EE335

# A multicenter microcosting study for COVID-19 in Brazil


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## Objective

To evaluate COVID-19 in-hospital costs and identify predictors at a patient-level in Brazil.

## Methods

This is a multicenter, prospective cohort study that applied time-driven activity-based costing (TDABC) method in five Brazilian reference centers for COVID-19 treatment.

Patients sample:

- hospitalized between March and August 2020 (first wave of the disease);
- COVID-19 confirmed by reverse transcription-polymerase chain reaction (RT–PCR) at arrival;

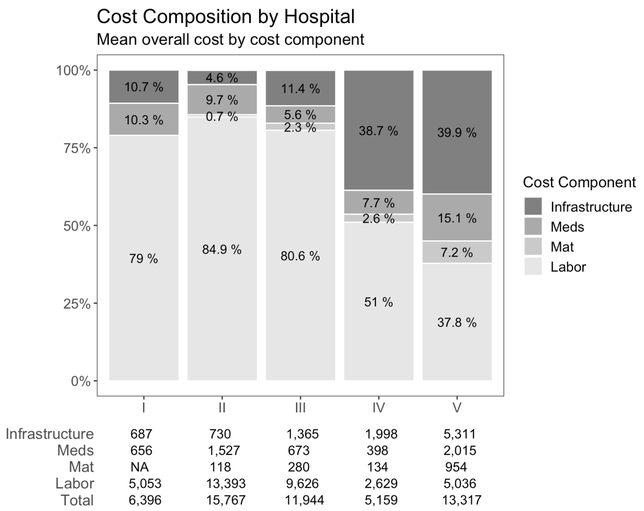
TDABC Macro Steps

1. Constructing process maps that involve all relevant steps in the care pathway
2. Determining the time and supplies required for each step
3. Multiplying the quantity of each resource used with its per-unit cost
4. Summing these products across all expended resources

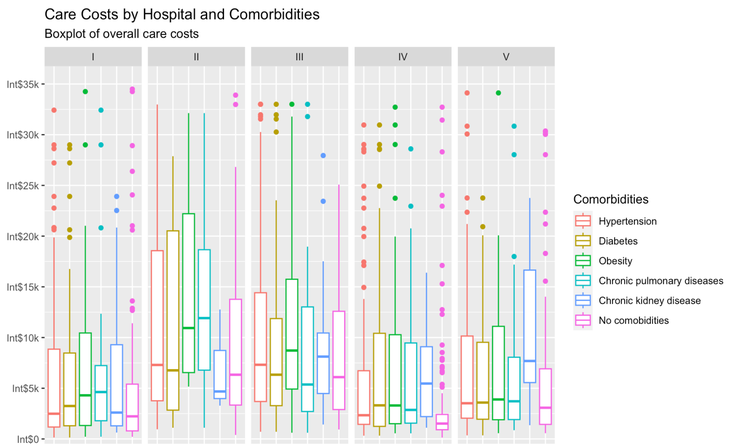
Cost measurements & Analysis (patient level)

- Cost variables: Labor, Infrastructure, Medications and Materials
- Gamma Multivariable model using Generalized Estimating Equations;
- Values presented in International Dollar. Exchange rate 0.44 to Brazilian Reais.

## Results




| | I | II | III | IV | V |
|---|---|---|---|---|---|
| Infrastructure | 687 | 730 | 1,365 | 1,998 | 5,311 |
| Meds | 656 | 1,527 | 673 | 398 | 2,015 |
| Mat | NA | 118 | 280 | 134 | 954 |
| Labor | 5,053 | 13,393 | 9,626 | 2,629 | 5,036 |
| Total | 6,396 | 15,767 | 11,944 | 5,159 | 13,317 |




**Patients' characteristics (n = 830)**

- Male patients: 409 (49%)
- Age of 59.2 (16.8) [mean (SD)]
- Comorbidities:
  - Hypertension: 440 (53%)
  - Obesity: 158 (19%)
  - Diabetes: 264 (32%)
  - Chronic kidney disease: 70 (8%)
  - Chronic pulmonary diseases: 122 (14.7%)

**Costs per patient**

- Cost per day
  Int$ 455 (308; 711) [median(IQR)]
- Overall costs
  - Int$4,428 (2,019; 11,464) [median(IQR)]
  - Required ICU care at any point (n = 365)
    Int$11,596 (6,016; 23,374) [median(IQR)]
  - Did not require ICU care (n = 465)
    Int$ 1,895 (1,050; 3,317) [median(IQR)]

**GEE Model**

Gender ($p<0.001$), Obesity ($p = 0.005$) and Chronic pulmonary diseases ($p = 0.044$) were identified as clinical predictors for hospital costs.

## Conclusion

- measure the variability in resource consumption per patients' according to their clinical characteristics.
- These findings can sustain the development of financially sustainable health policies in middle-income countries such as Brazil.


## Funding

FAPERGS Fundação de Amparo à Pesquisa do Estado do Rio Grande do Sul

FundMed Pesquisa Ensino Inovação