



The Capital Process: Demystified for HTM Professionals

Scott Skinner, PhD, MBA, FACHE, CHTM

November 16, 2024

Thank you for being here!

Objectives

- After attending this session, participants will be able to understand
 - The difference between capital and operating budgets
 - How the capital process works in general
 - How to potentially get more engaged with capital processes at their organizations

Abstract

- Does the capital process seem like a mystery? Are you struggling to get more involved with evaluating and selecting medical equipment? This session will introduce the basics of capital finance to HTM professionals. The session will cover the basics of capital budgeting, funding, and tracking processes. Research will be presented on ways in which HTM professionals can gain more involvement in capital processes.

Disclaimer

- This session should not be construed as accounting advice or guidance.

Speaker Biography

Scott Skinner, PhD, MBA, FACHE, CHTM

- 25+ years in HTM
- MBA in Healthcare Administration
- PhD in Health Management and Policy (health technology assessment)
- Board-certified by the American College of Healthcare Executives
- AAMI certified
- Experience
 - Agiliti f/k/a UHS (6 years)
 - Norton Healthcare (16 years)
 - Sodexo (3 years)

This is not hard stuff!

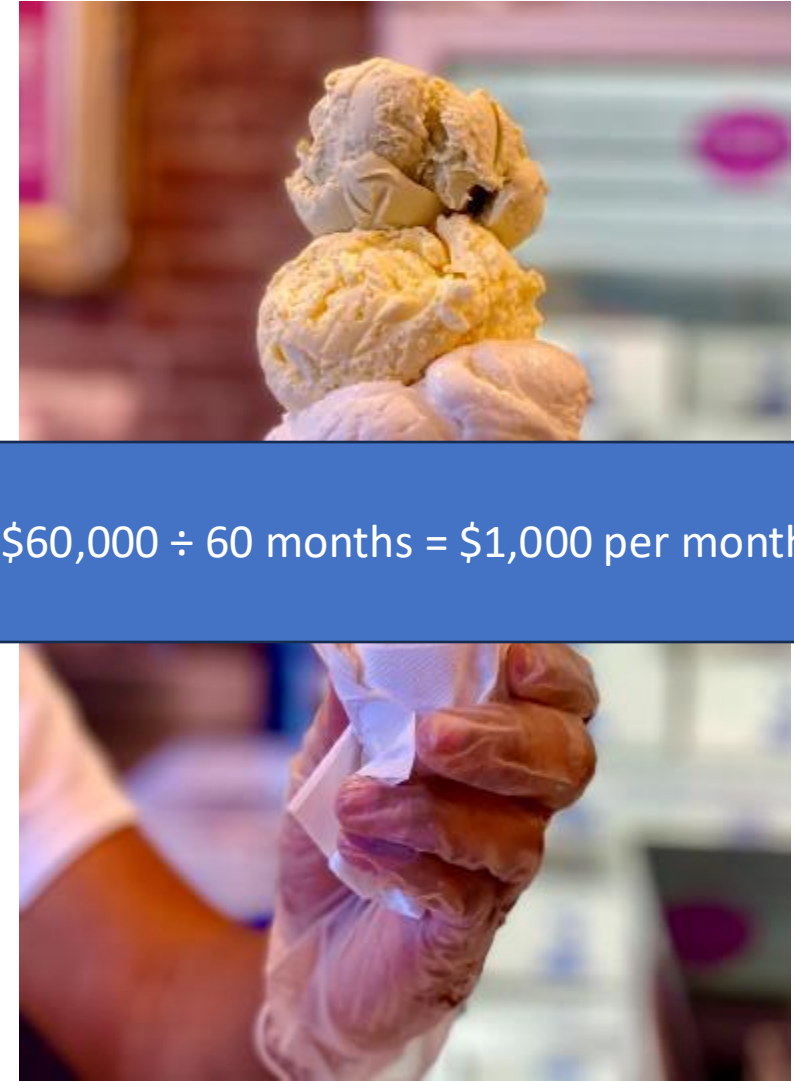
- Basic principles
- Complex political and timing considerations
- Constantly changing context and scarcity of resources

Part 1: Capital Basics

What's the difference between operating and capital budgets?

An example

- Scott's ice cream shop
- Ice cream machine \$60,000
- First month
 - Sales \$5,000
 - Milk, sugar, eggs, cones \$4,000
 - Profit \$1,000
 - Depreciation (5 years) = \$1,000
 - Actual profit = \$0

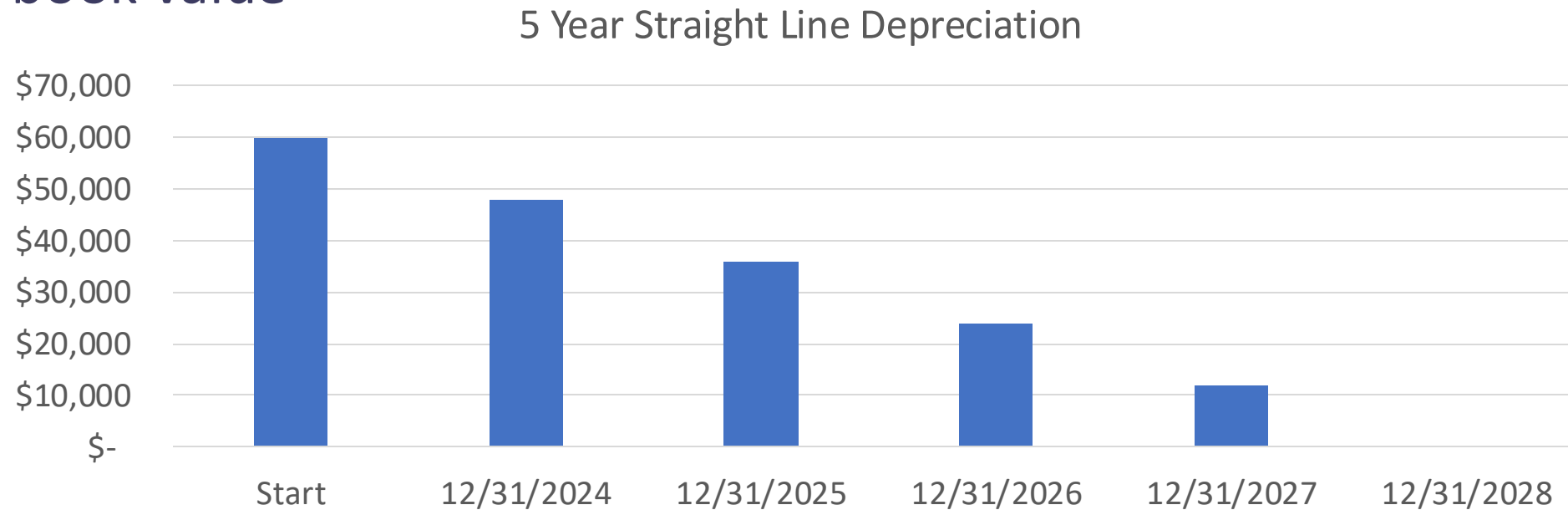


$\$60,000 \div 60 \text{ months} = \$1,000 \text{ per month}$

How is depreciation structured?

