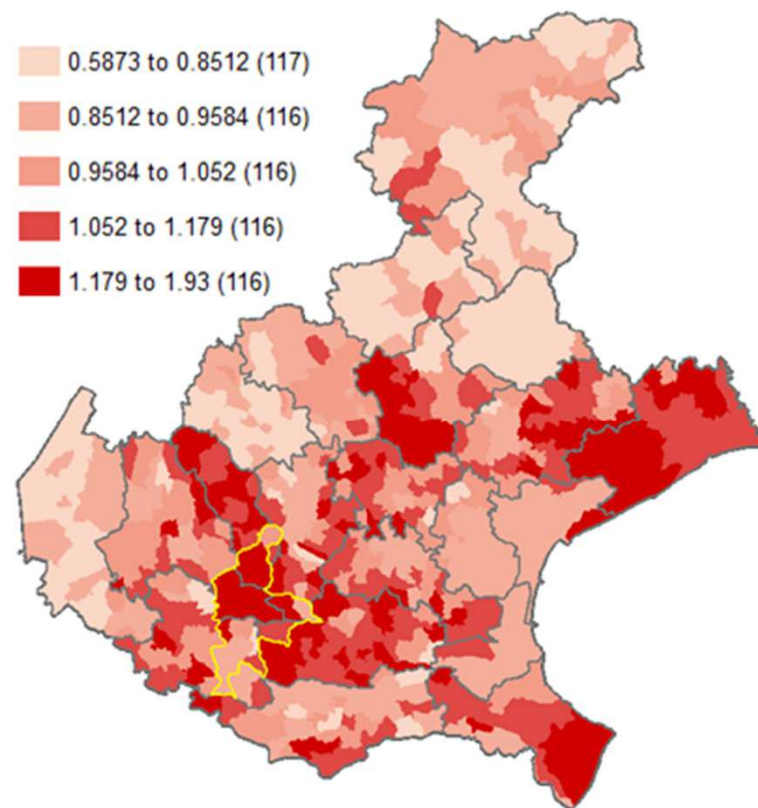
SPR 1.12(95%1.09-1.16)



Hypecholesterolemia (20-74 anni) Standardized bayesian prevalence rates (Veneto, 2014 - Fonte: elaborazioni SER su archivio ACG Veneto)



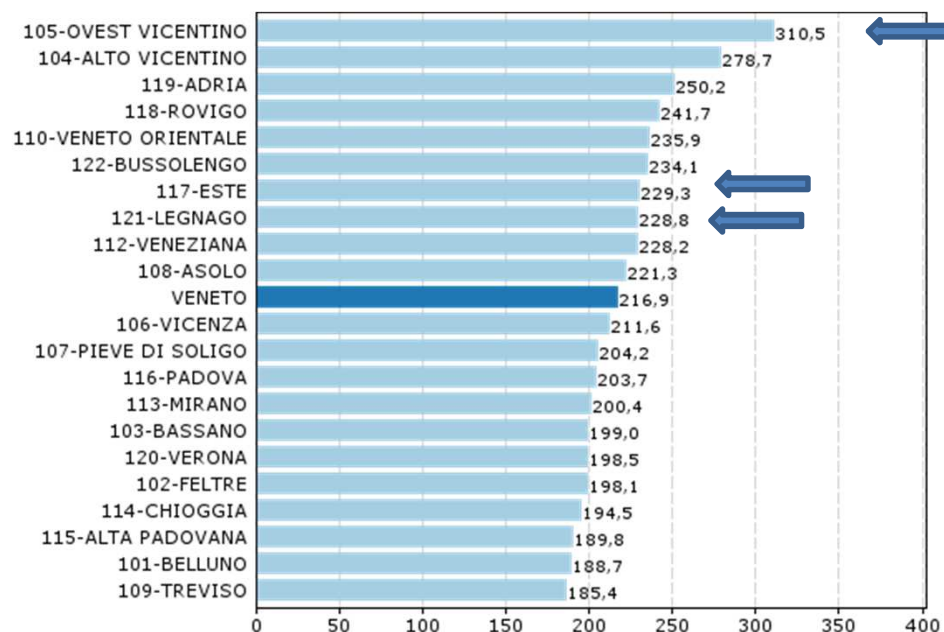
SPR 1.17 (95%1.08-1.27)



SPR 1.12 (95%1.08-1.16)



