

Table S1 Hospital characteristics

Characteristics	Hospitals				
	A	B	C	D	E
Number of beds	831	1,013	506	915	504
Number of employees	6,061	6,628	3,377	6,032	3,200
Total number of surgeries in 2018	47,546	32,005	17,783	33,109	7,371
Annual budget (\$)	648,116,645	748,129,627	228,645,500	273,813,716	92,029,785

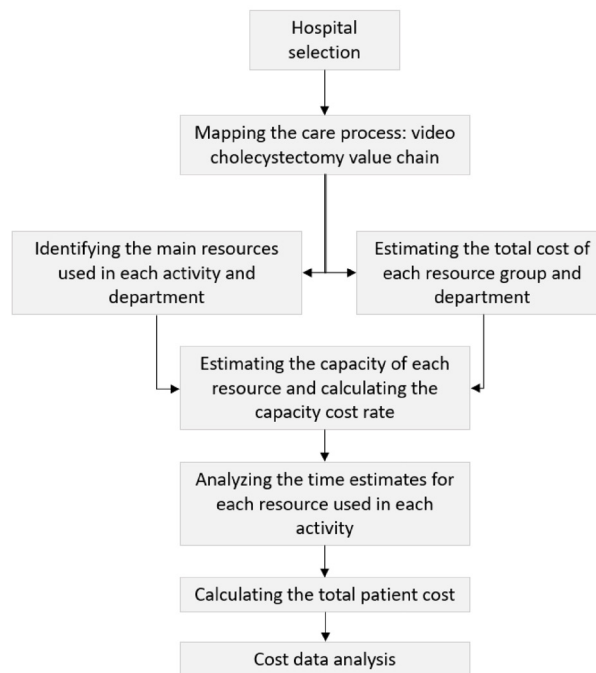


Figure S1 Application of the TDABC. TDABC, time-driven activity-based costing.

Table S2 TDABC checklist

TDABC elements	Classification	Paper section	Article
1.1 It is defined if the results are being explored for general health service management or redesign and value or only to assess costs?	Strongly Suggested, but not mandatory	Introduction	Yes, redesign and value
1.2 Is the clinical pathway, technology or procedure studied justified because of an interest from government, hospital, society or a Health Technology Assessment Analysis?	Mandatory	Introduction	No, but in this case the clinical pathway was used an example to demonstrate how the method can be used to sustain cost-saving estimates. However, the selection of the conditions for that was justified in the methods
1.3 Are study limitations being presented?	Mandatory	Discussion	Yes
1.4 Is the TDABC method selection being justified?	Mandatory	Introduction	Yes, it is the aim of the study to demonstrate how the method can be used to guide redesign initiatives that can result in cost-savings
2.1 Are authors using specific methodologies to design the care pathway?	Mandatory	Methods	Yes, explained in the methods
2.2 Are authors using a multidisciplinary team to apply the TDABC? (Design the process, correctly consider clinical characteristics, correctly evaluate costs)	Mandatory	Methods	Yes
2.3 Are authors reporting activities in the process map on a macro level?	Mandatory	Methods	Yes, <i>Table S2</i>
2.4 Are authors reporting activities in the process map on a micro level?	Strongly Suggested, but not mandatory	Methods	No.
2.5 Is the full process map (or a part of) being presented in a picture or graphic display?	Strongly Suggested, but not mandatory	Results	No
3.1 Is a table or a map being presented to illustrate the association between activities and resources?	Strongly Suggested, but not mandatory	Results	No
3.2 Are the resources that are included in the analysis being defined and justified?	Mandatory	Methods	Yes, all structural and labor
3.3 Are authors reporting observation in-situ approach to better identify resources used in each activity?	Mandatory	Results	Yes.
3.4 Are the authors interviewing the professionals to better identify resources used in each activity?	Mandatory	Results	Yes.
4.1 When using hospital financial database, it is being stated how those data were collected and analyzed?	Mandatory	Methods	Yes.
4.2 Are authors defining the currency and applying discount taxes when it is necessary?	Strongly Suggested, but not mandatory	Methods	Yes, collected in Reais (R\$) and reported in I\$
4.3 When using external financial databases, is there a description of the database and how those data were accessed?	Mandatory	Methods	NA
4.4 When mixed financial databases are being used (for example, salaries from external reference and structural costs from the hospital) is the origin of each data variable being stated?	Mandatory	Methods	NA
4.5 Did the authors explaining how the overhead costs are being considered?	Mandatory	Methods	Yes, it was not included
5.1 Are authors defining if the capacity data used represents the total capacity per resource or it is being considered an expected idleness?	Mandatory	Methods	Yes, it was not being considered an expected idleness
5.2 When authors are considering an expected idleness, it is explained how actual performance data were collected and analyzed?	Mandatory	Methods	NA
6.1 Are authors explaining how time data were collected?	Mandatory	Methods	Yes, observer followed by professionals interviews
6.2 Are authors using interviews with professionals crossed with medical record review to estimate time data?	Strongly Suggested, but not mandatory	Methods	Yes
6.3 When using chronoanalysis, it is being explained how the sample of data was defined?	Mandatory	Methods	No, it is not being used
6.4 Is it being explained if the chronoanalysis used a digital technology to collect real time data, such as mobile app, wearable, drone, etc.?	Strongly Suggested, but not mandatory	Methods	NA
7.1 Is the median or average cost per patient (or per technology) being calculated?	Mandatory	Result and Discussion	Yes
7.2 Are authors presenting the cost per each patient included in the sample? (Chart bar, table, etc.)?	Mandatory	Result and Discussion	Yes
7.3 Is the median or average cost per activity on a macro level being presented?	Mandatory	Result and Discussion	Yes
7.4 Is the median or average cost per activity on a micro level being presented?	Mandatory	Result and Discussion	No
7.5 Is the median or average cost per resource being presented?	Mandatory	Result and Discussion	Yes
7.6 Are authors performing capacity idleness analysis?	Strongly Suggested, but not mandatory	Result and Discussion	No
7.7 Are authors exploring statistical analyses to better understand costs along the process of care?	Strongly Suggested, but not mandatory	Result and Discussion	No
7.8 If the objective was to use the study to support management and value decisions, are authors reporting how value increasing was achieved or if they are planning to achieve it?	Strongly Suggested, but not mandatory	Result and Discussion	Yes, possible cost savings

TDABC, time-driven activity-based costing.

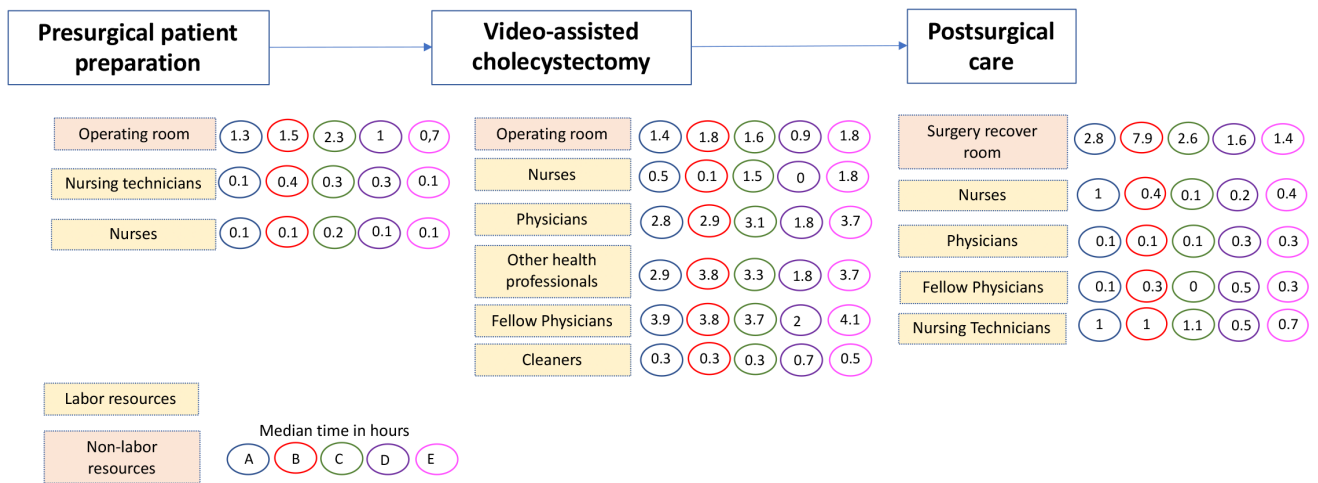


Figure S2 Surgical pathway cost variables. Stratification of the labor and non-labor cost variables along the tree macro phases of the surgical pathway. The colored circles indicate the median time in hours consumed by each resource in each hospital (A-blue, B-red, C-green, D-purple and E-pink).