

**The 11th Fall Research Meeting Oslo, Norway
September 11th to September 13th**

AN ANALYSIS OF EMERGENCY DEPARTMENT INAPPROPRIATE ADMISSIONS IN THE PROVINCE OF BOLZANO (ITALY)

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Anziani, attese interminabili al pronto soccorso. Messner: «Non deve accadere»

L'assessore prende in mano la situazione dopo il caso della paziente di 90 anni che il 7 aprile ha atteso tredici ore, dalle 13 alle 2 di notte: «Voglio intervenire. Ho chiesto i dati per sapere quanto attendono over70, pazienti fragili e con quali codici»

IL FATTO L'incubo di una 90enne: «13 ore di attesa»

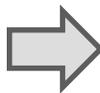
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Valeria Frangipane

Sanità Sanità Alto Adige Salute Pronto Soccorso Bolzano Anziani

06 maggio 2024



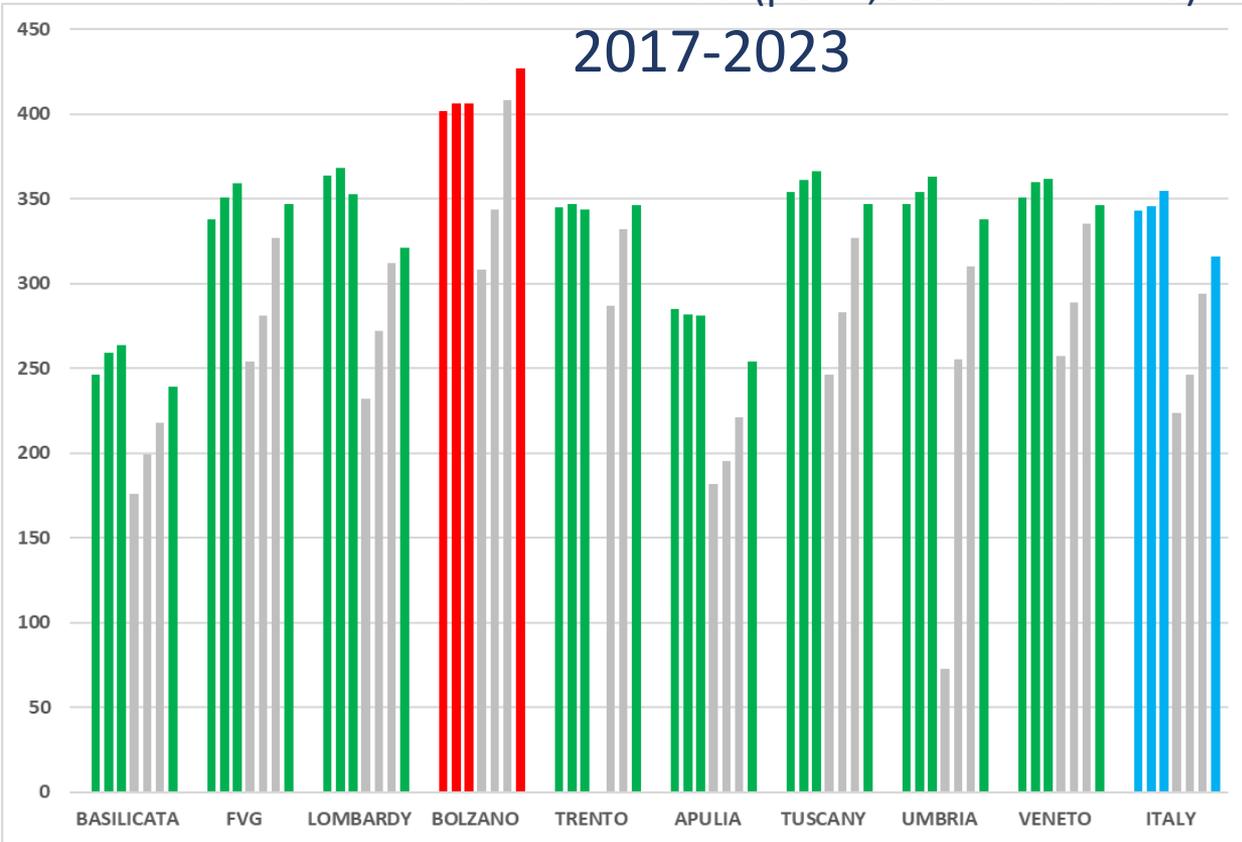
BOLZANO. Domenica 7 aprile una paziente di 90 anni ha trascorso 13 ore al Pronto soccorso del San Maurizio prima di essere curata. Era in barella, si lamentava. Entrata alle 13 è stata dimessa alle 2 di notte.



What about the Emergency Departments (EDs) in the Province of Bolzano (Italy)?