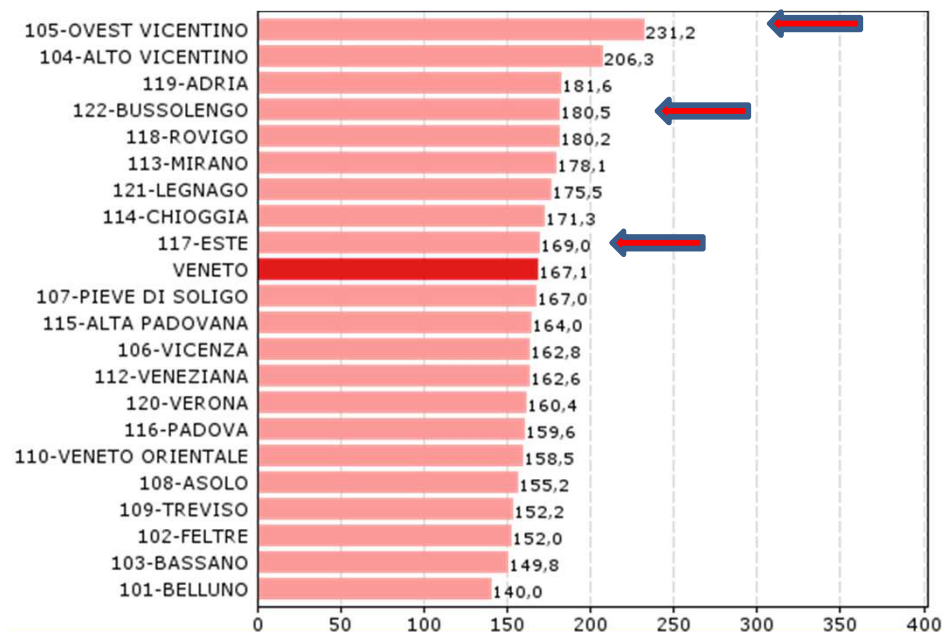
Stroke: standardized attack rates by district. Veneto 2014-2015



Males

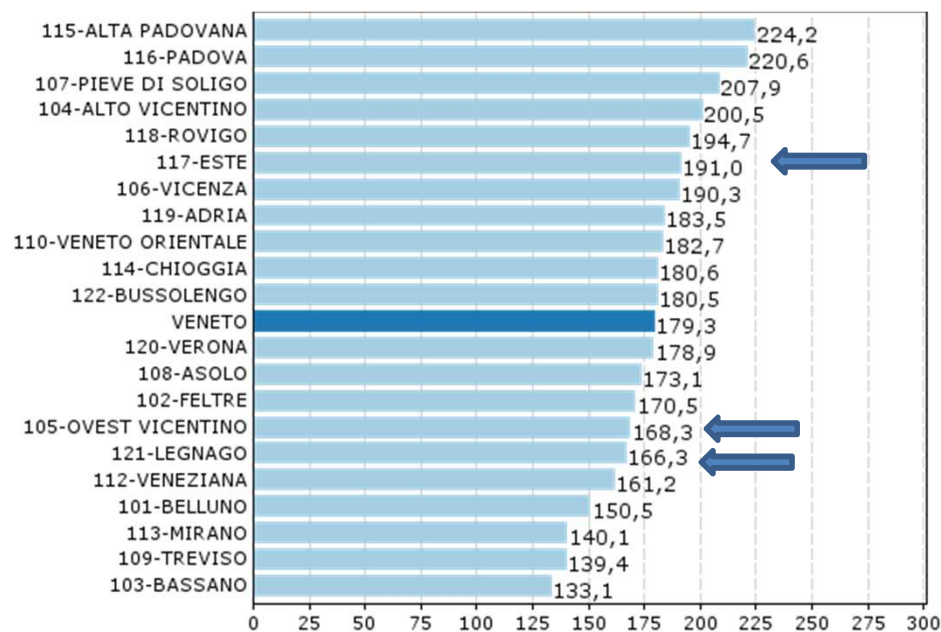
- Rates per 100.000
- Standard Population: Veneto 2007

