



HOW COVID-19 HAS CHANGED THE ELECTIVE SURGERY ? THE CASE OF THE IMPACT IN THE ITALIAN PROVINCE OF BOLZANO

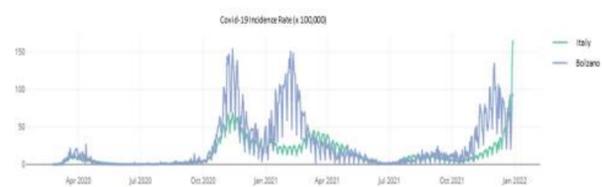
Mirko Bonetti⁽¹⁾, Carla Melani⁽¹⁾

(1) Observatory for Health – Health Department Province of Bolzano (Italy)

BACKGROUND

The Autonomous Province of Bolzano is the northernmost region of Italy, bordered by Austria. It is a modest territorial reality in Italy with an area of 7,400 square kilometers (km²) prevailed by mountains and includes a total population of 535,000 inhabitants. The official languages are three: German, Italian and Ladin (Rhaeto-Romance language), with a population comprising 60% German-speaking, of 23% Italian-speaking and of 17% Ladin-speaking. Since 2006, the Local Health Authority (LHA) coordinates the activities of four Health Districts (Bolzano, Merano, Bressanone and Brunico). There are 7 public hospitals: the main hospital is Bolzano.

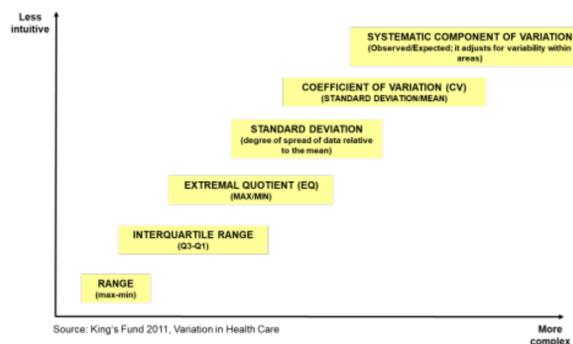
Since the end of the February 2020, that signaled the first wave of the SARS-CoV-2' pandemic, the hospital' admissions of Covid-19' cases were prevalent in the regions of the northern Italy, including the Province of Bolzano. As observed, the Bolzano's incidence rate developed more than the national average, in November 2020, in January-February 2021 and in November until mid-December 2021. In this dire situation, while hospitals were facing a spike of COVID-19' cases, performance of non-emergency surgical and elective procedures declined, leading as a repercussion to the delay' care for other pathologies that were less time sensitive. The Italian sources of data registered before the upsurge of Covid-19 pandemic displayed distinct hospitalization rates among the four health districts in the province of Bolzano with respect to the national average. The contrast in the rates could be interpreted by discrepancies in the data coding applied for the respective health districts, but also by characteristics related to geographic aspects and local health care systems. The study has pointed to the fact that the distinction in the hospitalization' rates based on the geographic variation in the four health districts of the province of Bolzano indicates indeed the physicians' discretion choices about the access of patients to the healthcare rather than the patients' needs and priorities.



Source: <https://prolea.shinyapps.io/covid19aie/>

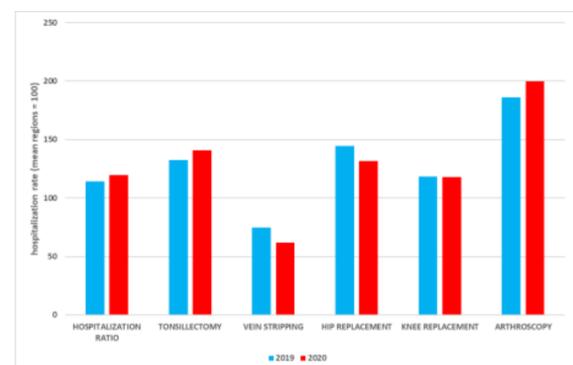
OBJECTIVES/METHODS

The aim of this study was to detect out the discrepancies in the hospitalization' rates for a selection of elective procedures (tonsillectomy, vein stripping, hip replacement, knee replacement, arthroscopy), by measuring the situation in the four health districts of the Province of Bolzano and across Italian regions in two selected periods, before and during the Covid-19' pandemic. Different statistics have been commonly employed to calculate the variation of the hospitalization rates within each region, which are to a certain extent intuitive and complex: from the range to the Extremal Quotient (EQ), and from the Standard Deviation to the Weighted Coefficient of Variation (WCV). For this study, the Systematic Component of Variation (SCV) has been chosen for the estimation of data variation, which is based on a model that examines the number of observed hospital' admissions relative to the predicted hospitalization' rates. The SCV, considered as an adequate method to develop robust measuring of hospitalization variation, has been adjusted to account for the age and gender distribution of the population, for estimating the changes on account of the impact of Covid-19 pandemic from 2018-2019 and from 2020-2021.



