Outlining outcomes for Transcatheter Aortic Valve Implantation (TAVI) patients:
towards a definition of "*value*"

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1. The VBHC Experience in the Veneto Region

All healthcare systems share the same goal: to deliver high-quality care efficiently.

Value-Based Healthcare (VBHC) is a framework for reorganizing healthcare systems around a medical condition considering the whole path of care, with the global focus to improve the *value* for patients, intended as the ratio between **health outcomes** and **costs** related to the provided services. This approach is geared towards defining **new procurement models** and **redesigning the healthcare delivery systems**.

The **Veneto Region** is strongly focused on inspecting the potential of a VBHC approach within the regional healthcare landscape. This pilot study is carried out in the frame of cardiology and cardiac surgery services, on data from subjects who underwent a **Transcatheter Aortic Valve Implantation** (TAVI).

2. Outcome identification

Starting from the **ICHOM standard sets** in the **cardiovascular and circulatory** field, we identified some possible outcomes for our aim: **length of stay**, **mortality**, occurrence of **complications**, number of **rehospitalizations** and prescribed **treatments**. We further hypothesized some outcomes related to the social and personal burden: **functional scales**, need for **rehabilitation** and scores for assessing the **quality of life**.

3. Data Collection

We **jointly** used as main sources the data extracted from the **regional clinical TAVI register** and the **administrative databases**.

With the final purpose to implement a VBHC approach, we supplemented these outcomes with an **economic analysis** of both the index hospitalization and the related follow-up.

This retrospective observational study involves the patients who underwent a TAVI intervention between 2010 and 2015 in the Cardiology and Cardiac surgery wards of the Local Health Units of the Veneto region. Patients were identified and their clinical data were collected from the regional TAVI Register. The data were centrally **anonymized** and **linked** to the regional administrative healthcare databases, and a **12-month follow-up** was considered from the index hospitalization discharge date. We performed a first descriptive analysis to investigate some of the outcomes of interest.

- **Outcomes identification** (short, medium and long term)
  - Pathology-**specific** outcomes
  - **Whole treatment** related outcomes
- Definition of a **forecast model (clinical conditions - outcomes)**

- Enrolled patients costs **quantification**
- **Stratification** based on cost profiles
- Analysis of the **impact of risk factors** and **pre-surgery conditions** on any economic differences

$$QUALITY \qquad VALUE = \frac{QUALITY}{COST} \qquad COST$$

Model of procurement
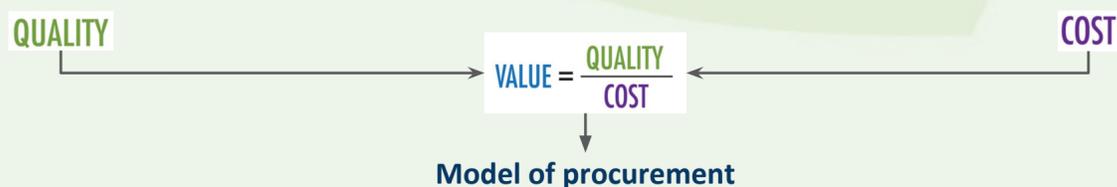
4. Preliminary Results

	Cohort distribution (N = 596)
Male (n [%])	309 [51.9%]
Age (median [IQR])	81 [77-85]
Overall LoS (median [IQR])	11 [8-16]
ICU LoS (median [IQR])	2 [1-3]
Death (index hospitalization) (n [%])	15 [2.5%]
Death (fup) (n [%])	32 [5.5%]
Hospitalized subjects during fup (n [%])	310 (53.4%)
Hospitalization during fup (n [min-max])	2 [1-8]
Cost of index hospitalization (median [IQR])	34,179€ [IQR 28,028€ - 34,179€]
Cost of re-hospitalizations (median [IQR])	3,885€ [IQR 2,645€ - 9,448€]

5. Conclusions

In this work, we dealt with some of the current healthcare framework typical issues: the **specificity** of the considered intervention, that required an *ad hoc* **definition of the set of outcome**; some infrastructural lacks of **interoperability** due to the wide **fragmentation** of the healthcare information; the **paucity** of a systematic data collection about the **treatments' social burden**.

Considering that ICHOM outcomes are not yet available for this type of patients and pathological condition, this work provides an **early evaluation** on how the performances in TAVI can be assessed, outlining a **first set of outcomes** and suggesting some required **improvements** in the prospective **data collection**. The final aim will be the achievement of the **best definition of *value* for patients**, effectively and efficiently improving the system performances.