The Basics of Time-Driven Activity-Based Costing

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Objectives

The goals of this presentation are to:

1. Explore the basic concept of time-driven activity-based costing (TDABC) for healthcare cost calculation.

2. Explain the practical steps for performing TDABC to minimize cost and maximize productivity.

3. Review examples of TDABC implementation.
What is Value?

- Value = Patient Outcomes / Cost (over the care cycle)

- Focus in medicine has been on patient outcomes.

- Cost is just as important!

How to Decrease Cost?

- To decrease cost, one needs to calculate cost.
- Cost calculation has been difficult in medicine.
- Time-driven activity-based costing (TDABC) is a practical approach to costing.
What is Time-Driven Activity-Based Costing (TDABC)?

- Introduced by Kaplan and Anderson at HBS in 2004
- Healthcare implementation introduced by Kaplan and Porter in 2011
- Utilizes two parameters:
  1. Time required to perform certain activities in the care cycle
  2. Capacity cost rate (CCR) for equipment, personnel, etc. ($x/hr)

Looks at cost from the provider’s perspective!
Steps for TDABC

• Define the medical problem/procedure.

• Create a process map to chart all activities performed within the entire care cycle.

• Obtain time averages for each activity and resource.

• Calculate the cost of all direct and indirect resources involved.

• Estimate the capacity of each resource and calculate capacity cost rate (cost of capacity supplied/practical capacity).

• Calculate total patient care cost.
Case: TDABC for CT scans

- Anzai et al. used TDABC to calculate the true costs of abdomen and pelvis (AP) CTs.

- Compared to the cost of an outpatient CT, the costs were 13% higher for ED patients and 31% higher for inpatients (IP).

- The difference in costs was mostly attributable to the costs of non-radiologist personnel!

- The costs of non-radiologist personnel were more than double for an IP (109% higher) study than for an outpatient CT study.
Case: TDABC for CT scans

- TDABC allowed Anzai et al. to think of potential solutions:
  - Having a dedicated transporter for ED patients.
  - Blocking scheduled slots for inpatients.
  - Having a detachable CT table to prepare the next patient.
Case: TDABC for TKRs and THRs

• DiGioia et al. applied TDABC to total knee replacements (TKR) and total hip arthroplasties (THR).

• They found that the OR segment accounted for the greatest cost for TKR and THR, 51% and 58% respectively.

• Personnel costs made up for 50% and 44% of the costs for TKR and THR respectively.
Case: TDABC for TKRs and THRs

• TDABC allowed for identification of true costs and areas for cost savings.

• This allowed the surgeons to understand the contribution of the cost of the implant to the true cost of the entire procedure.

• This provided the potential to enter bundled pricing negotiations with less risk.
Case: Our Ultrasound-Guided Breast Biopsy Practice

• Our biopsy volumes are increasing.
• We needed to accommodate more patients and create new biopsy slots.
• We used TDABC to gather objective data about biopsy times and costs.
• We identified several no-value added steps.
• We derived several solutions to eliminate or minimize the no-value added steps.
No-value added steps

• Radiologists wait time to enter the biopsy room was the most significant no-value added step.

• Root cause analysis showed that our procedure scheduling, which had overlapping appointment times, was not allowing for a smooth transition between procedures.

• We re-organized our schedule to stagger our procedure times.
Impact of staggering our procedures

• We have noticed a decrease in radiologist wait times to enter the procedure room.
• We are currently collecting data to study the impact.
• This strategy has allowed us to create an additional biopsy slot each afternoon.
Conclusions

• TDABC allows for objective cost calculations over a care cycle.

• It identifies costly steps that add no value.

• It can help radiology practices improve efficiency and minimize waste in this era of evolving reimbursement models.
References


- Kaplan, Robert S. "Improving Value with TDABC." hfm (Healthcare Financial Management) 68, no. 6 (June 2014): 76–83.


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