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# Epidemiological analyses for preparation of CPG related to Acute Coronary Syndromes in the Czech Republic

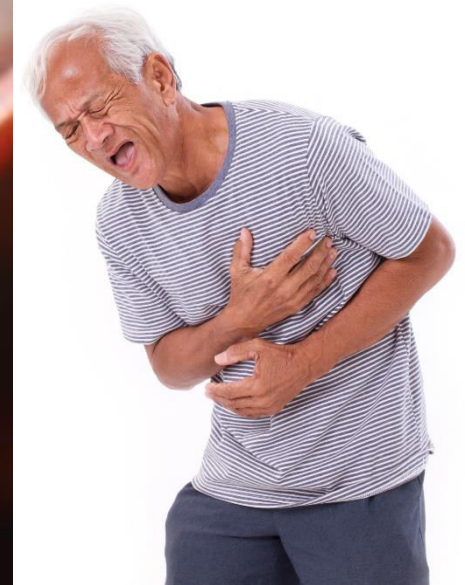
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# Disclosures

- no direct conflict of interest of any author
- possible indirect conflict of interest
  - dr. Klugar is the president of the symposium and Chair of European Joanna Briggs Collaboration

# Aim

- basic clinical overview of acute coronary syndrome (ACS)
- provide current ACS prevalence and incidence data from the Czech Republic
  - analyses are part of ACS clinical practise guideline development process
  - Institute of Health Information and Statistics of the Czech Republic provided the data
    - **primary source:** National Register of **Reimbursed** Health Services



# Acute coronary syndrome

- clinical syndrome due to **decreased blood flow** in the coronary arteries
- major cause of death worldwide

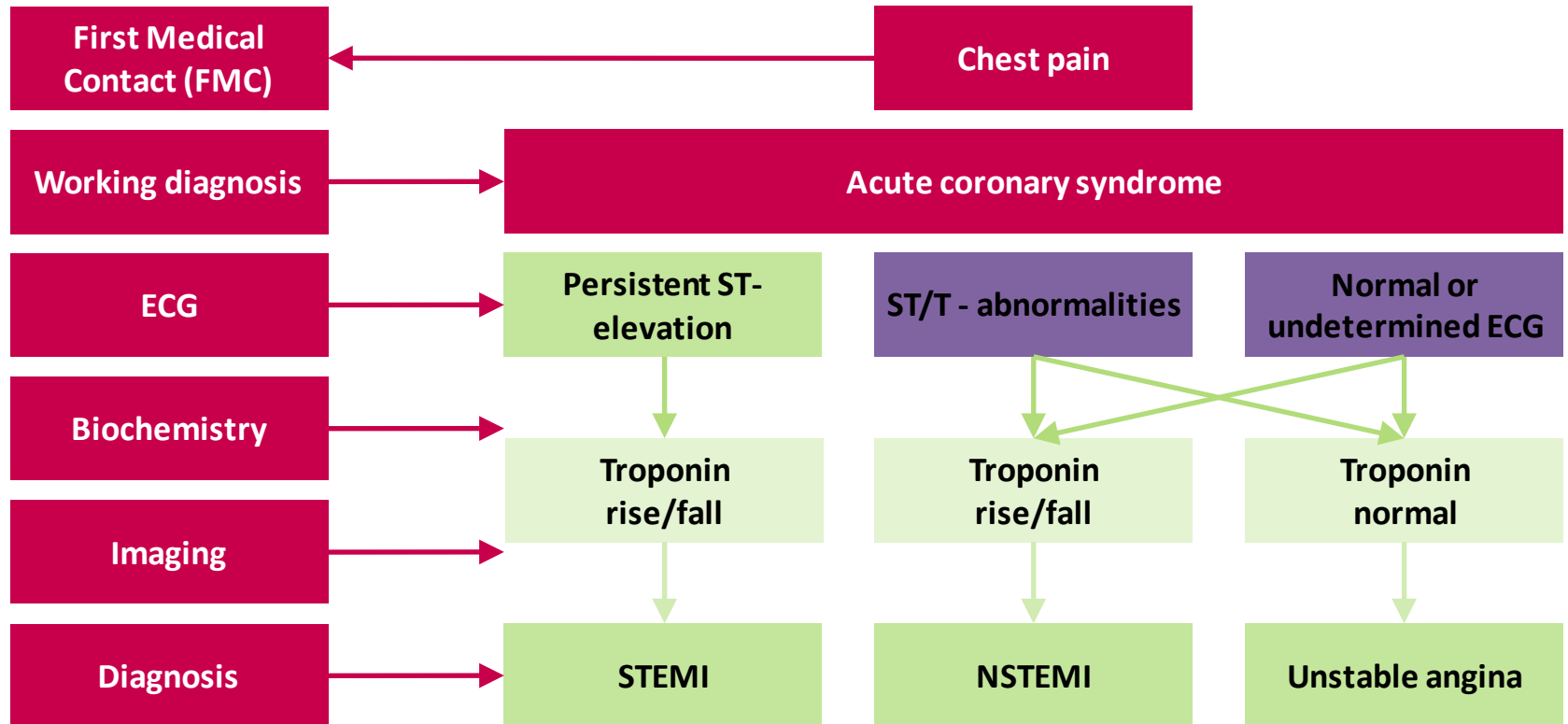
Images:

<https://www.news-medical.net/health/What-is-Coronary-Heart-Disease.aspx>

[https://www.inogen.com/wp-content/uploads/2017/04/Cardiac\\_Arrest.jpg](https://www.inogen.com/wp-content/uploads/2017/04/Cardiac_Arrest.jpg)

# Acute coronary syndrome

One disease process but different clinical manifestations and different management strategies



Hamm et al. Eur Heart J 2011;32:2999-3054.  
<http://www.metalyse.com/resources/slides>

# Acute coronary syndrome

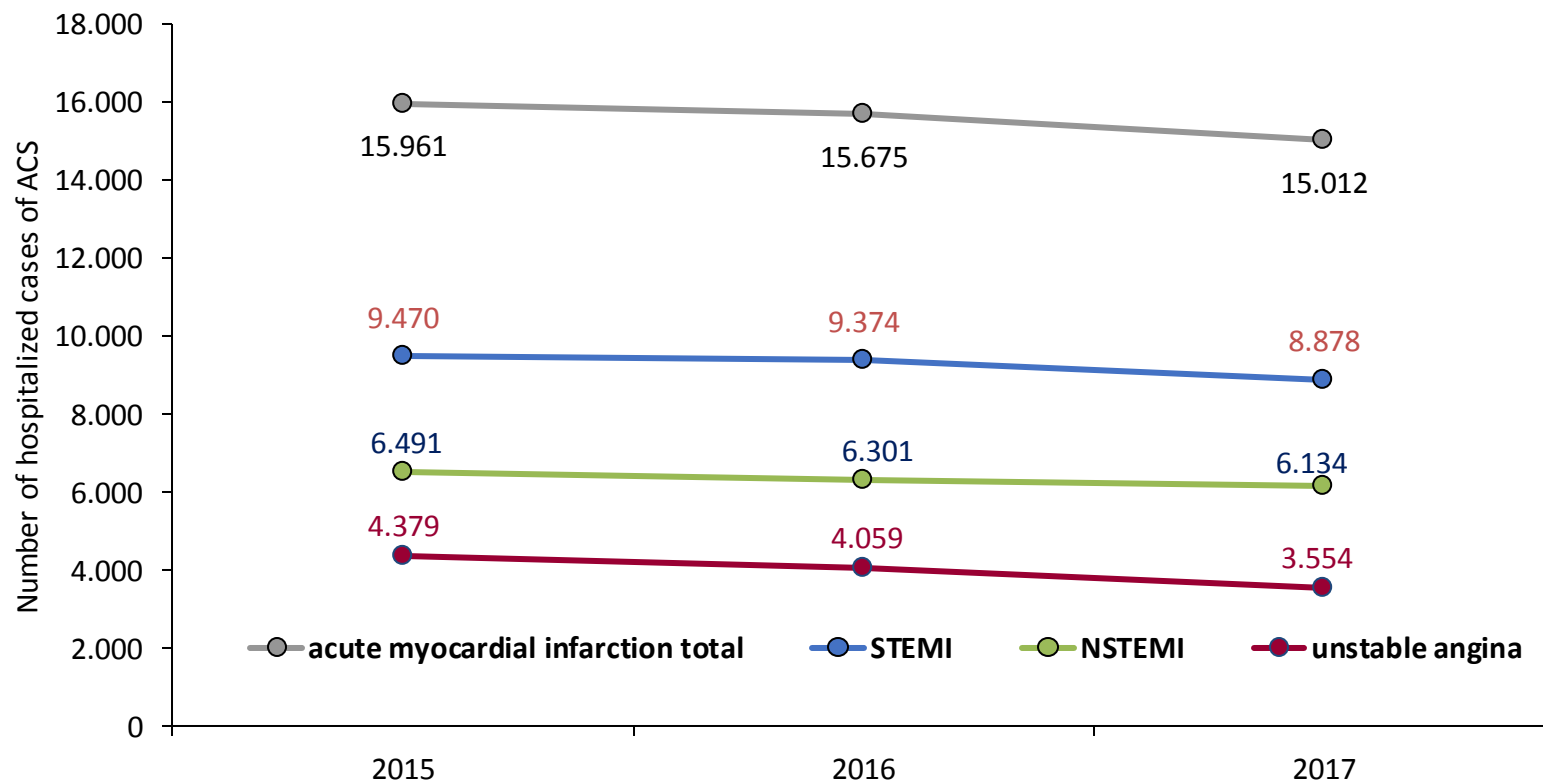
## Epidemiology

# Data search criteria

Patients with ACS were identified by following criteria:

- **unstable angina (UA):** I20.0 diagnosis reported
- **non-ST elevation myocardial infarction (NSTEMI):** I21.4 diagnosis reported