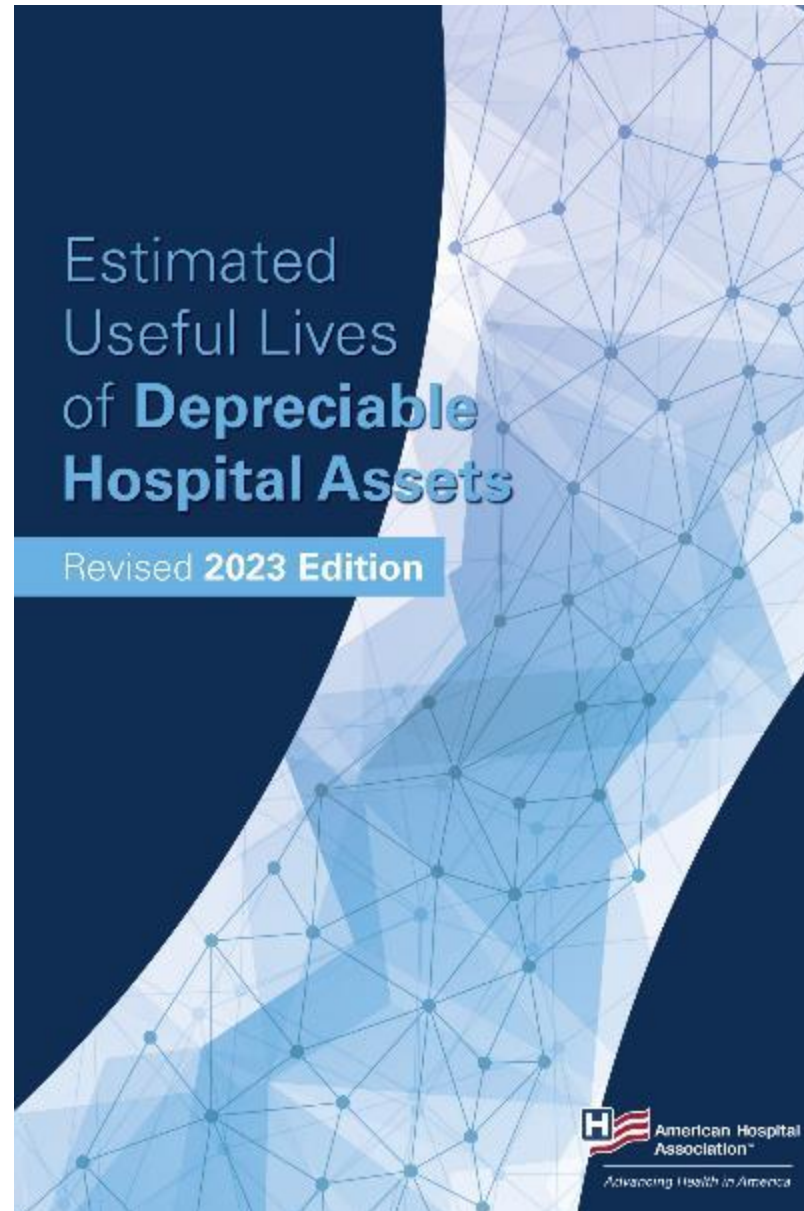
An example

- Concept of depreciation
- Long-lived property, plant, and equipment
- Net book value



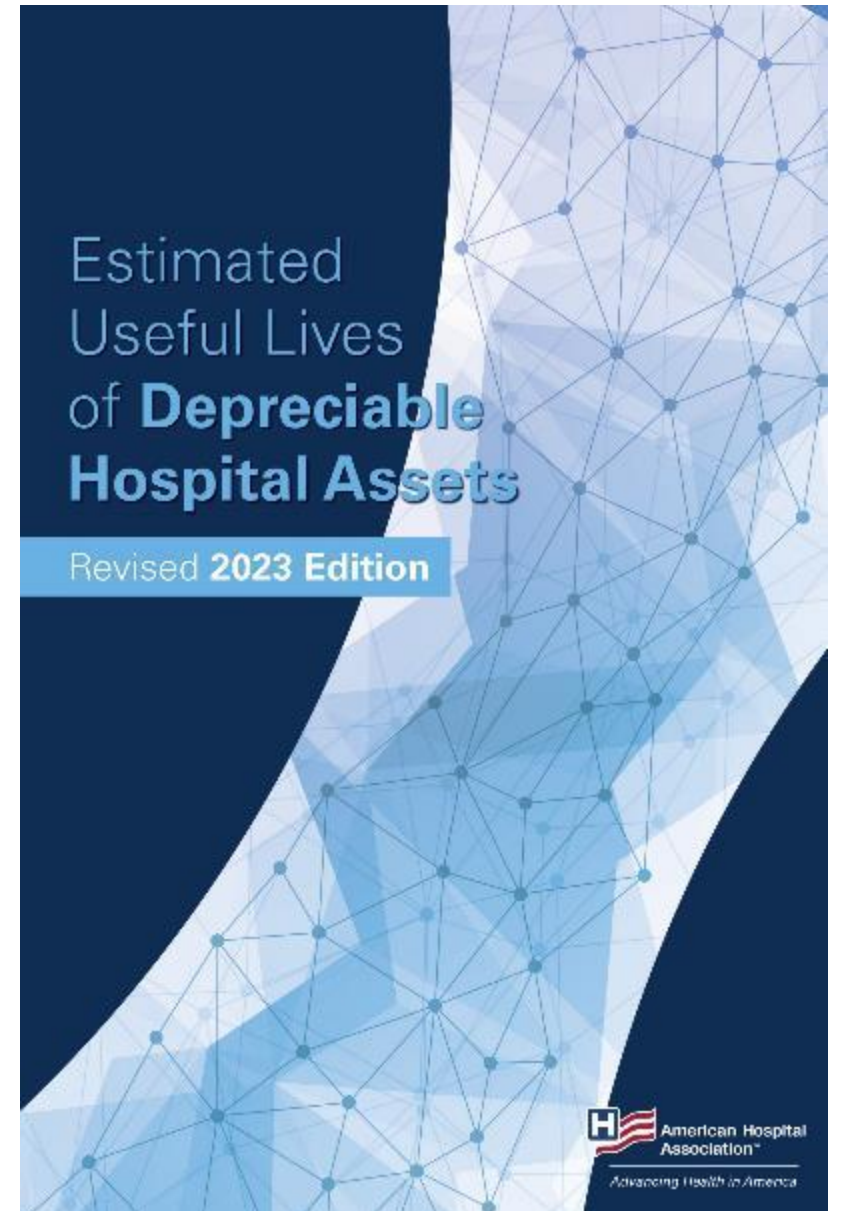
How is depreciation typically scheduled to occur?

