



Exploring the linkage between the Arthroplasty Register (RPPA – Registro Provinciale delle protesi articolari) and the Health Data System of the Autonomous Province of Bolzano

4th International Congress of Arthroplasty Registries

Göteborg-SWEDEN

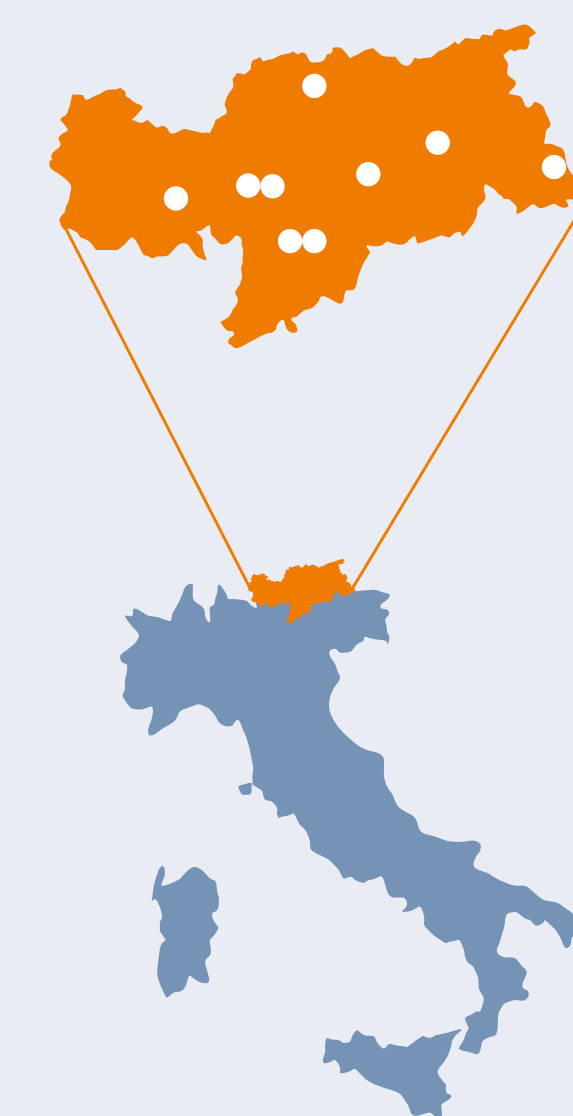
23rd – 25th May 2015

Authors: **Picus Roberto**
Melani Carla
Bonetti Mirko
Zuech Paola
Weiss Sabine

Epidemiologic Observatory of the Autonomous Province of Bolzano

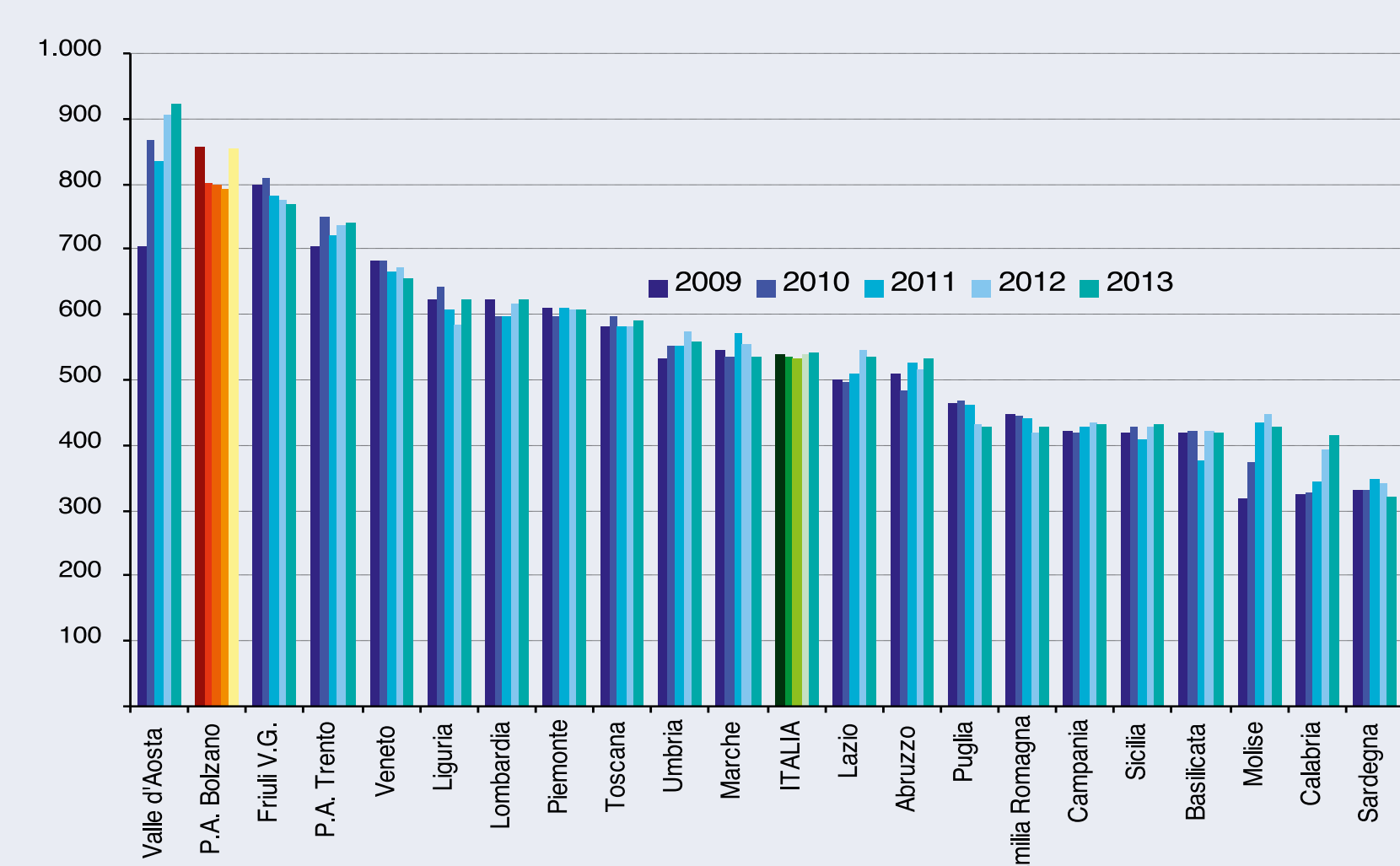
Ziernhöld Günther

Medical adviser of the Epidemiologic Observatory of the Autonomous Province of Bolzano



INTRODUCTION

The Autonomous Province of Bolzano is located in the north of Italy, on the border with Austria and Switzerland and has a population of about 500,000 residents. In the Province there are operating 7 public hospitals and 2 private structures. In the Autonomous Province of Bolzano every year more than 2,300 arthroplasty interventions (knee and hip replacements) are realized. Therefore we have the highest hospitalization rate nationwide for hip replacements.



Source: National Ministry of health - Annual reports 2009 to 2013 of hospital admissions