- **ST elevation myocardial infarction (STEMI):** I21.0–I21.3, I21.9 or I22 diagnoses reported (all subcategories included)
- **acute myocardial infarction total (AMI):** I21 or I22 diagnoses reported (all subcategories included)
  
- **source:** National Register of Reimbursed Health Services

# Hospitalized ACS cases 2015 -2017



Source: NRHVS 2015–2017

The number of hospitalized cases of acute coronary syndrome decreased slightly in individual years, in 2017 there were 15,000 cases of acute myocardial infarction and 3,5 thousand cases of unstable angina.

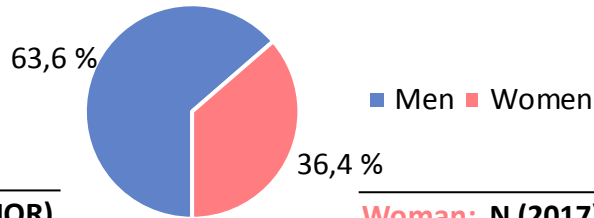


# Non-ST elevation myocardial infarction (NSTEMI)

## Epidemiology

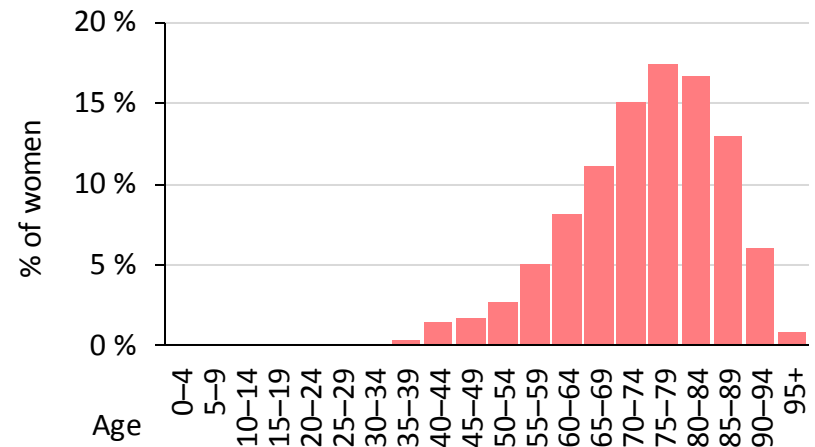
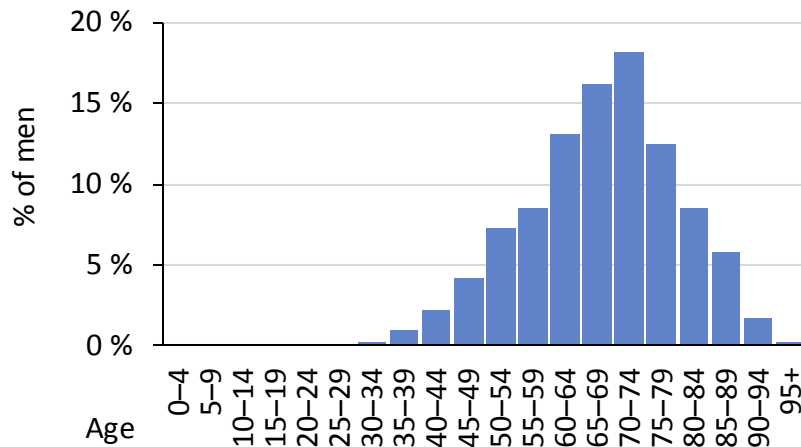
# Demographic profile of patients hospitalized for NSTEMI in 2017