Females





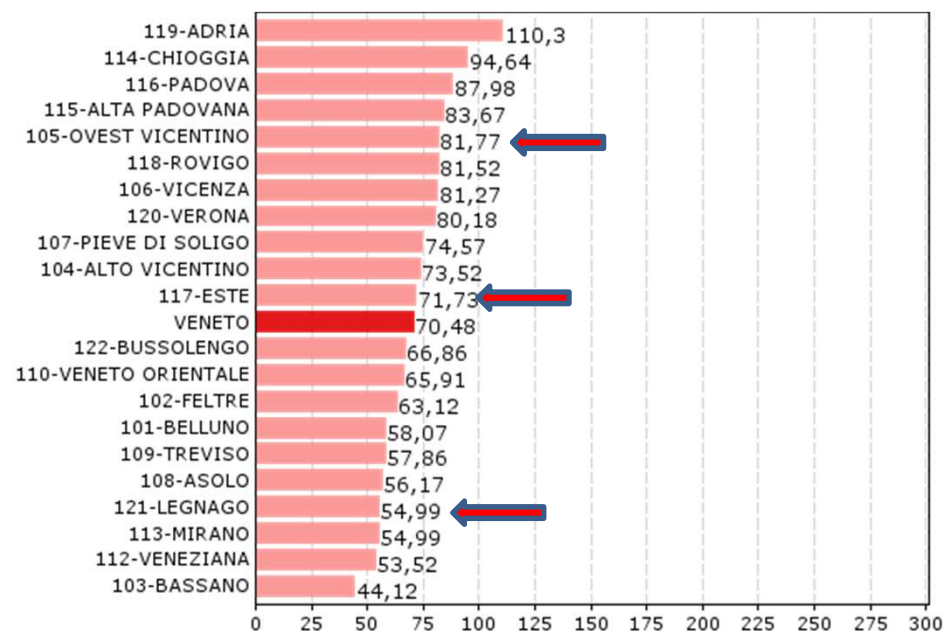
Acute Myocardial Infarction: standardized attack rates by district. Veneto 2014-2015



Males

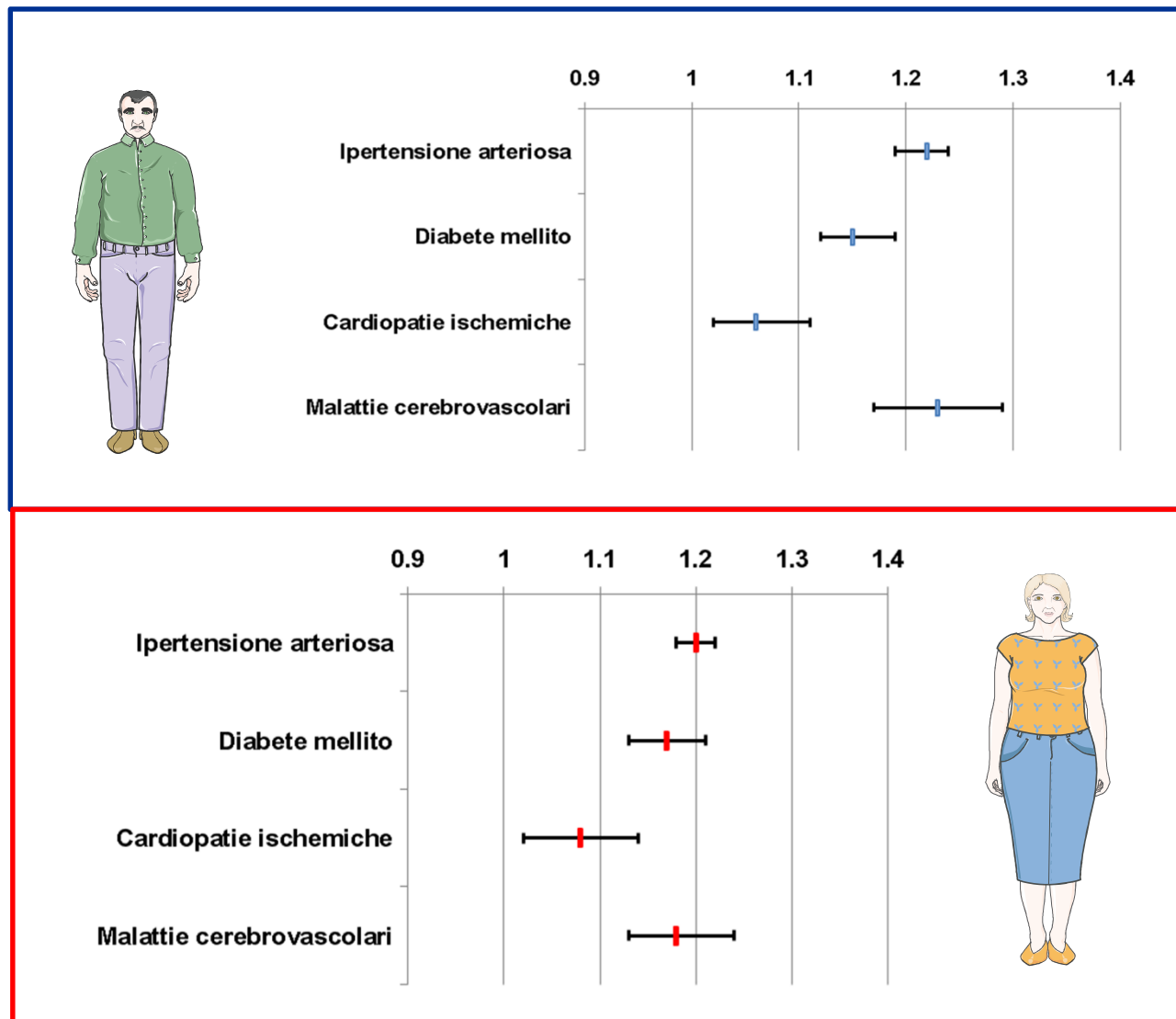
- Rates per 100.000
- Standard Population: Veneto 2007