AHA Useful Life Book



AHA Useful Life Book

“The assigned lives presented in this publication have been determined by the consensus of experienced representatives from leading appraisal companies and respected hospitals and health care systems who are familiar with the most common types of capital purchases for the hospital and health system setting.”

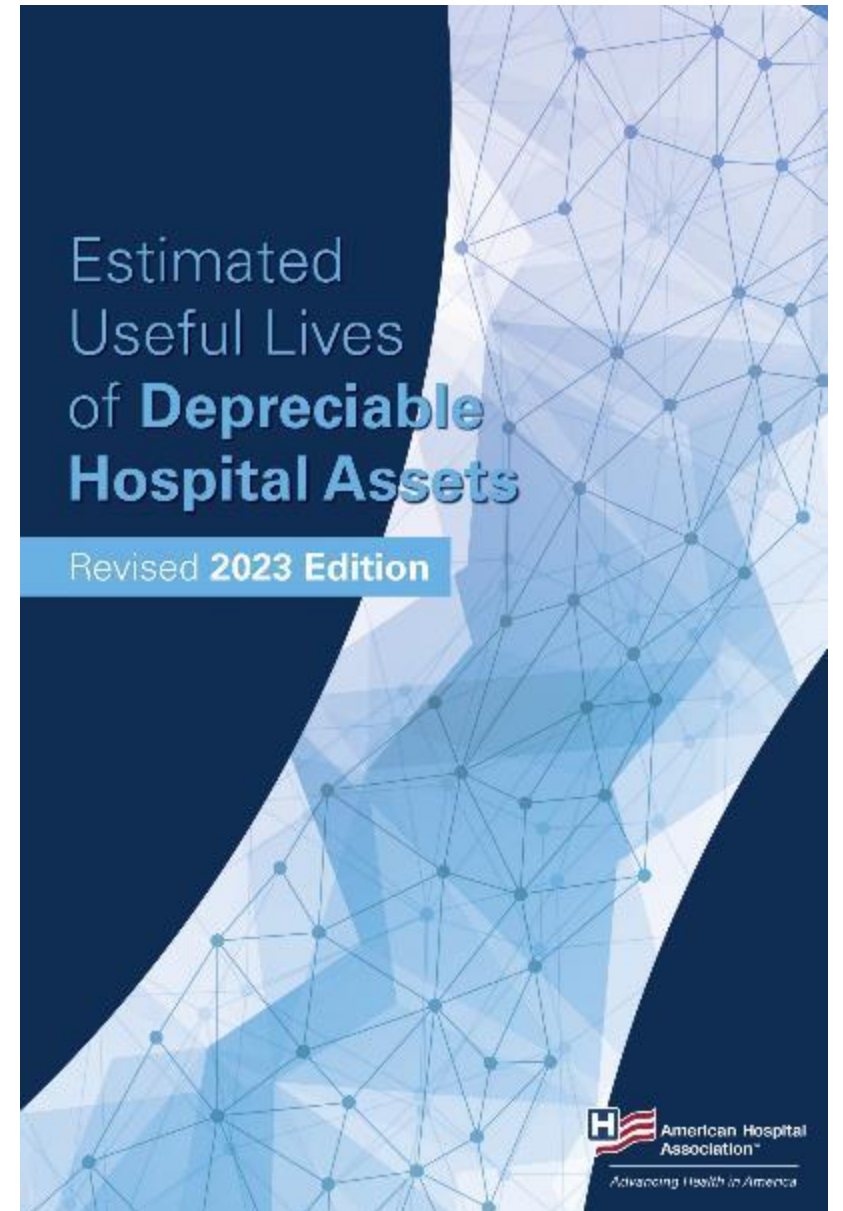


AHA Useful Life Book

EXAMPLE LIVES

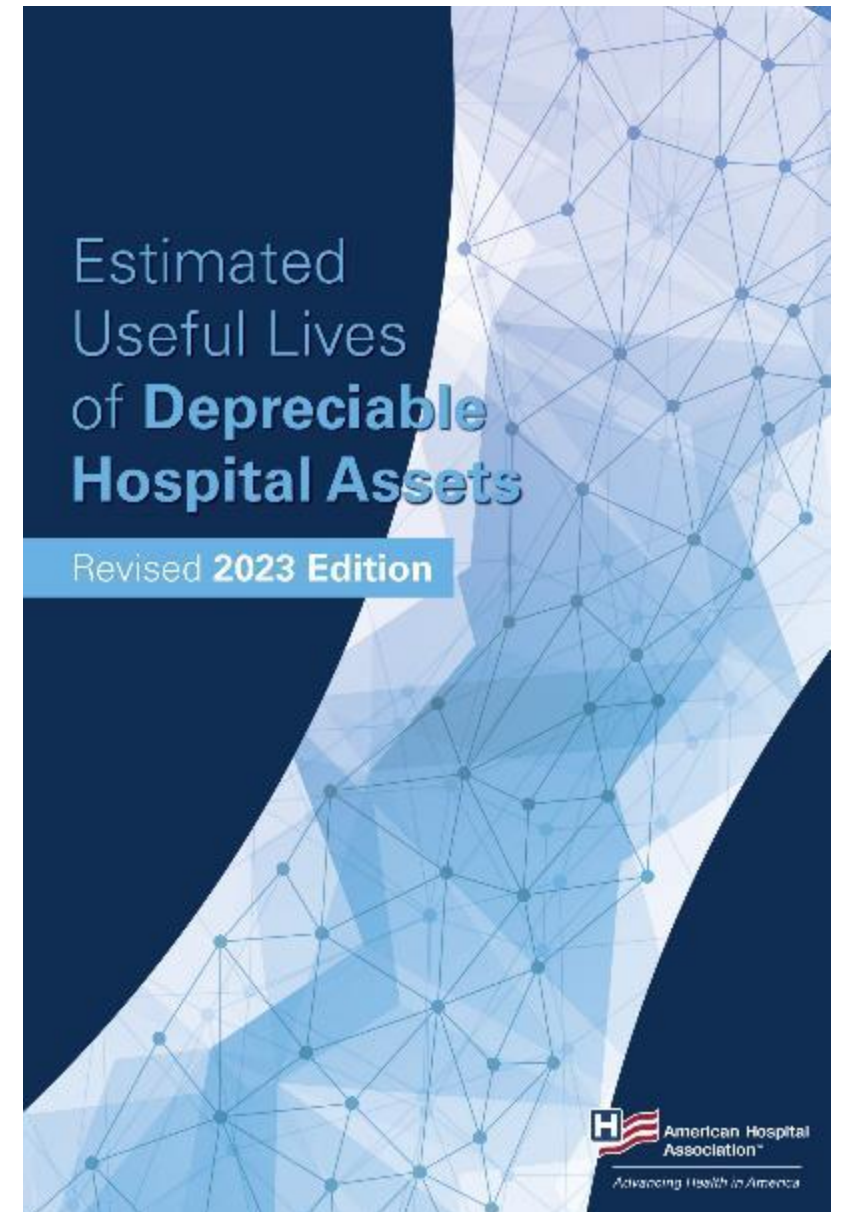
- CT scanner, 256 slice = 5 years
- MRI, 3T = 5 years
- Pump, infusion = 10 years
- Autoclave = 10 years
- LINAC = 7 years
- Cart washer, walk-in = 15 years
- Sterilizer, built-in = 15 years
- Sterilizer, portable = 12 years

What has your experience been?



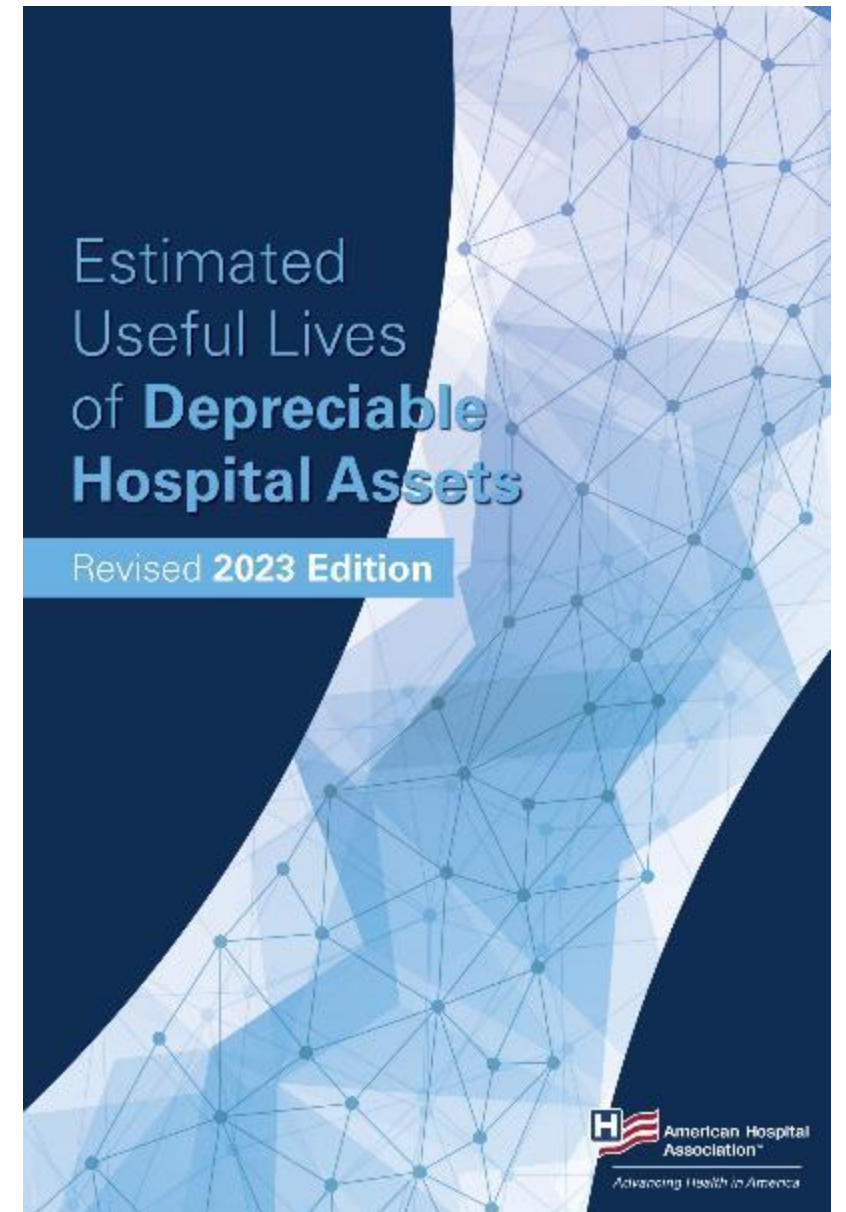
AHA Useful Life Book

Who comes up with these lives?



AHA Useful Life Book

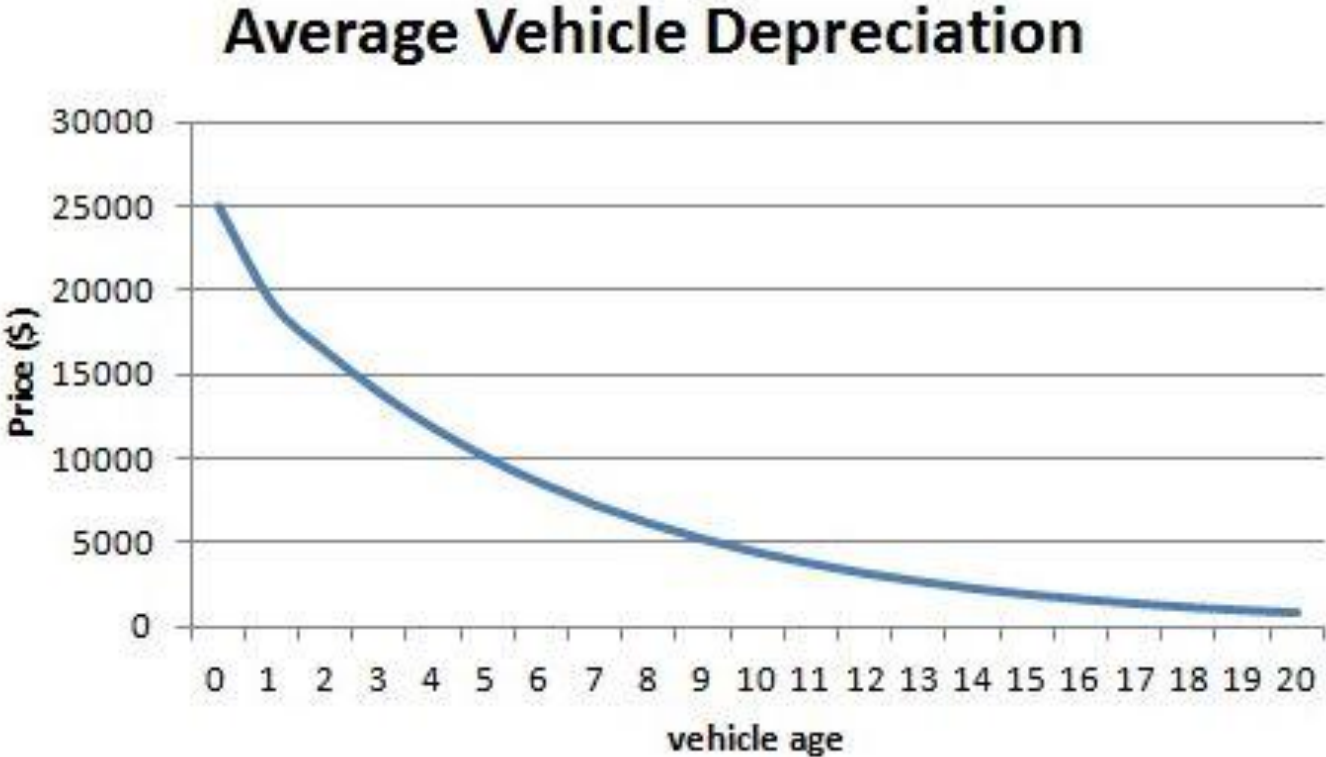
So why do we use this book?



What's the difference between fair market value and net book value?

Depreciation curves

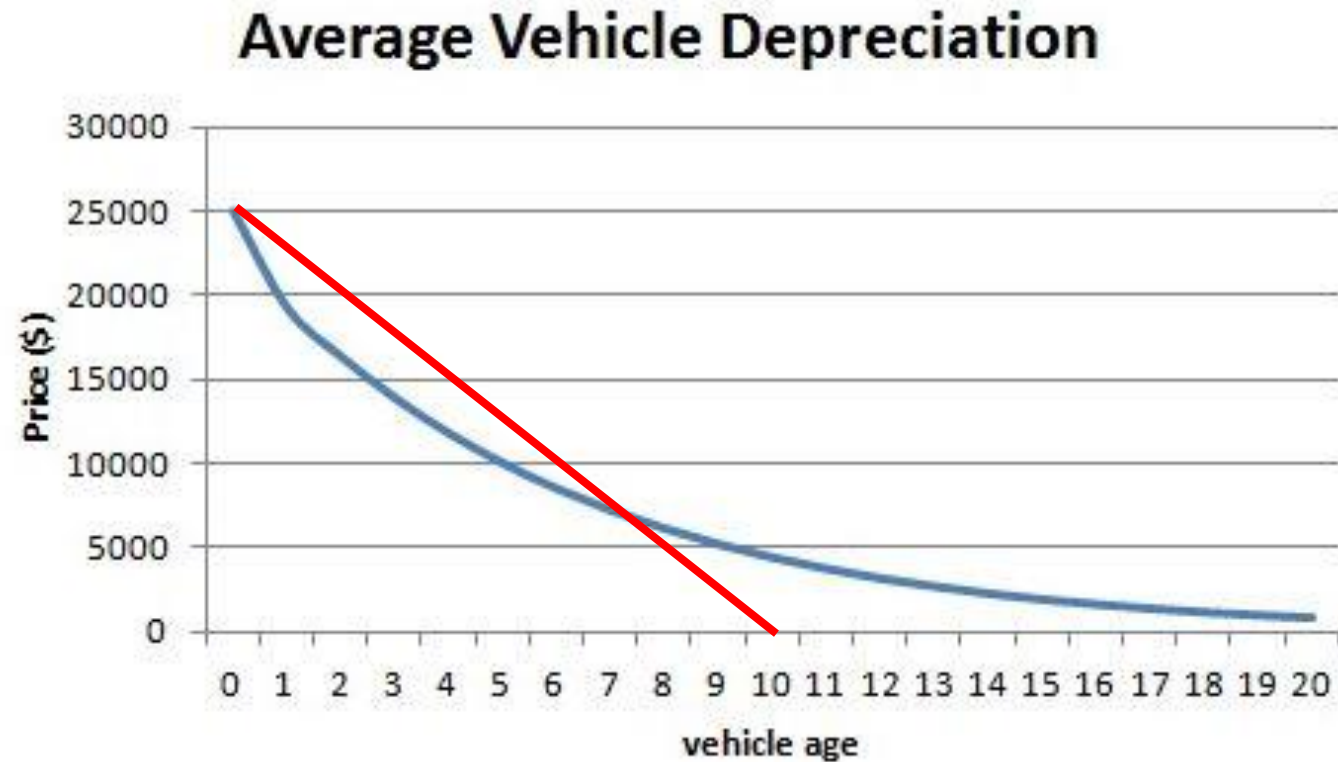
- How do things work in real life?



Source: <https://retireby40.org/dont-pay-depreciation/>

Depreciation curves

- Fair market value vs. **net book value**



What happens when capital assets are disposed of?

Scenario 1

LINAC used for 7 years then service line moved elsewhere

Original cost	\$1,500,000
Accumulated depreciation	\$1,500,000
Net book value	\$0
Scrap metal	\$25,000 (one time gain)

Scenario 2

LINAC used for 1 year then service line moved elsewhere

Original cost	\$1,500,000
Accumulated depreciation	\$214,286
Net book value	\$1,285,714
Scrap metal	\$25,000
Net loss	\$1,260,714 (one time loss)

Scenario 3

iMRI used for 2 years then surgeon is recruited to competitor

Original cost	\$1,500,000
Accumulated depreciation	\$600,000
Net book value	\$900,000
Sell iMRI to competitor	\$500,000
Net loss	\$400,000 (one time loss)

Scenario 4

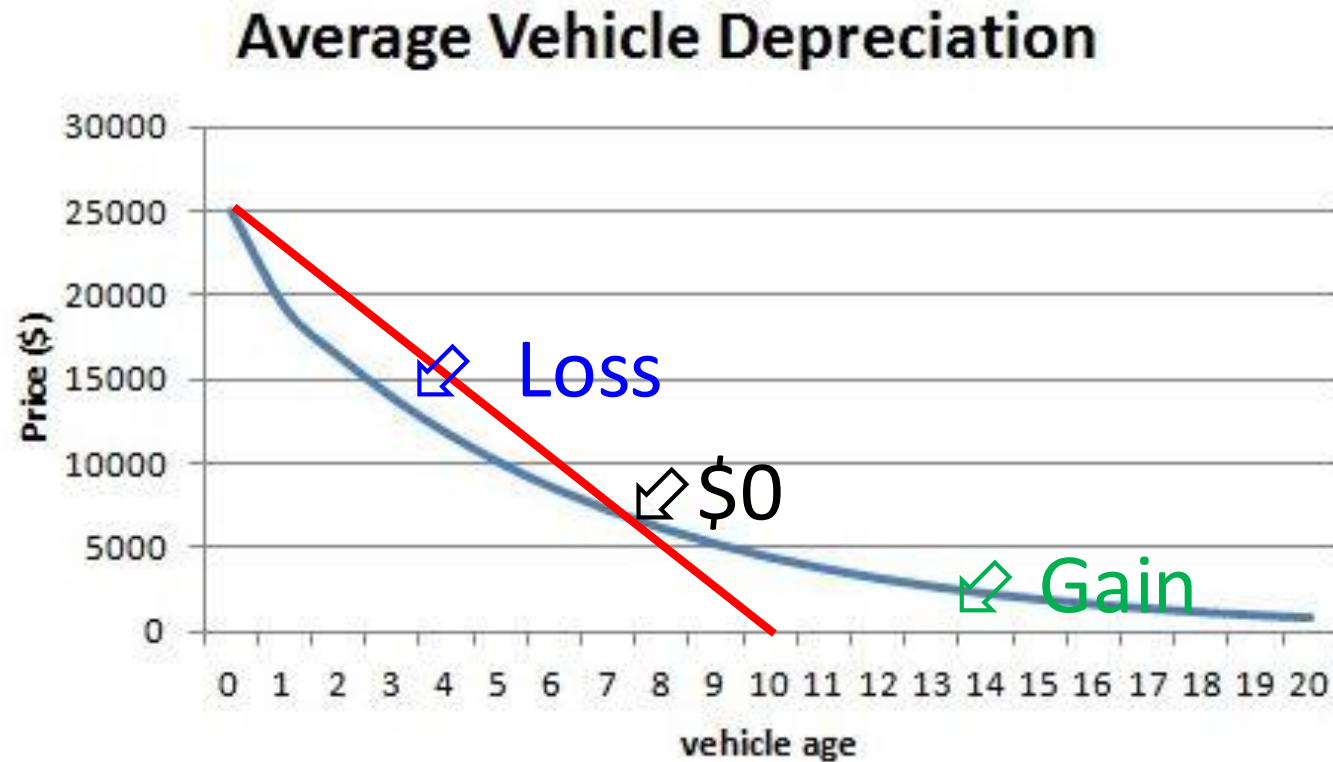
Anesthesia machine used for 10 years and then donated to mission hospital in Ghana

Original cost	\$75,000
Accumulated depreciation	\$75,000
Net book value	\$0
Value of donation	???

- Many private hospitals are 501(c)(3) non-profit charitable organizations and don't pay taxes
- That said, those hospitals might track “community benefit” or other goodwill

Let's go back to our vehicle example

- Fair market value vs. **net book value**



What are the ways capital is raised?

Ways of raising capital

- a. Traditional
 - i. Debt
 - 1. Loans, bonds
 - 2. Credit rating impact
 - ii. Equity
 - 1. For-profit
 - a. Stock
 - 2. Non-profit
 - a. Contributions/grants
 - b. Retained earnings
- b. Alternative
 - i. Leases
 - 1. Operating
 - 2. Capital

NOTE: lease accounting rules changed in 2022

- ASC 842
- Now many leases that could previously be treated as operating leases must now be capitalized
- All leases with a term longer than 12 months must be capitalized
- Negates much of the point of leasing as there are now balance sheet implications

Why is the capital process “noisy?”

Capital process “noise”

- Attempt to balance routine replacement/infrastructure with strategic/growth
- There’s never enough money!
- Lack of financial ROI (safety and quality)
- Need to satisfy stakeholders (e.g., patients, physicians, etc.)
- Regulatory requirements
- The winds of capital funding can change rapidly
 - Days cash on hand
 - Operating margin
 - Donations
 - One-time events
 - Financial rating

What can we do as HTM professionals?