Sex and age structure of cases:



Man:	N (2017)	Mean (SD)	Median (IQR)
Age	3 904	67,7 (11,9)	69 (60; 76)

Woman:	N (2017)	Mean (SD)	Median (IQR)
Age	2 230	74,2 (11,8)	76 (67; 83)

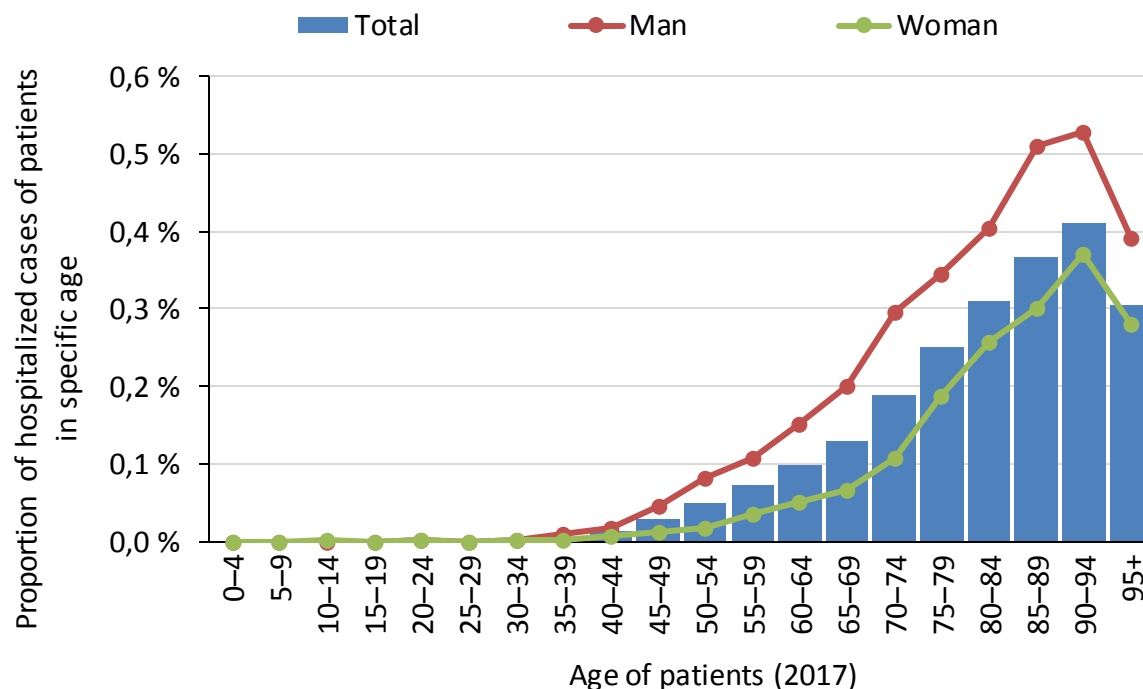


Source: NRHZS 2017; hospitalized NSTEMI cases in 2017 (N = 6 134)

Non-ST elevation myocardial infarction is more common in males (64%) than in females (36%). Men are reported on average at a lower age than women (68 vs. 74 years).

# Age-specific prevalence NSTEMI

The proportion of hospitalized NSTEMI cases in relation to the population of the Czech Republic in individual age groups:



Source: NRHZS 2017; hospitalized NSTEMI cases in 2017 (N = 6 134)

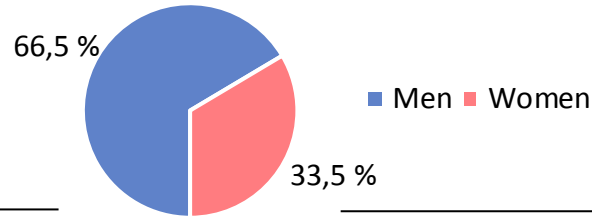
The proportion of cases of NSTEMI patients is gradually increasing with age to 0.5% for men and almost 0.4% for women relative to Czech population. Most cases are in patients aged 60-85 years.