Females





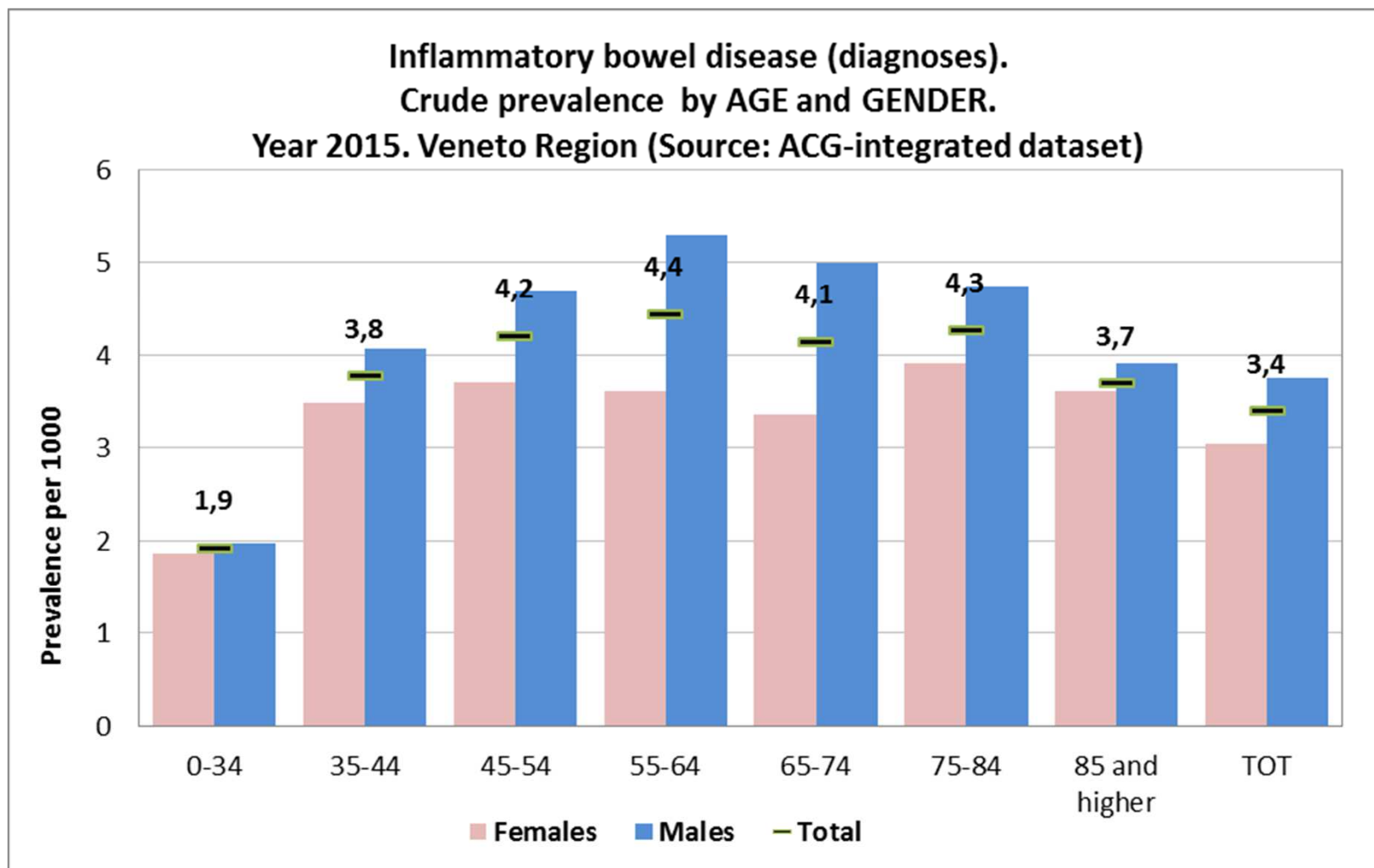
SPR on select cardiovascular conditions in the exposed population vs regional population : Year 2014. Source ACG.