- *Admission Rates*
- *Length of Stay (LOS)*

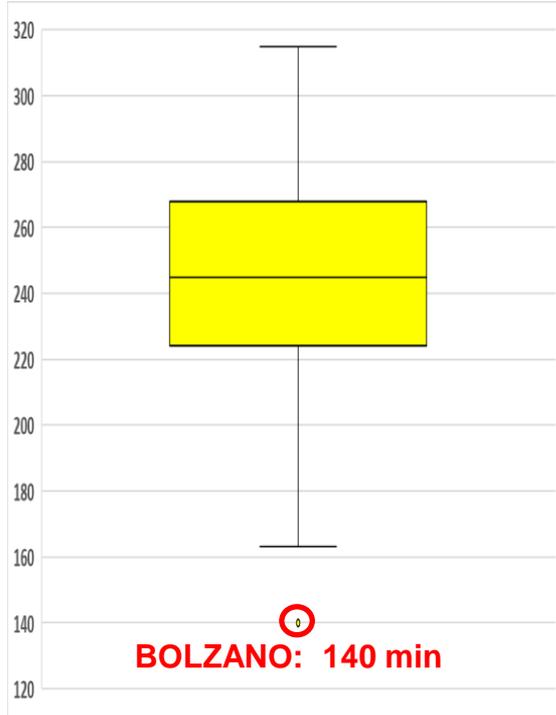
ED Admission Rates (per 1,000 inhabitants) 2017-2023



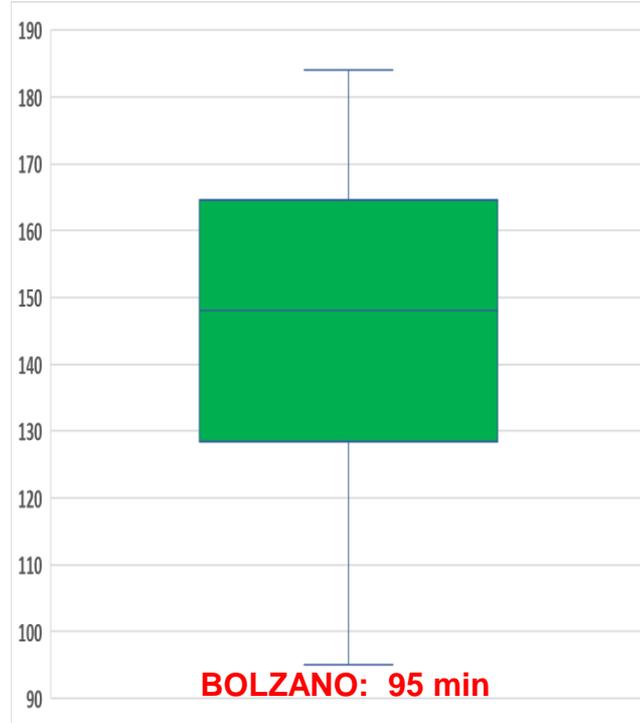
YEAR	BOLZANO	ITALY	RATIO
2017	402	343	1.2
2018	406	345	1.2
2019	406	354	1.2
2020	308	224	1.4
2021	344	246	1.4
2022	408	294	1.4
2023	427	316	1.4

ED Admissions: Length of Stay (LOS) - median

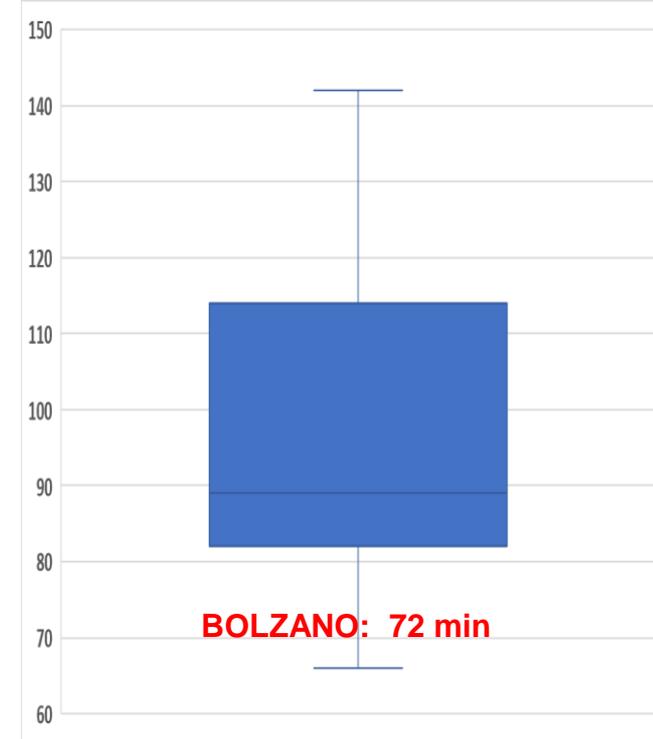
Triage Level 3 (Urgent)