# ST elevation myocardial infarction (STEMI)

## Epidemiology

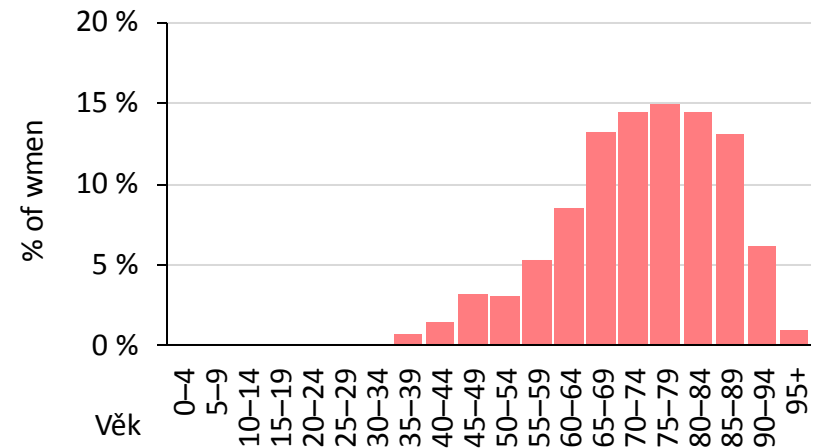
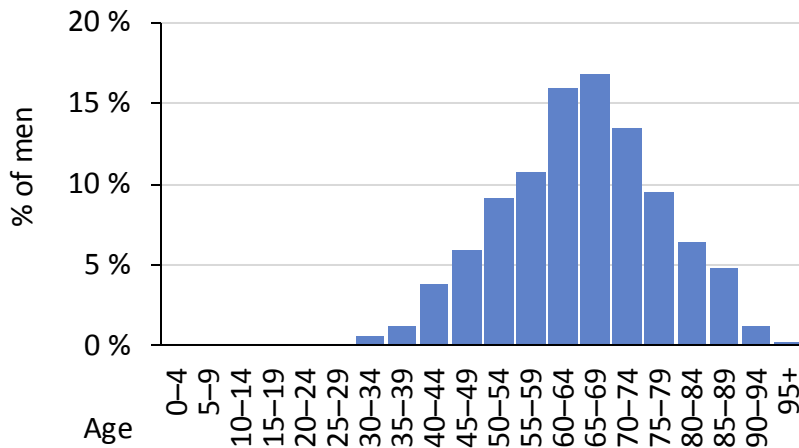
# STEMI cases demography in 2017

## Sex and age structure of cases:



<b>Men: N (2017)</b>			
	<b>N (2017)</b>	<b>Mean (SD)</b>	<b>Median (IQR)</b>
Age	5 900	64,9 (12,4)	65 (57; 73)

<b>Women: N (2017)</b>			
	<b>N (2017)</b>	<b>Mean (SD)</b>	<b>Median (IQR)</b>
Age	2 978	73,2 (12,5)	74 (66; 83)



Zdroj dat: NRHYS 2017; hospitalizované případy STEMI/AIM neurčeného v roce 2017 (N = 8 878)

