How the Standardization of Capital Imaging Equipment Can Save Both Capital and Operation Costs, While Improving Safety and Efficiencies

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Objectives of This Presentation

By attending this presentation, the learner will be able to define in detail the various steps required to standardize any capital equipment purchases across a large enterprise environment, thereby optimizing available capital funds and improving operational efficiencies.

By attending this presentation, the learner will be able to utilize the TCO (total cost of ownership) to help in the decision making when purchasing capital equipment with a result in stretching available capital funds and cost saving with operational efficiencies.

By attending this presentation, the learner will be better equipped to select the ideal vendor(s) to meet both the clinical service line needs and capital needs of all stakeholders, while standardizing equipment to improve operational efficiencies.

By attending this presentation, the learner will be better able to identify key stakeholders in the organization that will benefit from standardization including IT, Design and Construction, and Clinical Engineering

Speaker Biography & Contact Information

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Mr. Schlessinger has BS and MBA degrees in Health Care Administration and is board certified in healthcare management by the American College of Healthcare Executives.

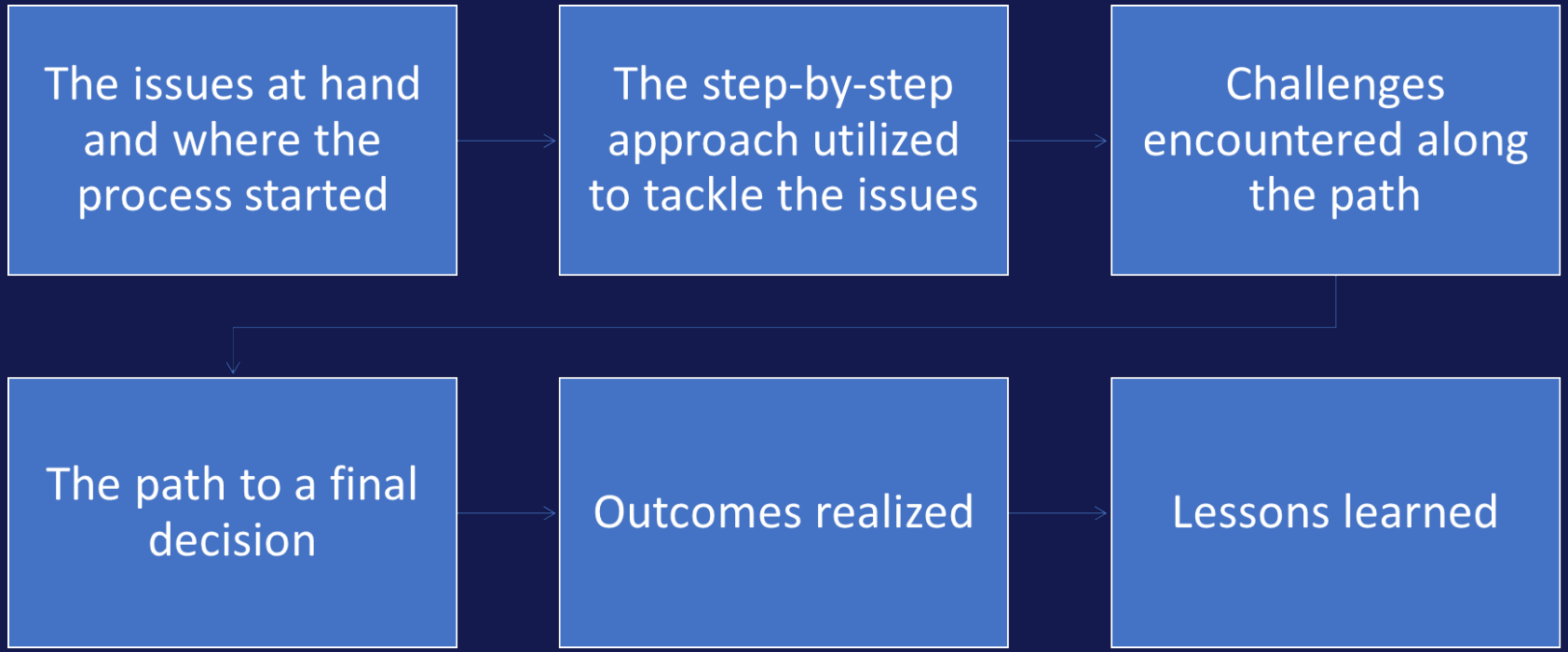
Mr. Schlessinger has held leadership positions in health care organizations in the Philadelphia area overseeing ancillary services including Respiratory Care, Invasive and Non-Invasie Cardiology, Neurology, Physical Medicine, Imaging, Wellness, and Pharmacy.