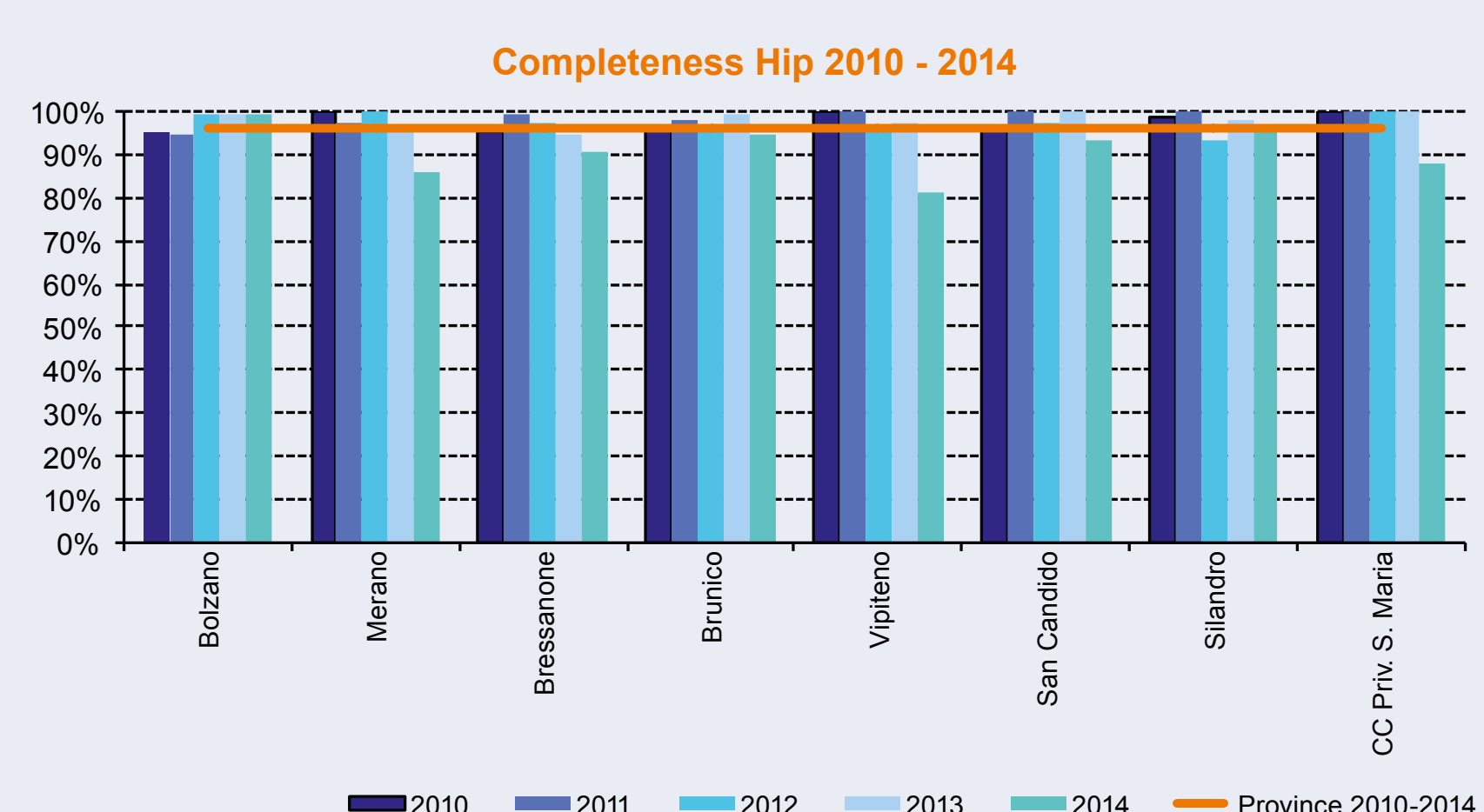
The Hip Replacement Register has been operative since 01.01.2010, while the Knee Replacement Register since July 2011. All hospitals of the Province take part.

The RPPA participates at the Italian Arthroplasty Register (Registro Italiano Artroprotesi – RIAP)

The register contains the following data:

- patient demographics (in accordance with the national privacy law)
- clinical information (side, surgical procedure, diagnosis, previous intervention, approach, etc.)
- implant information (manufacturer, model-name, ID code, lot number, National device Code of Ministry of Health)

The level of completeness of the provincial Hip Replacement Register is around 96%, while the Knee-Replace Register contains today the 89% of cases (comparison between the number of Register Forms and the number of Hospital Discharge Records).