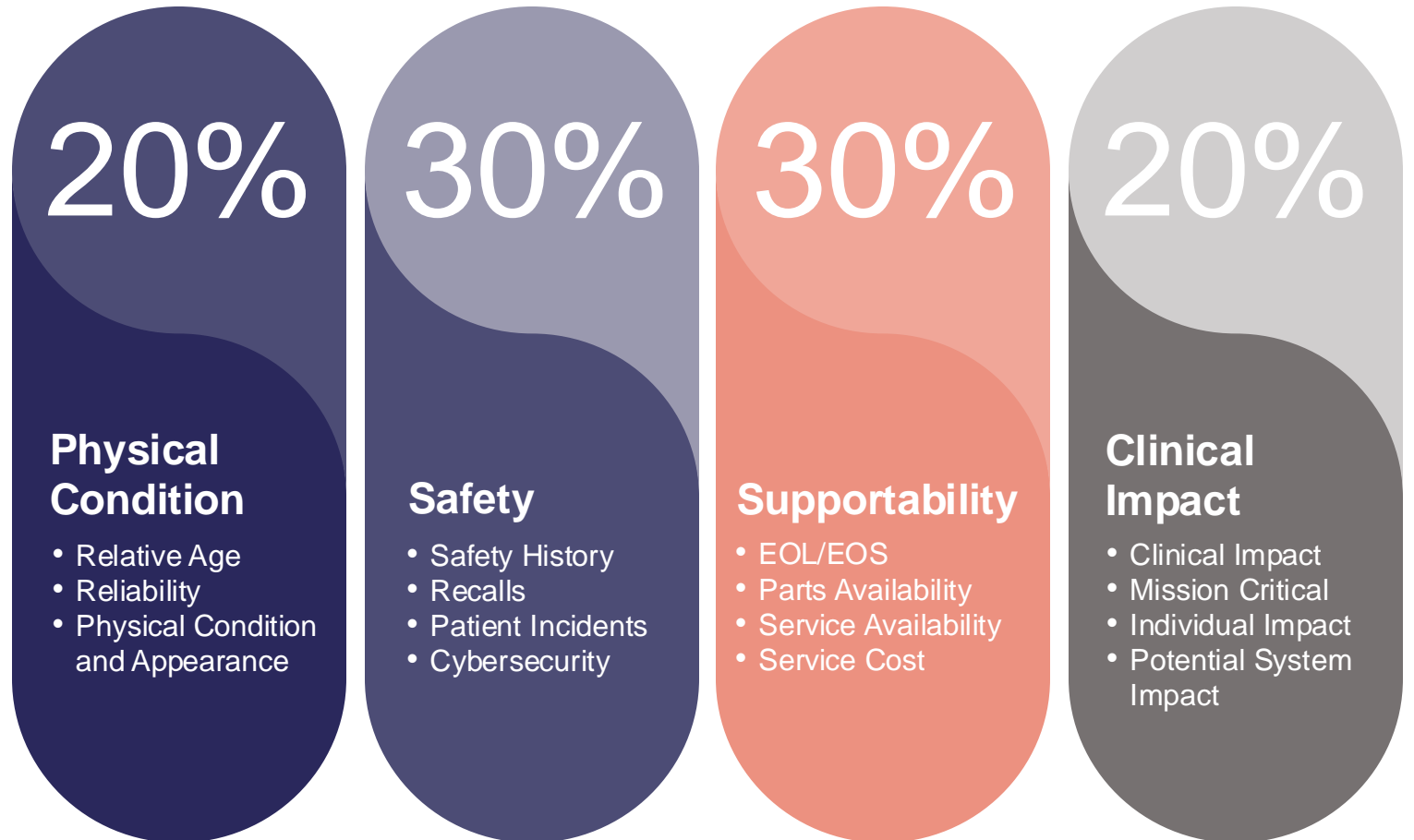
What can HTM do?

- Be the voice of reason with objective information
- Develop weighted criteria for replacement prioritization
- Analyze your inventory using this methodology
- Present your findings again, and again, to the right people
- Update your findings when things change
- Think about the process as an exercise in risk assessment

Capital Planning

Bias-free Decision Making

Sodexo's capital equipment plan system helps identify needs versus wants across your entire organization at various operational levels, while removing internal politics from the decision-making process.



Part 2: Increasing Your Involvement with Capital Processes

New research into HTM's involvement with capital processes!

- Completed in 2023

How was this research conducted?

- Dissertation
- Compliance
 - University of Louisville IRB
- Confidentiality



Where was this research published?

Reference: Skinner, S. (2024). Health Technology Assessment in U.S. Hospitals: A Qualitative Study. *Biomedical Instrumentation & Technology*, 58(4), 67-71.



RESEARCH

Health Technology Assessment in U.S. Hospitals: A Qualitative Study

Scott Skinner

Abstract
Objective: The processes of evaluating and selecting health technologies in hospitals have been extensively explored. However, few studies have been specific to U.S. hospitals, and none has approached the subject from the perspective of clinical engineering (CE)/healthcare technology management (HTM) professionals. This study specifically explored the intraorganizational phenomenon of how electronic medical equipment (EME) is evaluated and selected in U.S. hospitals from the perspective of CE/HTM professionals.
Methods: The study was qualitative, incorporating semistructured interviews conducted with 10 CE/HTM professionals. Interviews were carried out via Internet conferencing and recorded. The recordings were transcribed and the transcripts analyzed using the constant comparative method and grounded theory.
Results: Participants were able to describe details of the intraorganizational processes used to evaluate and select EME within their hospitals. Themes that emerged included coronavirus disease 2019 impact, growing influence over time, multidisciplinary committees, negative outcomes, organizational factors, and process definition/exceptions.
Conclusion: This study found a variety of recurring themes associated with the evaluation and selection processes for EME from the perspective of CE/HTM professionals in U.S. hospitals. Participants had varying degrees of power and influence with the processes. The themes may inform CE/HTM professionals seeking to grow their involvement with such processes.

Health technology assessment (HTA) might seem like a generic and unfamiliar concept. Perhaps the most recent formal definition of HTA is "a multidisciplinary process that uses explicit methods to determine the value of a health technology at different points in its lifecycle."¹ HTA may be used to evaluate various technologies, including medications, procedures, and devices, with a goal of informing decision making.¹ HTA sometimes is used to answer questions relative to competing and emerging technologies (e.g., Would a particular cardiac condition be better treated through a new medication or a traditional surgical intervention? Are outcomes better when performing a surgery with or without robotic assistance?) In addition to informing broader decisions, HTA can be used within organizations such as hospitals.² Various models for how to conduct HTA in hospitals have been put forward.³

In hospitals, many if not most of the electronic medical equipment (EME) types managed by clinical engineering (CE)/healthcare technology management (HTM) professionals represent well-accepted standards of care. For example, infusion pumps are widely used in hospitals. In the case of this well-accepted EME, the question becomes what exact make(s) and model(s) of infusion pump should be acquired? HTA methods can help with the EME evaluation and selection process. Involvement in these processes may be of particular interest to CE/HTM professionals, given their role in postacquisition service and support, as well as their desire to influence the procurement of EME that is safe, effective, and reliable.

Methods
This study was qualitative and phenomenological in that it sought to characterize the experiences of participants. Ten participants were recruited through informal networking by the author and a volunteer, with each person self-identifying that (1) their primary function was CE/HTM professional duties and (2) they were involved in the evaluation and selection of EME. The demographics included both women (20%) and men (80%)

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Biomedical Instrumentation & Technology 2024

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What were the methods?

- 10 participants
- HTM leaders
- 1 hour interviews

What were the results?

- Universal ability to describe their organization's processes in detail
- Major themes emerged

What were the results?

- Theme 1: COVID-19 Impact
 - Affected processes
 - Buying higher levels of equipment
 - Virtual vendor sales presentations
 - Supply chain issues
 - Response to external environment

What were the results?

- Theme 2: Growing influence over time
 - Four participants described
 - Often starting with smaller projects
 - Build trust and confidence over time
 - Interpersonal aspects

What were the results?

- Theme 3: Multi-disciplinary committees
 - 5 out of 10 described committee structures comprised of persons from varying disciplines (e.g., CE/HTM, finance, information technology [IT], nursing, physicians, supply chain/purchasing)
 - “...at the end of the day, the decision may not be what Clinical Engineering says we want, but we gave you the information, then the system (organization) made a decision, and now my job is to support it....”
 - Physician involvement
 - HTM not always involved proactively (last minute)
 - Nuances of corporate control vs. facility-level decision-making

What were the results?

- Theme 4: negative outcomes
 - 6 out of 10 described negative outcomes within the context of capital processes
 - Pulse oximetry decision
 - \$1.6M surgical robot
 - Imaging vendor standardization that went awry
 - Analysis of stretchers based on incorrect information
 - Pulse oximeters that “showed up” which didn’t meet the hospital standard
 - Ventilator purchase that didn’t consider future upgradeability

What were the results?

- Theme 5: process definition/exceptions
 - Four participants described how their organization had made an effort to define evaluation and selection processes and memorialize them into a policy and/or checklist
 - “...I’m not too worried when we have to make an exception.... It could be something we have to buy to recruit a top-notch surgeon, and it's not our standard, but ‘okay, we just got to do this.’”
 - Described where technology variables influenced the process (manufacturer support was no longer available for a certain EME, sooner than expected)

How can we use this in practice?

- Capital acquisition is an administrative process that is occurring in complex social settings where interactions and exchanges with individuals and groups are occurring
- “In all honesty, I think this job is completely not technical. I mean there’s technical aspects, don’t get me wrong. To succeed at this job, I don’t think you need to be technical. I think you need to be more political and socially adept than anything else.”
- Those who are wishing to gain more involvement may wish to consider several tactics

How can we use this in practice?

- Some factors are not controllable at the individual level

How can we use this in practice?

- How much resources hospitals commit to capital processes is probably a key internal policy decision
- Medical equipment represents a very significant investment of resources, and sometimes the outcomes from it are unexpected and/or negative
- HTM practitioners occupy a unique place in the crossroads of medical equipment and how it is evaluated, selected, used, and managed throughout its lifecycle in hospital organizations

How can we use this in practice?

- Some HTM professionals are deeply involved with capital processes which may be helping to improve medical equipment selection based on safety, effectiveness, cost, and other factors
- It was recently posited that expanded use of more rigorous processes to evaluate and select health technologies in the U.S. could address some of the \$1 trillion of non-value added healthcare spending (Padula, Reid, & McQueen, 2023)

Sounds great, but...?

- Time
- Human capital
- Risk-based approach
- Strategy and vision
- Start small
 - Snowball effect
 - Negatives into positives



What about medical equipment at the end of its lifecycle?

- Options exist
- What may seem outdated could have a second life
- Vetting recipients is crucial
- Demetrius Wingate – Director of Operations at SOS



MISSION: *Improve global health and the environment through recovery and redistribution of surplus medical supplies.*

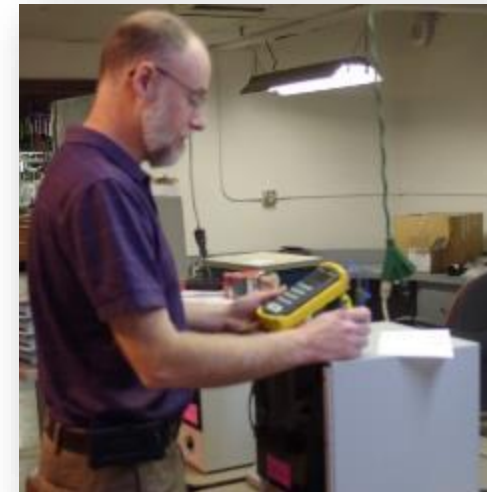
VISION: *To deliver a world of health and hope.*

NATIONALLY ACCREDITED: *One of only seven organizations in the United States awarded accreditation for best practices and adherence to the Medical Surplus Alliance Code of Conduct and World Health Organization Guidelines*

SOS processes your hospital's donations for responsible redistribution



- Pick up of donated items
- Sorting of supplies – expiration check
- Packing and palletizing
- Testing of equipment by biomedical engineer



INTERNATIONAL PROGRAM

Highlights from Ghana



MEPE HEALTH CENTRE

This is a brand new facility serving a region that lacked accessible health care. Part of the Battor Network which serves 36,834 individuals in 73 communities.



Fully operational as of August, they are seeing over 60 pregnant women per month and delivering 2 babies a week. They will begin counting the number of referrals to regional hospital for more complex delivery cases.





This ultrasound donated saved the life of an infant the day before SOS' visit. Mom was overdue and this diagnostic tool showed leaking amniotic fluid leading to induced labor and a healthy mom and baby.

The Catholic Battor Hospital received an infant incubator which serves on average 2 infants per week with babies often sharing the incubator



And this is a happy mom holding her baby whose life was saved by the incubator!



LOCAL HEALTH PROGRAM

- **Education:** supplies used to deliver experiential learning at job skills training programs, universities, and high schools
- **Healthcare:** supplies and equipment to clinics serving the under- and un-insured
- **Social services:** personal hygiene items to shelters
- **Animal welfare:** expired and short dated supplies



Last year SOS
donations saved local
and regional
organizations

**OVER
\$2,400,000**



Franciscan Kitchen



Eastern Kentucky
Flooding



Campbellsville
University Fire &
Rescue





New hospital in Dominican Republic



Child mobility support Peru



New hospital in Sierra Leone

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Thank you!

- Thank you for attending
- Questions
- I can be reached via email at Scott.Skinner@sodexo.com
- Connect with me on LinkedIn at <https://www.linkedin.com/in/smskinner/>