Triage Level 4 (Less Urgent)



Triage Level 5 (Non Urgent)

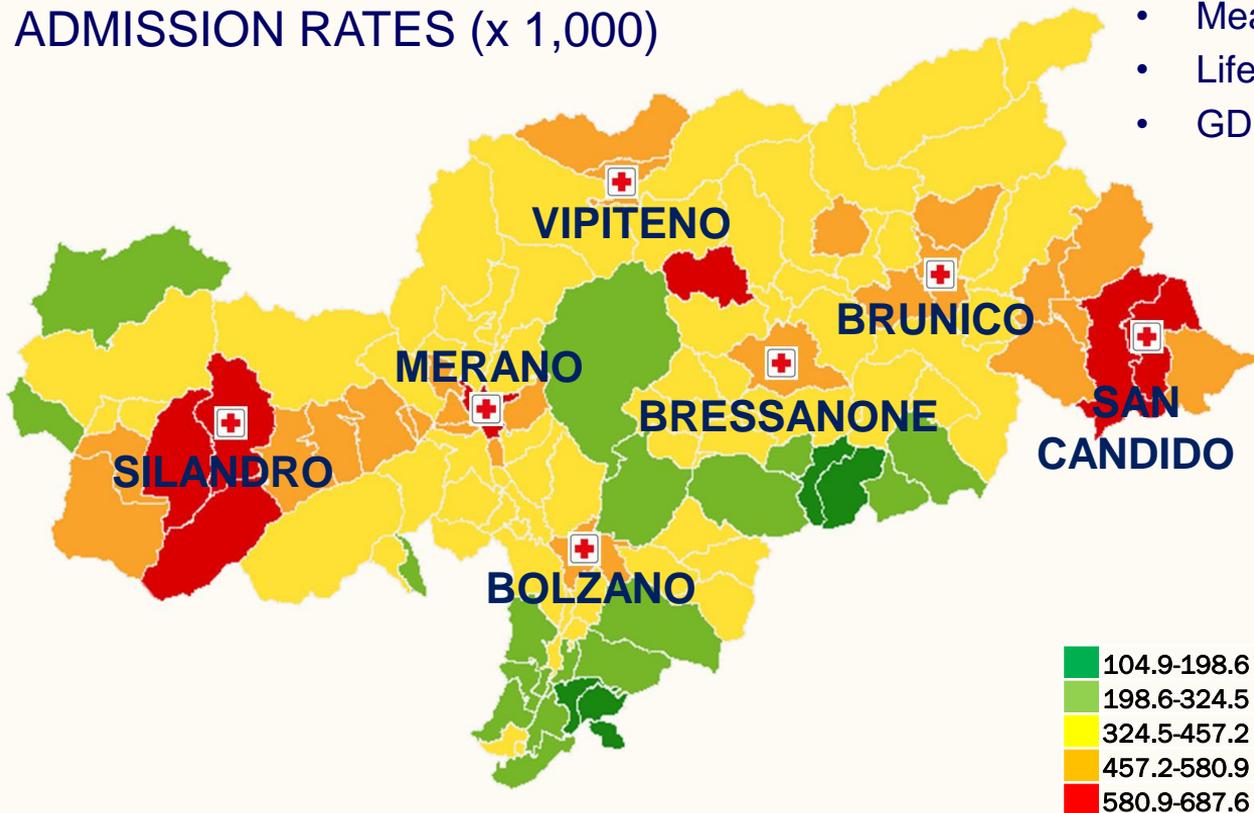




Emergency Departments in figures (2023)

- Population: 534,147
- Area: 7,398 km²
- Mean age: 43.5 yrs. (vs 46.4 Italy)
- Life expectancy: 84.1 yrs. (vs 83.1 Italy)
- GDP per capita: 54,507 € (vs 32,984 Italy)

ADMISSION RATES (x 1,000)



	2023
RATE	430.4
MIN	104.9
MAX	687.6
(High/Low)	6.6
SCV	6.9 (high)



ED Admissions high rates and high geographic variation!

- **Overcrowding**

excessive number of patients waiting to be examined and treated

VS

the physical capacity or to the available personnel of the emergency room¹

- **ED inappropriate admissions**

- *delays in treating seriously ill patients*
- *increase of the costs due to unnecessary investigations*

- **Health policy**

To analyze the unwarranted variation

*To reduce ED potentially **inappropriate admissions***



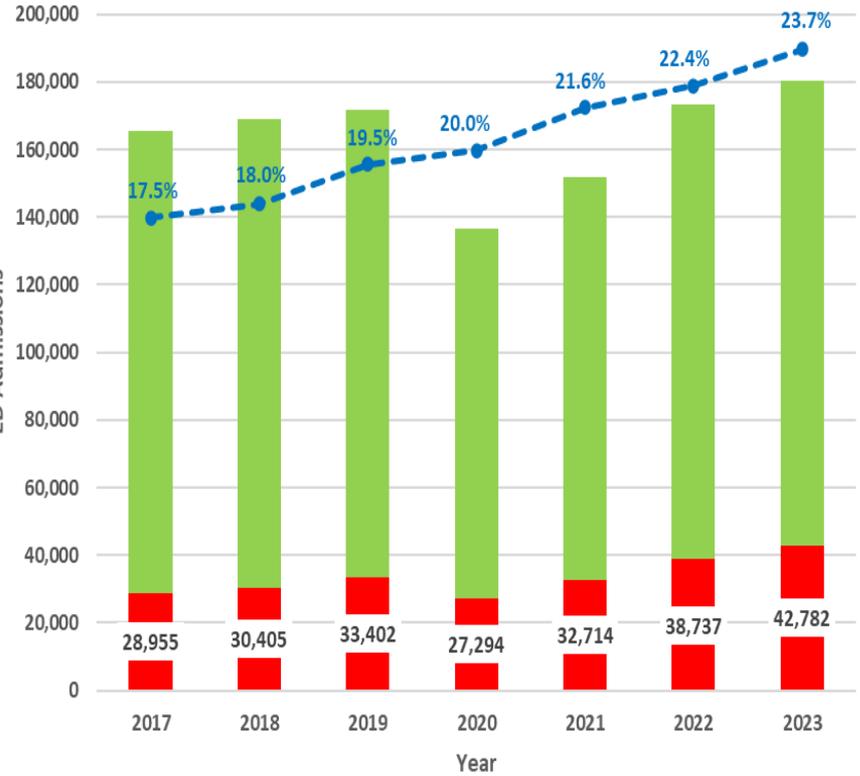
EDs Inappropriate Admissions: Objectives/Methods/Data

- ✓ To analyse and compare variations among the 116 municipalities
- ✓ To identify the determinants of unwarranted variation
 - geography (distance from the ED)
 - health care resources (GPs, specialists, ...)

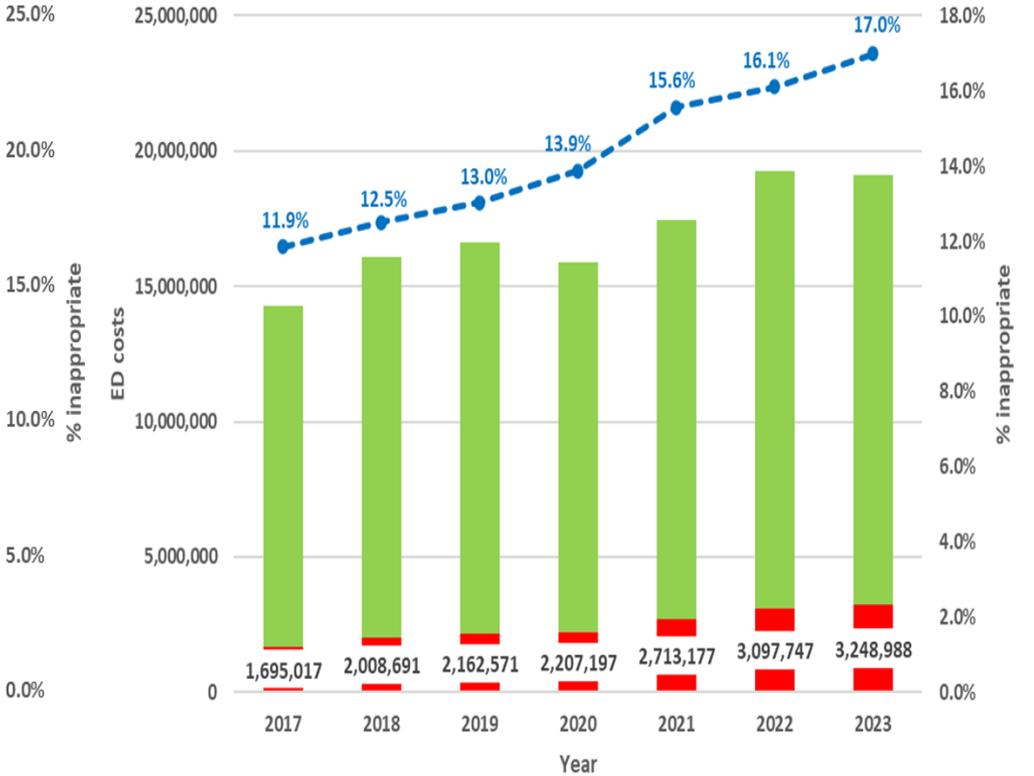
Selection Criteria:

- ✓ ED Admissions (2019-2023) by resident patients (Age \geq 18 years)
- ✓ Inappropriate admissions are defined as
 - Triage: Level 4 (less urgent)/Level 5 (non urgent)
 - No Diagnosis of Trauma
 - Arrival Time from 8 a.m to 8 p.m. (week-end and Public Holidays excluded)
 - by Private Transport
 - Discharge Home

EDs Inappropriate Admissions (%)



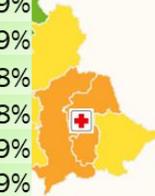
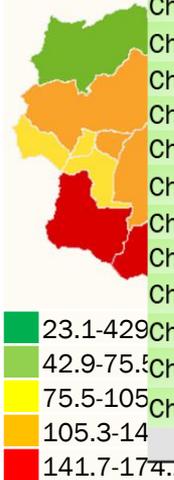
Costs (tariffs) of EDs Inappropriate Visits (%)



ED Inappropriate Admission Rates

2019

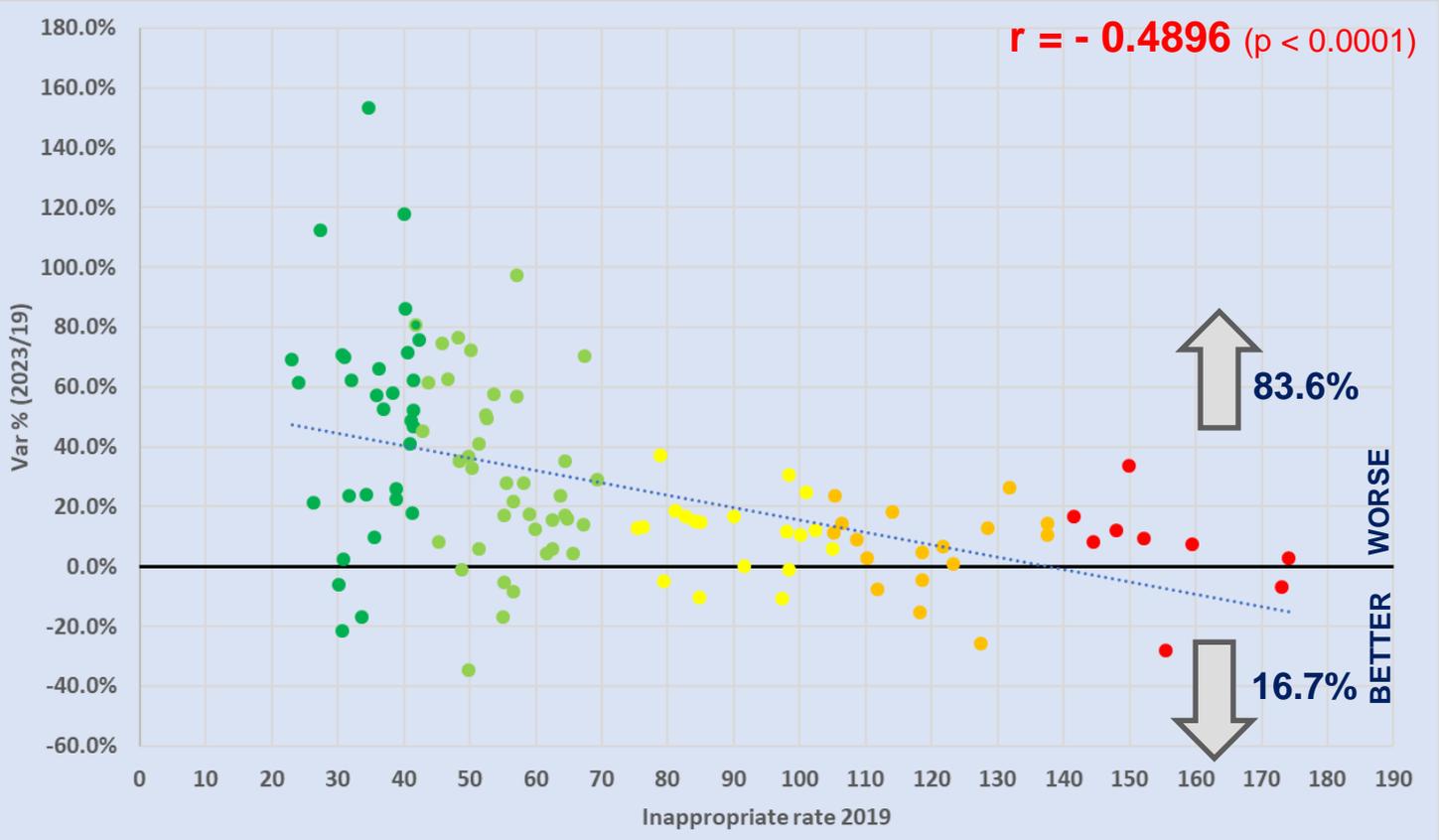
DIAGNOSIS	2019	2020	2021	2022	2023
Chap. 13 Diseases of the Musculoskeletal System and Connective Tissue (710-739)	22.8%	20.4%	21.1%	20.8%	20.6%
Chap. 6 Diseases of the Nervous System and Sense Organs (320-389)	17.2%	17.3%	16.3%	17.0%	18.9%
Chap. 16 Symptoms, Signs, and Ill-Defined Conditions (780-799)	15.0%	14.4%	17.5%	15.1%	13.6%
Chap. 9 Diseases of the Digestive System (520-579)	8.5%	9.8%	9.7%	9.8%	10.2%
Chap. 10 Diseases of the Genitourinary System (580-629)	6.5%	5.9%	5.6%	5.3%	5.4%
Chap. 12 Diseases of the Skin and Subcutaneous Tissue (680-709)	6.3%	5.1%	4.8%	5.0%	4.9%
Chap. 8 Diseases of the Respiratory System (460-519)	4.6%	4.2%	2.9%	4.6%	4.9%
Chap. V External causes of Injury and Supplemental Classification (V01-V82)	4.0%	7.0%	4.7%	4.9%	4.8%
Chap. 7 Diseases of the Circulatory System (390-459)	4.6%	5.0%	5.2%	5.1%	4.8%
Chap. 1 Infectious and Parasitic Diseases (001-139)	3.9%	4.3%	4.6%	5.7%	3.9%
Chap. 5 Mental Disorders (290-319)	2.0%	2.0%	2.5%	2.5%	2.9%
Chap. 11 Complications of Pregnancy, Childbirth, and the Puerperium (630-677)	1.6%	1.8%	1.9%	1.5%	1.7%
Chap. 17 Injury and Poisoning (800-999)	1.2%	0.9%	1.2%	1.0%	1.4%
Chap. 14 Congenital Anomalies (740-759)	0.3%	0.3%	0.2%	0.3%	0.7%
Chap. 3 Endocrine, Nutritional and Metabolic Diseases, and Immunity Disorders (240-279)	0.5%	0.6%	0.7%	0.6%	0.6%
Chap. 2 Neoplasms (140-239)	0.5%	0.7%	0.6%	0.5%	0.4%
Chap. 4 Diseases of the Blood and Blood-Forming Organs (280-289)	0.3%	0.3%	0.3%	0.3%	0.2%
Chap. 15 Certain Conditions originating in the Perinatal Period (760-779)	0.0%	0.0%	0.1%	0.0%	0.0%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%