Source: King's Fund 2011, Variation in Health Care

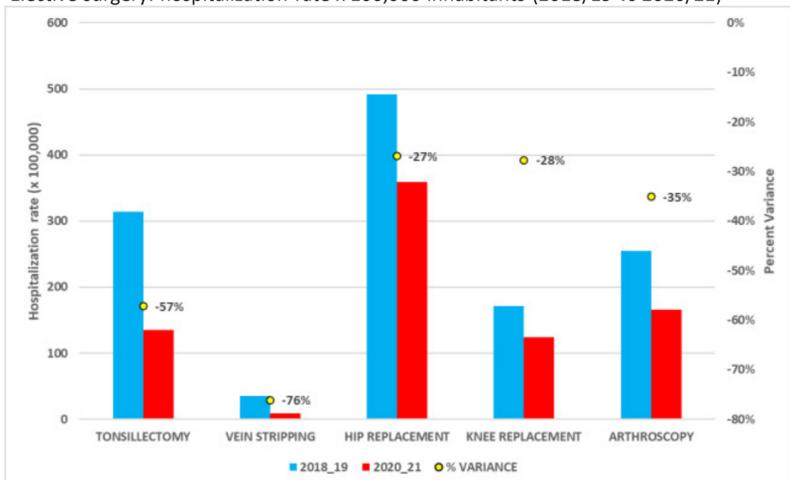
The research process has been designed in two phases: initial step the comparison of situation among the Province of Bolzano regarding the other Italian regions and the second step computation of the SCV, comprising the assessment for 2021. The Performance Evaluation System of Regional Health Systems has been used as the primary source for the data, which is a project carried out by MeS Lab (School of Advanced Studies Sant' Anna, Pisa, Italy) that covered ten Italian regions as participants (Apulia, Bolzano, Friuli Venezia Giulia, Liguria, Lombardy, Marche, Umbria, Trento, Tuscany, Veneto). The findings prove that in 2019-2020 the Province of Bolzano had higher rates as compared to the regional average set at 100, but for the vein stripping, despite the decline of hospitalization rates as a result of the Covid-19's impact. The research establishes that Covid-19' waves of cases impacted the devaluation of the hospitalization' rates for the elective procedures with variances ranging from less than 30% for the knee and hip replacement to 76% for the vein stripping. These values for the province of Bolzano showed a significant variation among its four health districts. Regarding the SCV values for each elective procedure, the analyses have exhibited comparable levels of variation between the two periods under examination, marking very high for arthroscopy and stripping, high for hip replacement, low-medium for knee replacement and low for tonsillectomy.



Source: MeS Lab, Performance Evaluation System of regional health systems

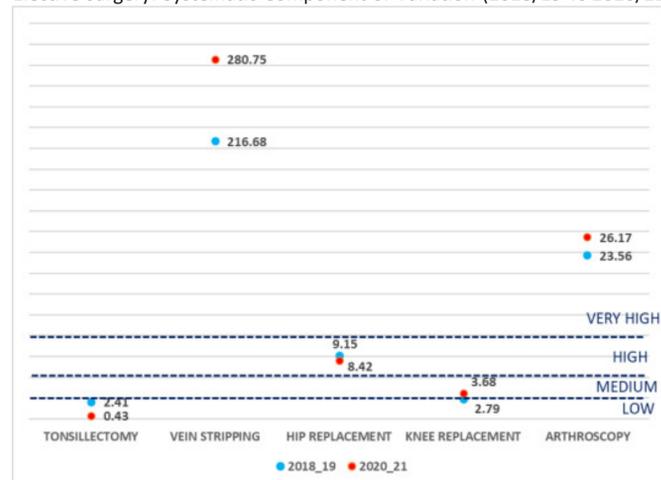
RESULTS

Elective surgery: hospitalization rate x 100,000 inhabitants (2018/19 vs 2020/21)



Note: Age-gender standardized rate
Source: Italian Hospital Discharge Forms

Elective surgery: Systematic Component of Variation (2018/19 vs 2020/21)



Note: Age-gender standardized rate
Source: Italian Hospital Discharge Forms

The study confirms that the impact of Covid-19 in the Province of Bolzano as in the other Italian regions has affected lower hospital admission for many Non-Covid procedures, specifically for the elective procedures that were consistently delayed. Notwithstanding, the research acknowledged that the province of Bolzano had recorded higher hospitalization rates across the Italian regions for some pathologies before Covid-19, despite being a modest Italian region with peculiar territorial and cultural characteristics. The higher hospitalization rates for the Province of Bolzano are most true for the elective surgery, indicating at the same time geographic variation among its four health districts. Whereas, the data that measure the effects for the period of post Covid-19' pandemic display no substantial variations among the four districts in the province of Bolzano, implying comparable impact of Covid-19' cases in the hospitalization' rates.

CONCLUSIONS