21 Municipalities ~ 109.000 persons

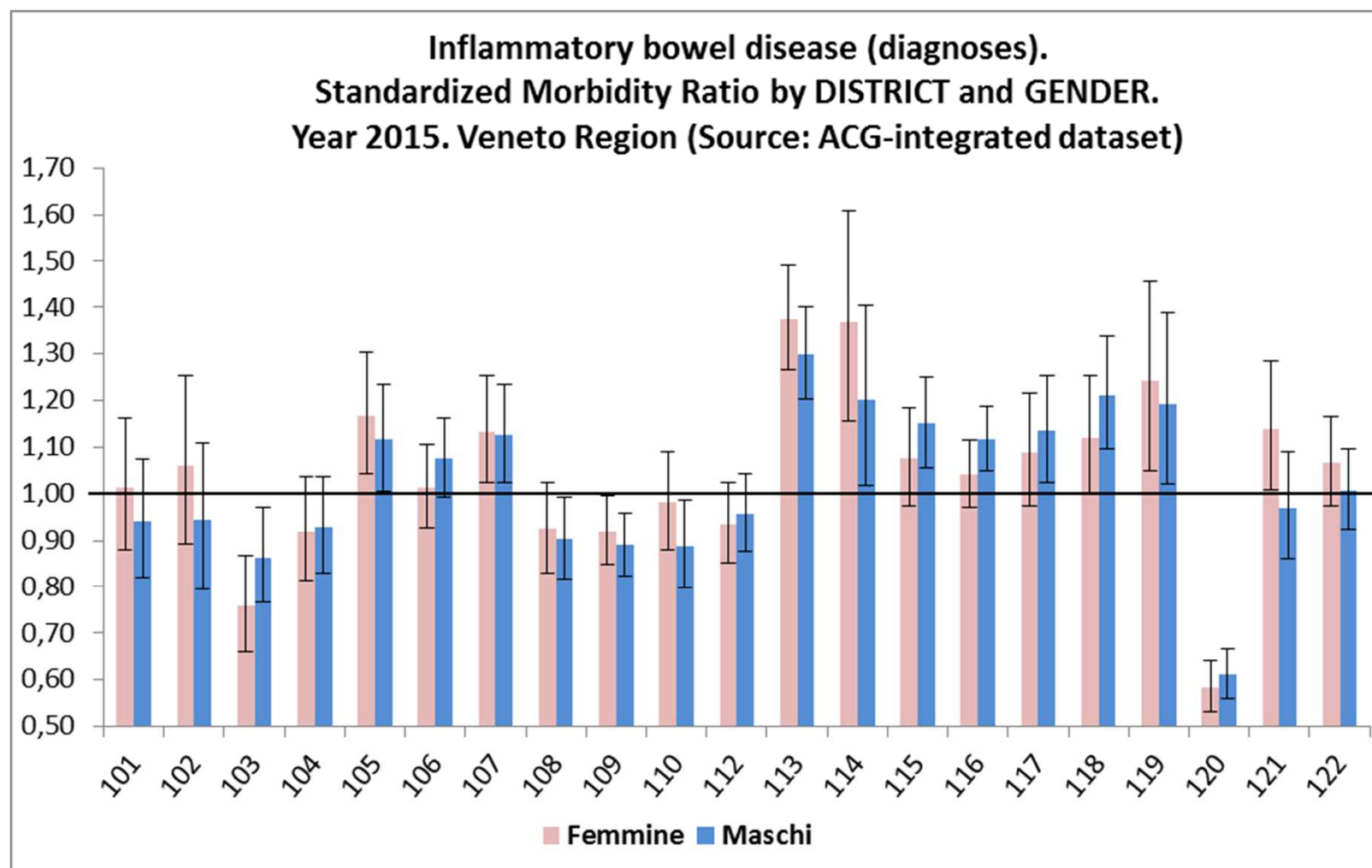


INFLAMMATORY BOWEL DISEASE - 1





INFLAMMATORY BOWEL DISEASE - 3





Conclusions

STRENGTHS

- Data are collected on a regular basis, linkable to the individual Id and therefore usable for description and surveillance purposes.
- Mortality, prevalence and incidence data are collected for the whole population and not for a sample.
- Most of the data can be retrospectively collected starting from year 2003 and prospectively collected in the future.

LIMITATIONS

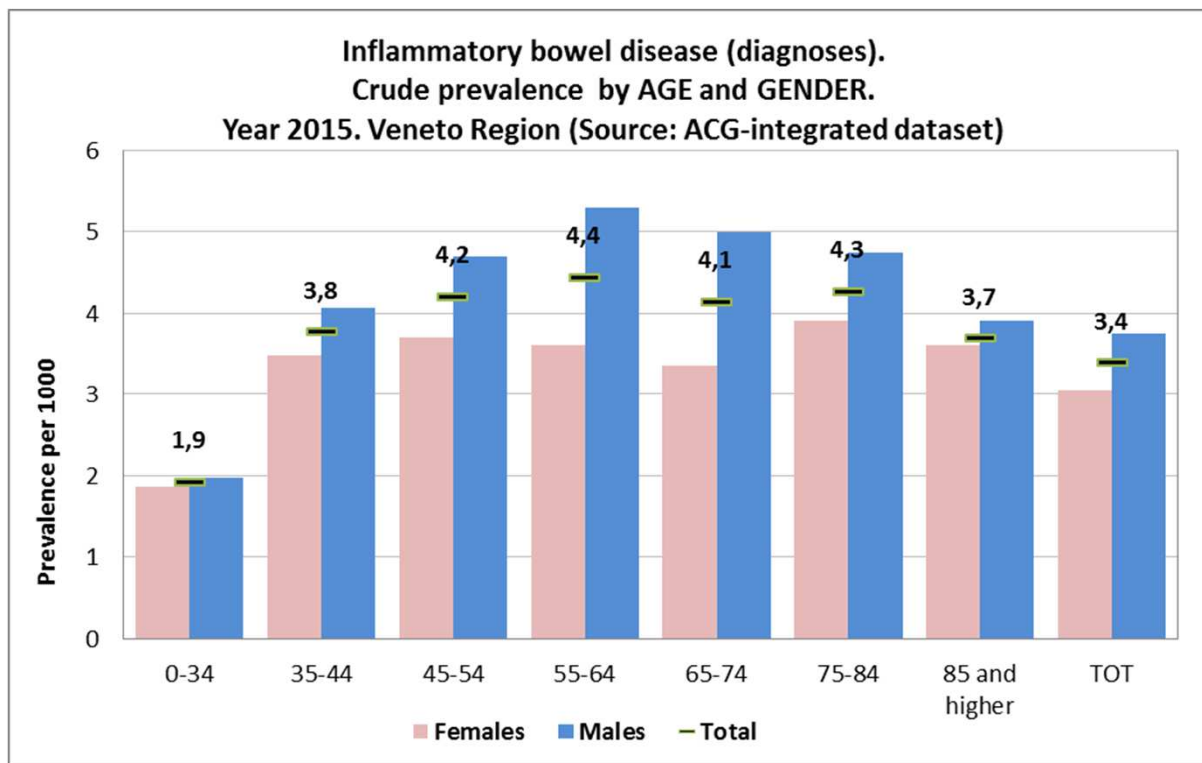
- The disease adjudication process can show high variability due to the high number of clinicians involved. (non-standardized algorithms)
- Outpatient diagnoses are recorded only if associated with a copayment exemption. (underdiagnosis among 65 yrs and older)
- Risk factors such as cholesterol, thyroid hormones, glucose levels are not systematically measured in the general population.
- Possible ascertainment bias for Dislipidemia and Thyroid Disorders in the study (exposed) population undergoing biomonitoring.



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INFLAMMATORY BOWEL DISEASE - 1





INFLAMMATORY BOWEL DISEASE - 3