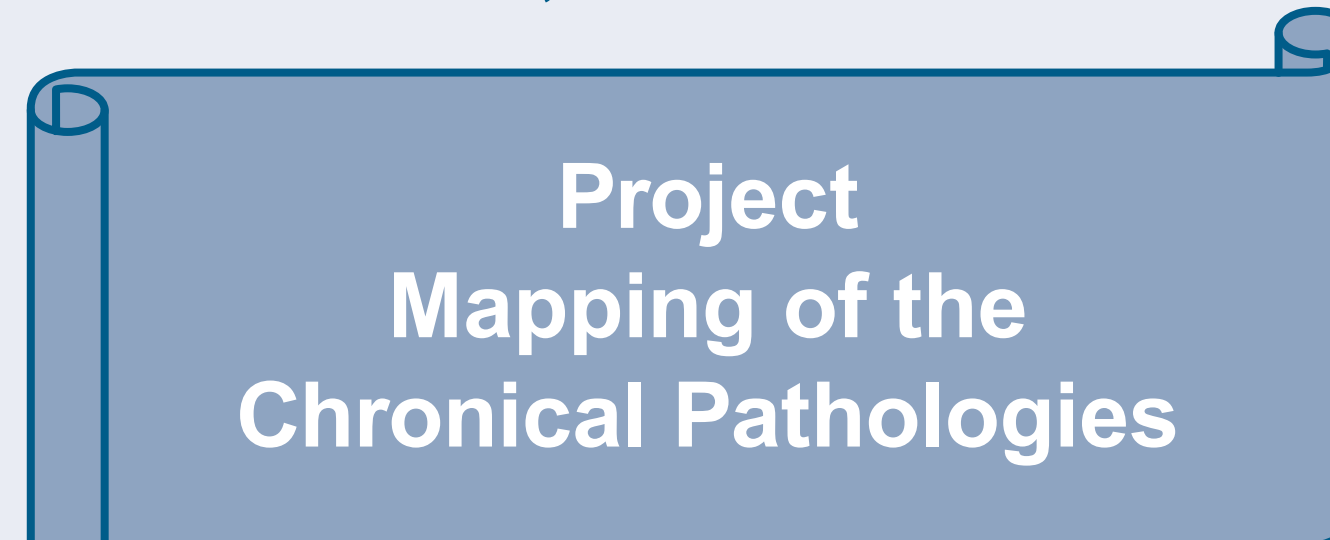
METHOD

The provincial health information system collects and integrates data from different information flows. The initial purpose of this data was mainly administrative origin, but this flows integrated together can provide an epidemiological picture of the population. Starting from this knowledge the Provincial Epidemiological Observatory has developed the project "Mapping of the Chronical Pathologies". In this project, various databases are linked and specific classification criteria allow monitoring of the entire population, in accordance to clinical profiles and health assistance paths. It was possible to define precise identikit of patients for certain chronic diseases.

Considering the potential information, the Provincial Epidemiological Observatory has developed a draft study about the integration of the Hip Registry data and the data of the project "Mapping of the Chronical Pathologies" to learn more about the correlation between the chronic pathologies and the failure rate of the hip-prosthesis.