In his current role at ECRI, Mr. Schlessinger is the Principal Associate in the Device Safety/Accident and Forensics group, providing consulting services and assistance to hospitals and other healthcare institutions in matters concerning patient safety, alarm management, device integration, technology, strategic planning, operations, and capital planning.

Disclaimer

- In the following presentation multiple vendors will be named
- The choice to engage and/or contract with a particular vendor was the decision of an individual client and in no way the opinion of my employer or myself
- Any vendor names, trademarks, and product references included in this presentation are used solely for illustrative and informational purposes. All trademarks and brand names are the property of their respective owners.
- Reference to specific vendors does not constitute endorsement, recommendation, or preference, nor does omission imply disapproval.

Agenda


The issues at hand and where the process started
The step-by-step approach utilized to tackle the issues
Challenges encountered along the path
The path to a final decision
Outcomes realized
Lessons learned

Overview

- Standardizing major device categories to a single vendor per modality (with carveouts) has the potential to save considerable funds for the following reasons:
  - Decrease actual purchase costs due to strength of negotiating power
  - Decrease operating costs due to decreased training requirements of both the clinical staff and HTM
  - Reduced parts inventory
  - Service contract costs by negotiating a Master Service Agreement
  - Simplification and standardization of IT interfaces
  - Simplification and standardization for Design and Construction in building construction, renovation, and replacement devices
  - Reduction in administrative time and costs related to contract negotiations
  - Stronger supplier relationships and coordination for equipment replacement planning
  - Improves patient safety

Project Steps

Introductory call with imaging directors and engagement of key stakeholders	Education program by ECRI SME	Initial vendor call	Development of base configurations
Hospital site visits to confirm inventory and learn strategic needs	Analysis of utilization data	Predictive Replacement Plan (PRP) development	PRP report out

Project Steps (continued)

RFP development	RFP distribution	RFP call with vendors	RFP initial review and weighing
Review RFP findings with imaging directors, weights adjusted	Decision Making Visualization Tool development	Final vendor selection	Final presentation to imaging directors

Analysis of Current Inventory is Essential

- An accurate inventory of your major imaging device is essential
- A 10-year replacement plan should be developed
- Criteria should include:
  - Age of device
  - Service history/COSR
  - End of life?
  - Usage from RIS or other means
  - Meeting clinical needs?
  - Impact if failed unexpectedly

Case Scenario # 1

- Mid-Atlantic Region
- 14 hospitals including 2 academic medical centers
  - 4 large ambulatory care centers
  - 12 smaller imaging only centers
  - Total bed count over 6,000 beds
- **Capital savings over 10 years was >$20M**