MIN	23.1	24.0
MAX	174.2	200.3
(High/Low)	7.6	8.3
SCV	> 10	> 10

164.9-200.3

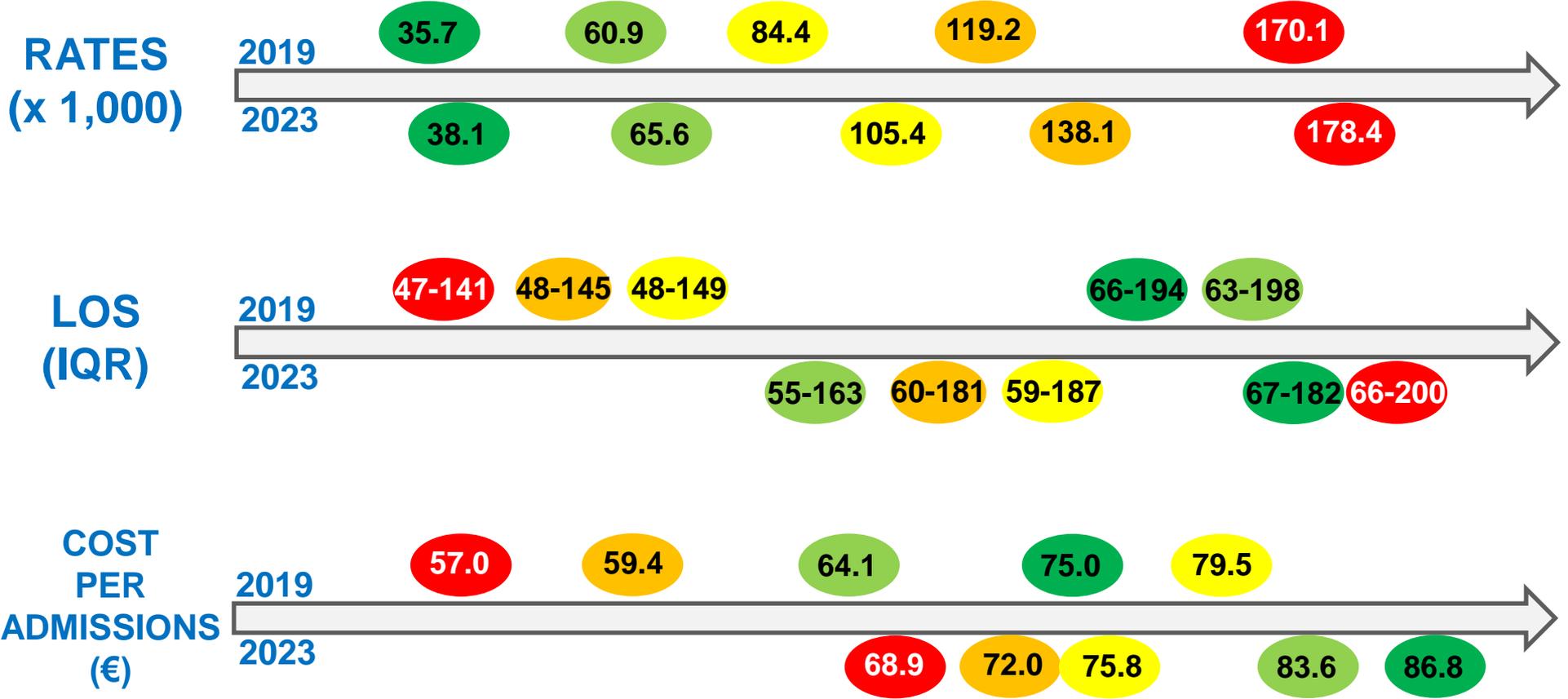
EDs Inappropriate Admission Rates: Variation % 2023/2019



Municipalities distribution by cluster

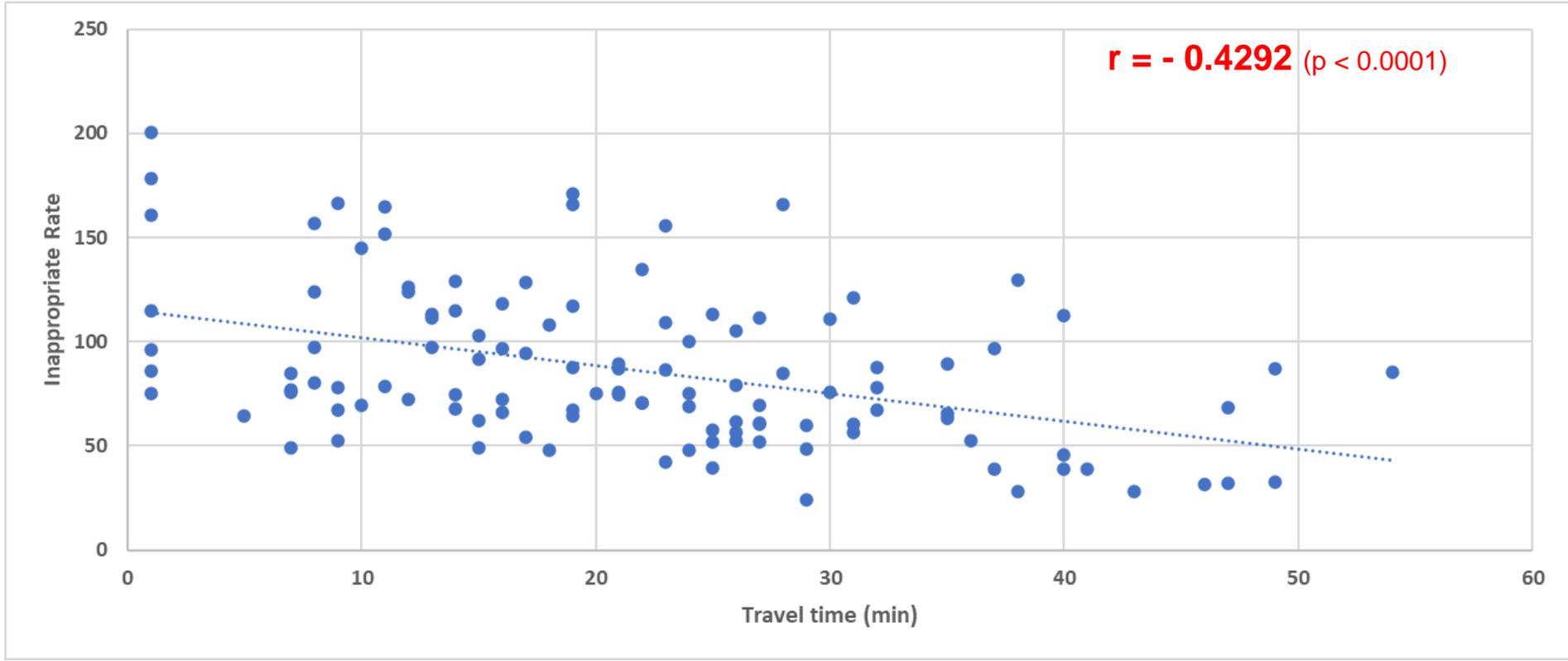
	2019	2023
Green	32 (27.6%)	15 (12.9%)
Light Green	39 (33.6%)	48 (41.4%)
Yellow	19 (16.4%)	33 (28.4%)
Orange	17 (14.7%)	13 (11.2)
Red	9 (7.8%)	7 (6.0%)
Total	116 (100.0%)	116 (100.0%)