Analysis period 2010-2014:
• 5.129 primary hip replacements
• average age of the patients = 69,9 years

REVISION RATE = 2,6%



- Chronical kidney failure
- Neoplasm
- Diabetes
- Chronical cardiovascular disease
- Broncho-pneumopathy
- ...

14 profiles identified

60,6% of patients suffer from at least one chronic disease (28,8% suffer from one disease, 31,8% suffer from two or more diseases)

RESULTS

REVISION RATES statistically significant (p ≤ 0.05)

PATIENT WITHOUT CHRONIC DISEASES	PATIENT WITH (AT LEAST ONE) CHRONIC DISEASE
2.0% 40 revisions / 2,017 primary hips average age: 65 years	3.0% 93 revisions / 3,112 primary hips average age: 73 years

OR (Odds Ratio) = 1,523
Chronic patients have a higher risk of 1.52 to need a revision.

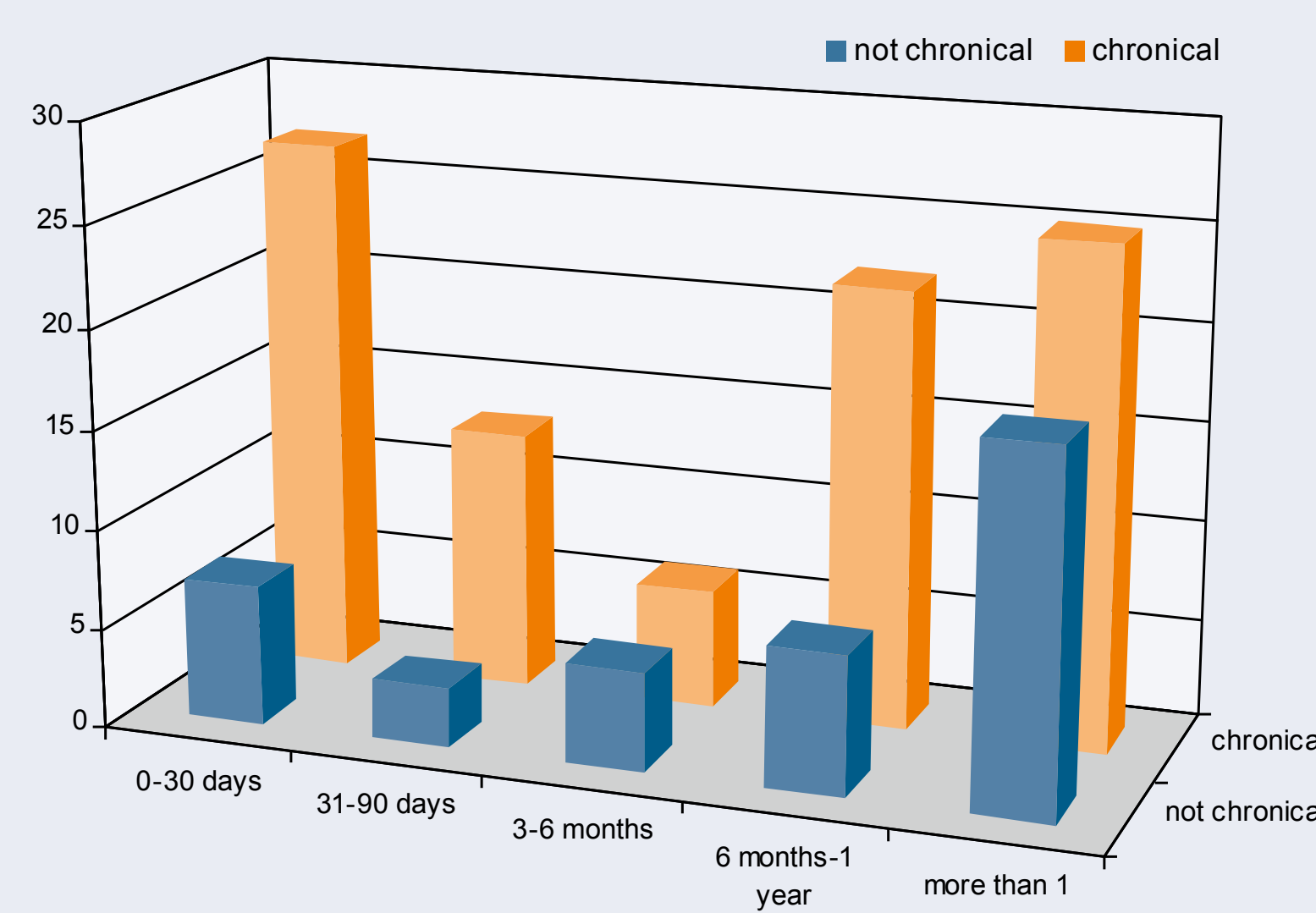
VALUATION OF REVISION RISK STATISTICAL EVALUATION MODEL OF RISK AND SIGNIFICANCE