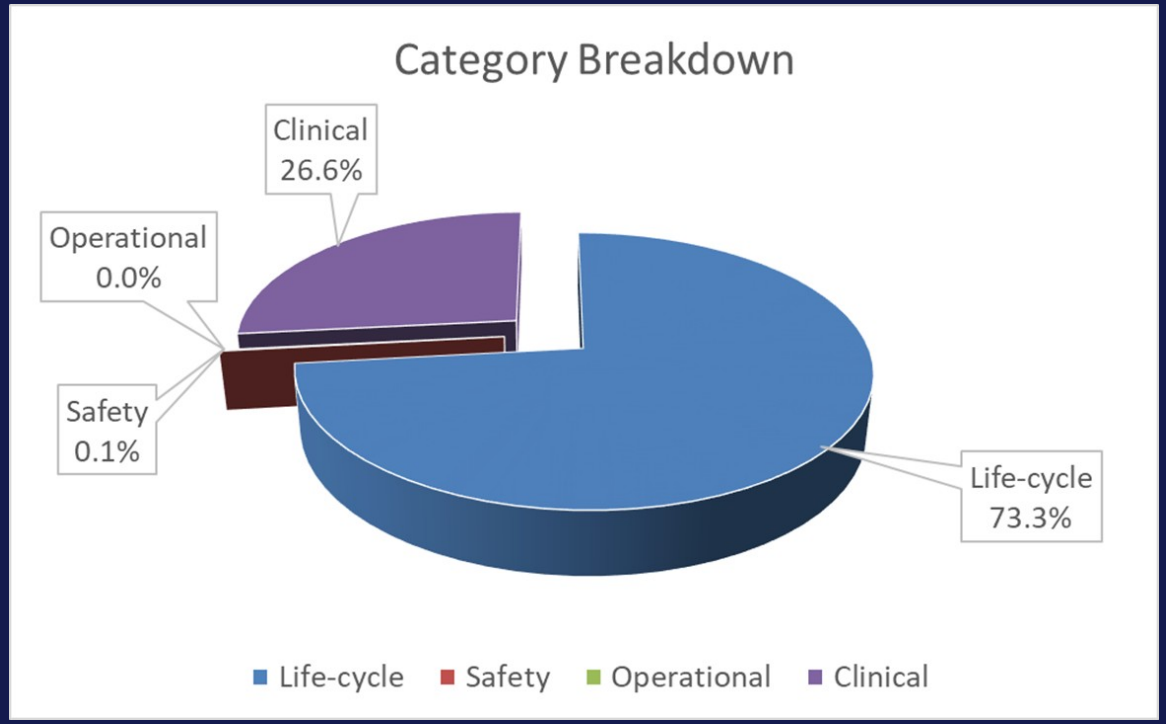
Client Background

- 14 different imaging directors represented
- 7 different radiography groups represented
- 767 capital imaging assets
- 14 modalities represented (POCUS carved out)
- 17 vendors represented in current inventory
- 298 unique models represented in current inventory

Project Goals

- Increase negotiating power and drive concessions from suppliers
- Promote standardization, lower capital funding requirements via greater price discounts, and improve total cost of ownership
- Develop a 10-year capital replacement plan for imaging
- Align replacement strategy to strategic and operational goals
- Capital budgeting made easier as replacement costs over the next 10 years were known

Rationale for Replacement



Decision on How Vendors were Invited to Participate

- Reviewed current installed base by modality and vendor
- Reviewed market share by modality and vendor using ECRI data
- Reviewed ECRI's rating by vendor and model
- Director's recommendations from previous employment

Develop a Robust RFP

- T & C
- MWBE requirements
- Award basis
- Security assessment
- Vendor background
- Service specifications
- Architectural assessment
- Servers/IT infrastructure required
- Minimal technical requirements
- Pricing / TCO
- References
- Site visits

Advantages for Vendors

- 10-year contract with leapfrog clause
- Vendors could plan knowing exactly how many devices would be ordered and when
- Increased market share
- Prestigious client name for site visits

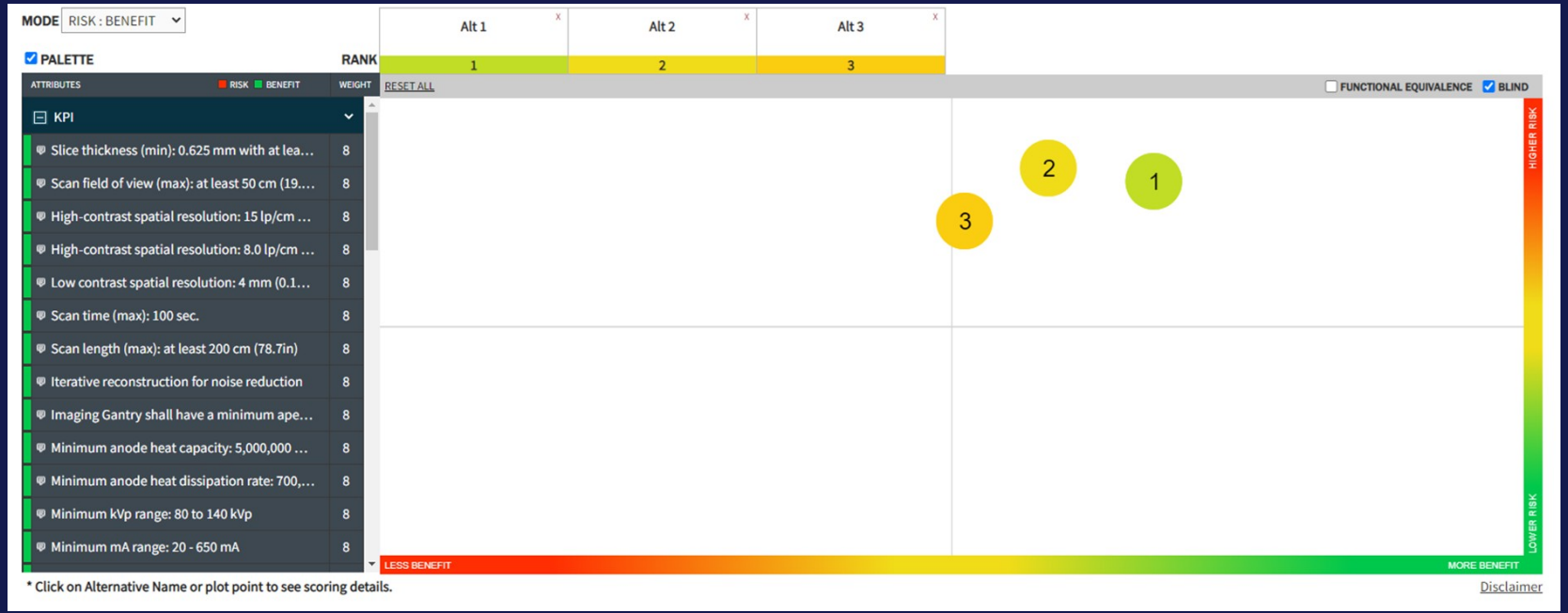
Vendors Invited to Participate

	CARESTREAM	FUJIFILM	GE	HOLOGIC	MINDRAY	PHILIPS	SHIMADZU	SIEMENS
ANGIOGRAPHY			X			X		X
CT			X			X		X
DEXA			X	X				
DIGITAL X-RAY	X		X			X		X
GAMMA CAMERAS			X			X		X
MAMO			X	X				
MR			X			X		X
PET/CT			X			X		X
PORTABLE C-ARM			X					X
PORTABLE X-RAY	X	X	X			X	X	
RAD/FLURO			X			X		X
ULTRASOUND			X		X	X		X

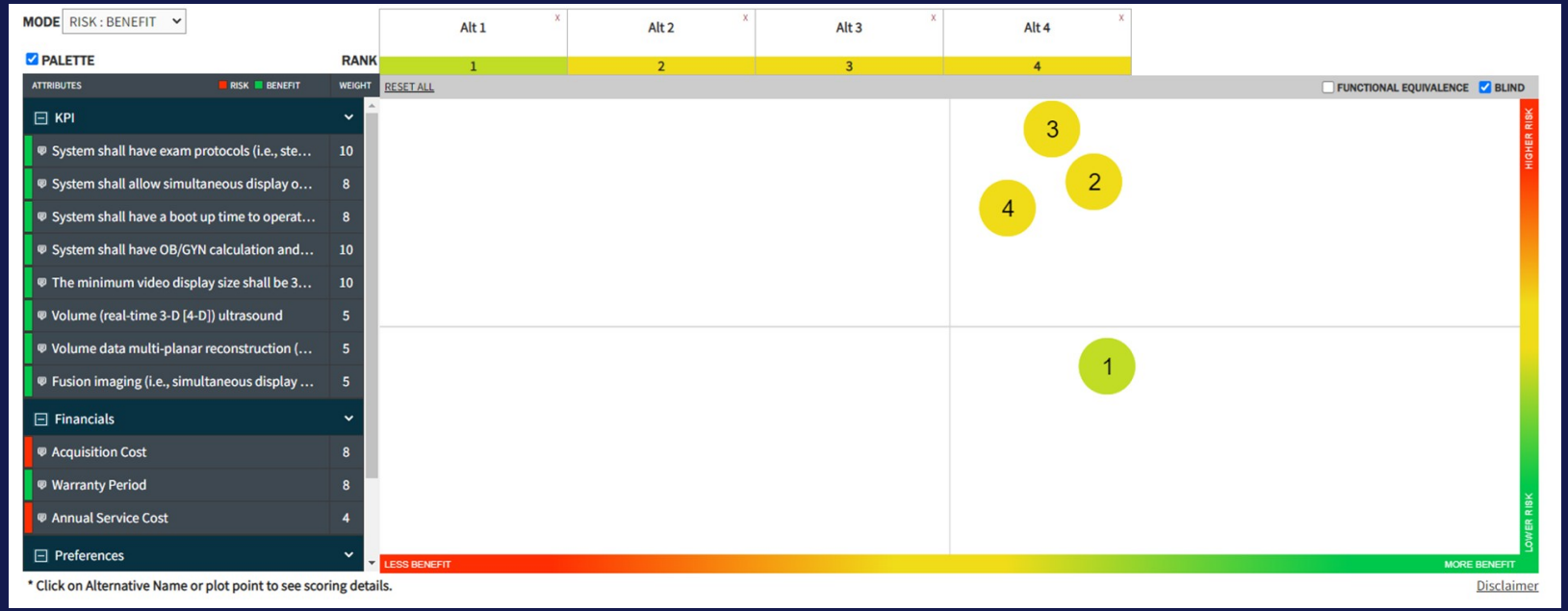
RFP Review and Analysis

- Once the RFP is returned, a SME reviews it thoroughly
- Responses are scored as “meets requirements”, “partially meets requirements” or “does not meet requirements”.
- This is reviewed by a second SME for QC purposes and then approved by the client
- Each response is weighted by the client along with ECRI’s input
- Key differentiators are marked for inclusion in the Visual Decision-Making Tool

Example - Decision Making Visualization Tool CT Scanner



Example - Decision Making Visualization Tool General Purpose Ultrasound



Imaging Director's Choices of Vendors

	CARESTREAM	FUJIFILM	GE	HOLOGIC	MINDRAY	PHILIPS	SHIMADZU	SIEMENS
ANGIOGRAPHY								
CT								
DEXA								
DIGITAL X-RAY								
GAMMA CAMERAS								
MAMO								
MR								
PET/CT								
PORTABLE C-ARM								
PORTABLE X-RAY								
RAD/FLURO								
ULTRASOUND								

Green = first choice of the majority of directors
Yellow = second choices(s)

Disclaimer – these choices were specific to this project and do not show any reflection regarding a particular vendor

Stakeholder Passion for a Vendor by Modality

- Very High Passion:
  - Ultrasound
  - Angiography
  - Mammography
- Moderate Passion
  - CT
  - MRI
- Low Passion
  - All remaining modalities

ECRI's Recommendations for Vendors

	CARESTREAM	FUJIFILM	GE	HOLOGIC	MINDRAY	PHILIPS	SHIMADZU	SIEMENS
ANGIOGRAPHY								
CT								
DEXA								
DIGITAL X-RAY								
GAMMA CAMERAS								
MAMO								
MR								
PET/CT								
PORTABLE C-ARM								
PORTABLE X-RAY								
RAD/FLURO								
ULTRASOUND								

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Breakdown of Capital Savings for this Project (2019)

Type of Device	Average Purchase Cost Before Standardization	Average Purchase Cost After Standardization	Anticpated Purchases Over 10 Years	Projected Savings Over 10 Years
Angiography	$1,158,909	$1,114,335	16	$713,184
CT	$584,858	$555,615	14	$409,402
DEXA	$46,880	$44,590	6	$13,740
Digital X-Ray	$166,523	$145,500	70	$1,471,610
Gamma Cameras	$283,445	$270,110	6	$80,010
Mammography	$446,729	$428,859	18	$321,660
MR	$1,467,800	$1,409,088	12	$704,544
PET/CT	$2,089,556	$2,047,765	2	$83,582
Portable C-Arm	$204,867	$192,575	28	$344,176
Portable X-Ray	$166,923	$158,576	33	$275,451
Rad/Fluro	$465,198	$451,242	2	$27,912
Ultrasound	$161,896	$109,896	300	$15,600,000
TOTAL				**$20,045,271**

Example Recommendations (2019) Ultrasound

- Mindray Resona 7
  - RFP score = 67%, Score for Philips was 57% , 51% for Siemens and 46% for Siemens
  - Cost – considerable savings over next lowest alternative
  - Warranty – Enhanced warranty as compared to alternatives
  - Clinical guarantee offered
  - Market share – GE 35%, Philips 21%, Siemens 16, Mindray 4%
  - Director preference = GE

  - Disclaimer – this recommendation was specific to this project and should not be viewed as a recommendation by ECRI

Example Recommendations (2019)
CT Scanner

- Siemens Somatom GO TOP
  - RFP score = 72%, Score for GE was 57% and 47% for Philips
  - Cost – considerable savings over next lowest alternative
  - Warranty – Enhanced warranty as compared to alternatives
  - Market share – Siemens 55%, GE 25%, Philips 18%
  - Director preference = Philips

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Project Breakdown by Phase

- Phase 1 – Imaging committee educational support – 40 hours
- Phase 2 – Replacement plan development – 240 hours
- Phase 3 – RFP development (18 separate RFPs) – 120 hours
- Phase 4 – Solicitation of proposal – 16 hours
- Phase 5 – RFP analysis – 164 hours
- Phase 6 - Supplier selection and final presentations – 24 hours

- **Total project hours = 604 hours over 7 months**

Financial Results

- Over $20M in capital savings over a 10-year period
- Approximately $2.2M in annual savings to HTM by:
  - Reduced service contract costs by bundling
  - Reduced parts inventory
  - Reduced outside schools for HTM staff
- Clinical staff training reduced by $700,000 yearly and allows clinical staff to rotate between campuses, thereby improving efficiencies

Project Results

- Over $20M in capital savings over a 10-year period
- Decreased from 17 vendors to 5 for capital imaging
- Standardized to a single vendor per modality
- Material shift in vendor alignment
- Simplified capital budgeting and acquisitions
- Decreased maintenance costs
- Enabled improved first looks capability through simplified portfolio
- Increased operational efficiencies
- Reduced administrative efforts

Lessons Learned from This Project

- The support of a very strong project sponsor at a senior level is critical to the success of the project
- Education was essential to have all department directors at the same level of knowledge
- Strong engagement of department directors is crucial. This varied widely and delayed the project to a small degree
- At a minimum, buy-in from the Radiology Chair is critical

Who Can Benefit From This Type of Project?

- Systems that have recently undergone a merger or acquisition
- Larger systems with a system director or VP overseeing department directors with large capital assets
- Any hospital with multiple vendors being represented with a single modality or department

Project Challenges

- Imaging directors, managers, and radiologists all had their pre-conceived preferences, which was usually the vendors currently installed at their facilities.
- Some vendors were not as responsive as we would have liked
- Final recommendation of a vendor outside the “big 3” for Ultrasound

Why Go Outside For This Type of Project?

- Internal political atmosphere
- Time constraints of existing staff
- Better data resources
- Independence
- Expertise

Case Scenario # 2

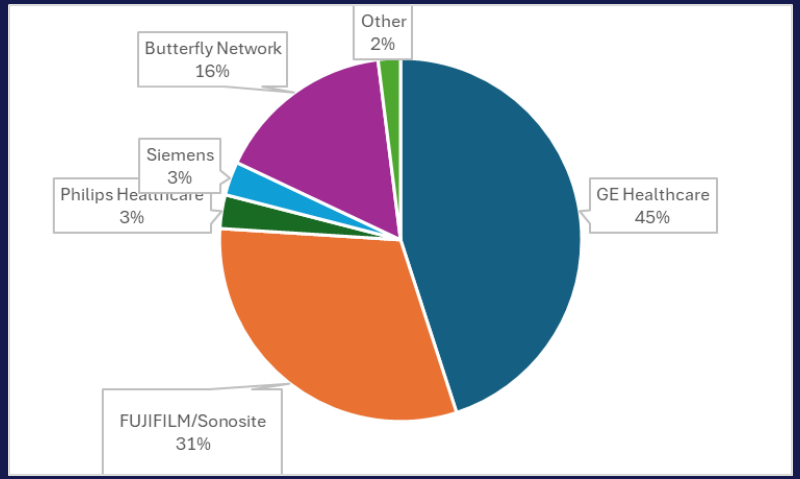
- Southern Florida
- 4 hospitals
  - 2 large ambulatory care centers
  - 8 smaller imaging only centers
  - Total bed count approximately 1,250 beds
- **Capital savings over 10 years was >$20M**

Breakdown of Capital Savings for this Project (2024)

Type of Device	Average Purchase Cost Before Standardization	Average Purchase Cost After Standardization	Anticpated Purchases Over 10 Years	Projected Savings Over 10 Years
Angiography	$1,345,222	$1,115,025	4	$920,788
CT	$1,114,321	$780,990	6	$1,999,986
DEXA	$72,899	$59,998	2	$25,802
Digital X-Ray	$259,920	$210,558	12	$592,344
Gamma Cameras	$301,859	$275,080	2	$53,558
Mammography	$477,332	$445,898	8	$251,472
MR	$1,642,074	$1,509,458	3	$397,848
PET/CT	$2,171,024	$2,000,850	1	$170,174
Portable C-Arm	$333,554	$275,000	10	$585,540
Portable X-Ray	$150,114	$145,878	6	$25,416
Rad/Fluro	$520,880	$480,989	2	$79,782
Ultrasound, General	$119,900	$110,880	40	$360,800
Ultrasound, POC	$44,348	$38,950	78	$421,044
TOTAL				**$5,884,554**

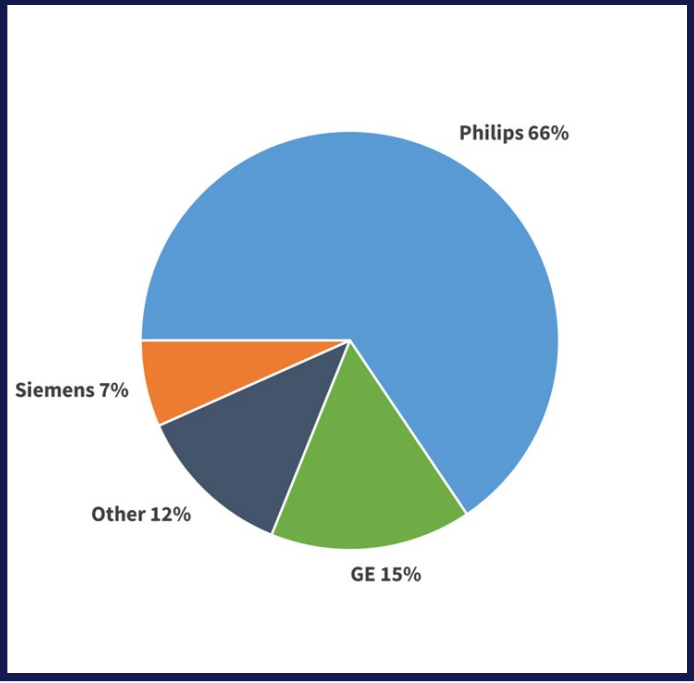
Are Hospitals Truly Un-Standardized?

Point of Care Ultrasound a/k/a The Wild West



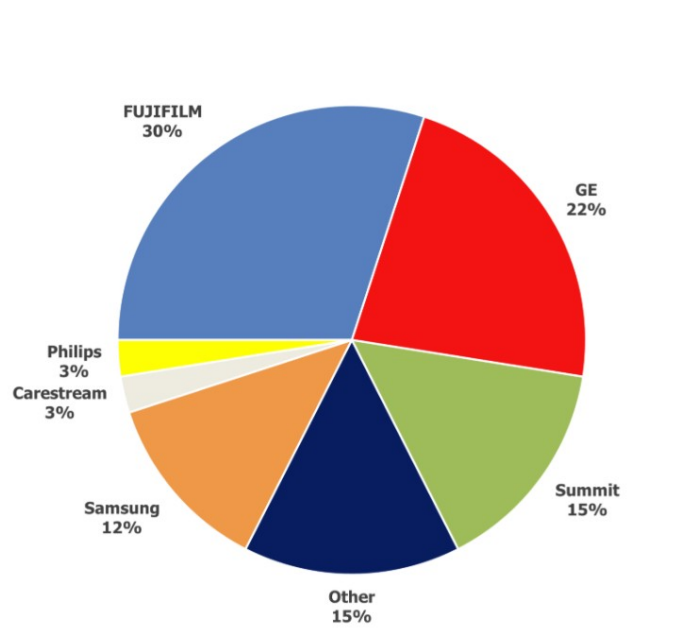
Are Hospitals Truly Un-Standardized?

General Purpose Ultrasound



Are Hospitals Truly Un-Standardized?

Digital Radiography



Key Takeaways

- **Imaging standardization is not just a purchasing strategy — it is a system-wide operational transformation initiative**.
  - Can save substantial capital dollars
  - Reduces reoccurring operational costs
  - Improves patient safety
  - Simplifies governance
  - Strengthens vendor partnerships
  - Makes capital budgeting predictable

Thank You Any Questions?

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