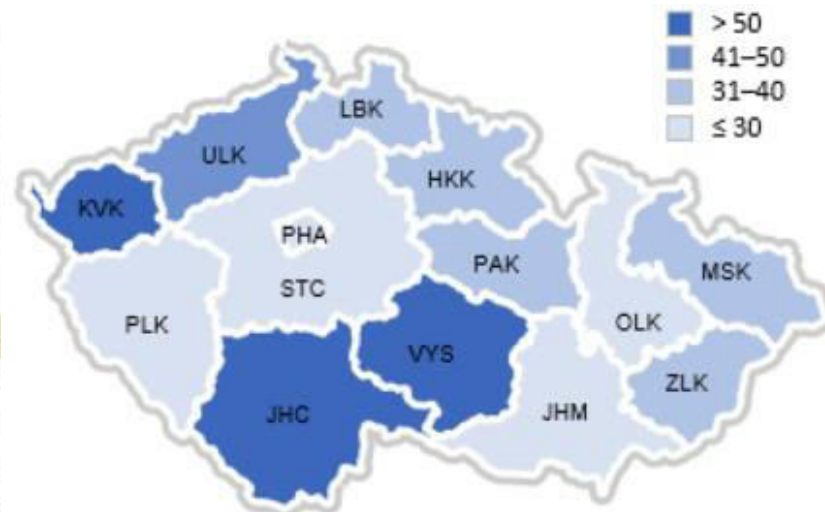
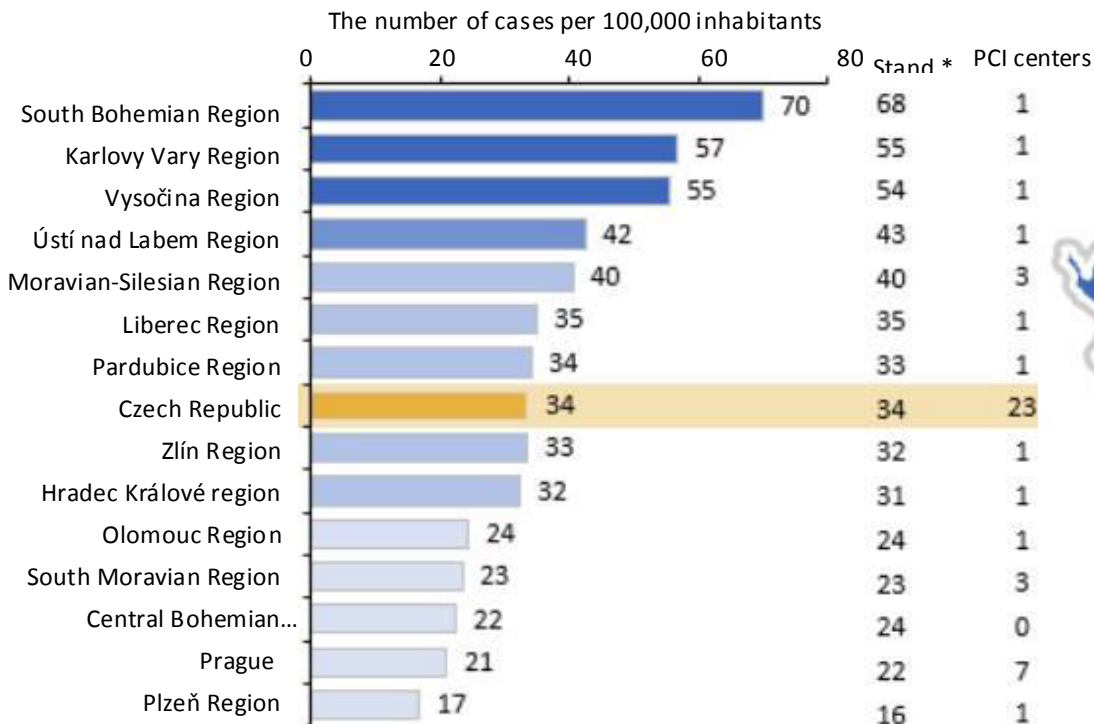
STEMI is more often reported in man (66%) than in woman (34%) which is slightly different from NSTEMI. Man are reported in younger age (average 65 years) than woman (average 73 years).

# Unstable angina (UA)

## Epidemiology

# Number of hospitalized UA cases by region of residence in relation to the population of the region

Number of hospitalized AU cases per 100,000 inhabitants of the given region:



Source: NRHZS 2017; hospitalized UA cases in 2017 (N = 3 554), residency N/A or foreigners: 19 cases (0,5 %)

The highest number of **reported** hospitalized cases of UA per 100,000 inhabitants was recorded in the South Bohemian Region (0.07% of the population), while the lowest number was in the Plzeňský Region, Capital City of Prague, Central Bohemia, South Moravia and Olomouc Region (0.02 % of population), **even after age standardization**. In the Czech Republic there were 34 cases per 100,000 inhabitants in 2017.

# Conslusions

- decrease in ACS cases in Czech Republic since 2015
- **gender difference** remains large
  - majority (two thirds) of those hospitalized for unstable angina, NSTEMI or STEMI are men
  - men are hospitalized in younger age than women
- **STEMI patients**, both women and men are hospitalized in youger age compared to NSTEMI and UA
  
- **main limitation:** just reimbursed care data