An Analysis of Emergency Department Inappropriate Admissions in the Province of Bolzano (Italy)



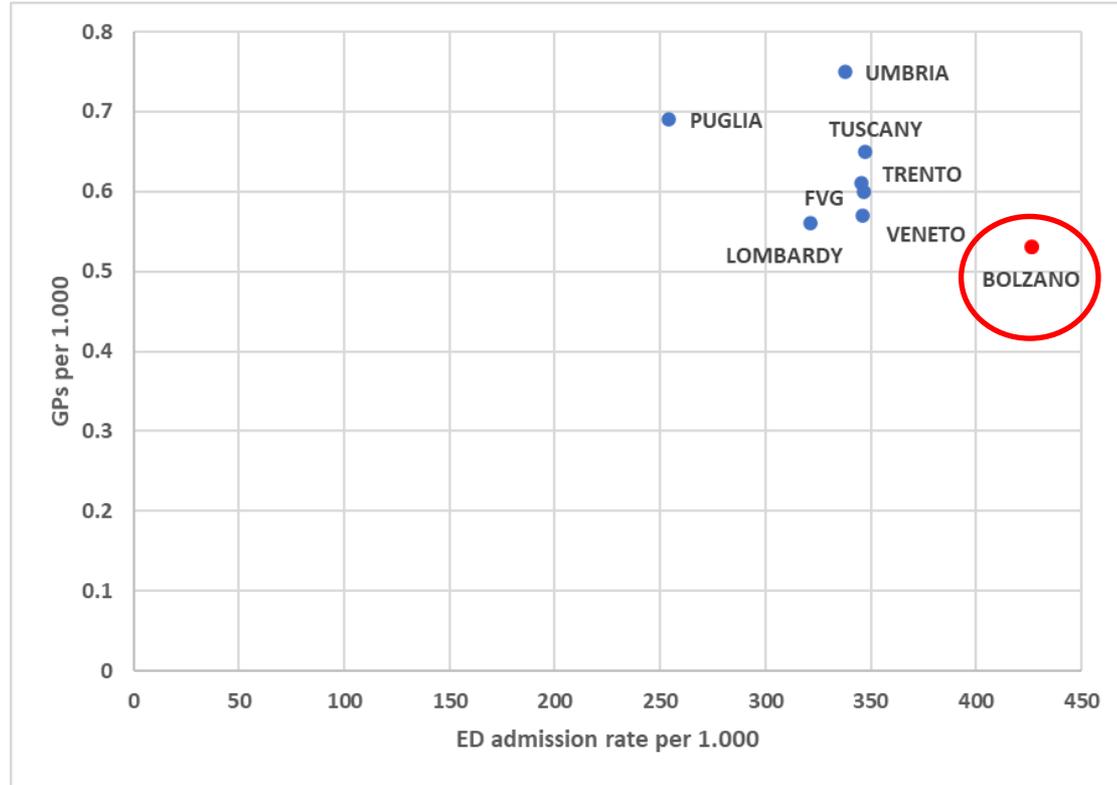


EDs Inappropriate Admissions: Determinants of variation (1)



EDs Inappropriate Admissions: Determinants of variation (2)

GPs
vs
ED Admission Rate



Conclusions (1)

- ❖ Higher ED admission rates (Overcrowding) → Higher Risk of inappropriate admissions
- ❖ ED Inappropriate Admission Rate is increasing along the years, as the geographic variation between the municipalities (*internal variability*)
- ❖ Closer the ED, higher the rates
 - Health system could be not able to respond to patients' demand equally
- ❖ **Role of Patients' preferences**
 - Availability of GPs or specialists/waiting times for a visits
 - Low ED LOS → due to specific lane (e.g. Fast Track, GPs working in ED)
 - Since 2020 no co-payment for ED admissions (except for a part for non urgent visits)



Conclusions (2)

❖ Role of Health Care Managers and Policy makers

- Interventions for reducing the LOS in ED (e.g. to increase healthcare workers, Fast Track) might have an adverse effect of increasing ED Inappropriate Admissions
- Availability and geographic Health Care Resources should be improved
- Interventions for reducing inappropriate admissions as the introduction of a co-payment (identify an effective threshold → working in progress)



*An Analysis of Emergency Department Inappropriate Admissions
in the Province of Bolzano (Italy)*



For any questions



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*Thank
you*