VARIABLE	OR (risk)	p
AGE	0,945	< 0,0001
GENDER (M vs F)	0,831	0,2717
FRACTURED NECK OF FEMUR	2,258	0,0009
EPILEPSY	1,38	0,6091
ALZHEIMER	3,03	0,0566
PARKINSON	1,769	0,4445
COPD	2,154	0,0084
GASTROENTEROPATHY	1,35	0,353
PSYCHOSIS	0,691	0,6126
DIABETES	1,058	0,8609
NEOPLASM	1,069	0,8086
CHR. CARDIOVASCULAR DISEASE	1,422	0,0739
INSANITY	0,516	0,5454
ENDOCRINE AND METABOLIC DISEASE	0,937	0,7858
KIDNEY FAILURE	0,655	0,5665
AUTOIMMUNITY DISEASE	0,38	0,1805

even if significant, age does not influence the revision risk

- FRACTURED NECK OF FEMUR (Indication for surgery)
- and
- COPD seems to influence significantly the revision risk

Have prosthesis implanted in patients with chronic disease premature failures?



REVISIONS BY TIME CLASS

(DATE OF REVISION SURGERY - DATE OF PRIMARY HIP PROSTHESIS IMPLANTATION)

Time-class	Patient not chronic	chronical	% not chronic	% chronic
0 - 30 days	7	27	17,5%	29,0%
31 - 90 days	3	13	7,5%	14,0%
3 - 6 months	5	6	12,5%	6,5%
6 months - 1 year	7	22	17,5%	23,7%
more than 1 year	18	25	45,0%	26,9%
	40	93	100,0%	100,0%

SUMMARY

- Considering the period 2010-2014, 60,6% of patients suffer from at least one chronic disease (3,112 hospital admissions)
- Patients with at least one chronic disease have a higher revision rate than patients without comorbidity: 3,0% vs. 2,0%
- Patients with at least one chronic disease have a higher risk to undergo a revision surgery (OR = 1,52)
- The following diseases increase significantly the revision risk: fractured neck of femur and COPD (chronic obstructive pulmonary disease)
- Patients with at least one chronic disease have a more important 0-30 days revision rate than non chronic patients: 29,0% vs. 17,5%

The results of this study may be influenced by the following factors:

- a) small number of observations;
- b) short observation time (we are a "young" Register)
- c) codification quality of the register variables



The Epidemiologic Observatory of the Autonomous Province of Bolzano (www.provincia.bz.it/eo/default.asp) in collaboration with: