



ECRI

The Most Trusted
Voice in Healthcare

How Equipment Standardization Can Improve Efficiencies While Reducing Costs


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MDEXPO

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I am not a Clinical Engineer/Biomedical Professional



Objectives

- ◆ 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.

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

About ECRI

- Formed in 1968 by a Physician
- Non-Profit Worldwide Company with 550 Employees
- Designated as a PSO (Patient Safety Organization) by US Health & Human Services
- Acts as Clearing House for Pennsylvania Patient Safety Reporting System as Well as 17 Other States
- Employs Clinicians Including Physician, Nursing, Imaging, Laboratory, Respiratory and Cardiovascular Specialists
- All Research Staff are PhD.

The Max Cart – First Crash Cart – Invented by ECRI Founder



The Max Cart – First Crash Cart – Invented by ECRI Founder



Overview

Standardizing major device categories to a single vendor has the potential to save millions for the following reasons:

- Actual purchase costs due to strength of negotiating power
- Operating costs due to decreased training requirements of CE staff and parts inventory
- Service contract costs due to negotiating power
- Training costs of clinical staff

Project Steps

- Introductory call with imaging directors
- Education program by ECRI SME
- Initial vendor call
- Development of base configurations/clinical scenarios
- 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

RFP Components

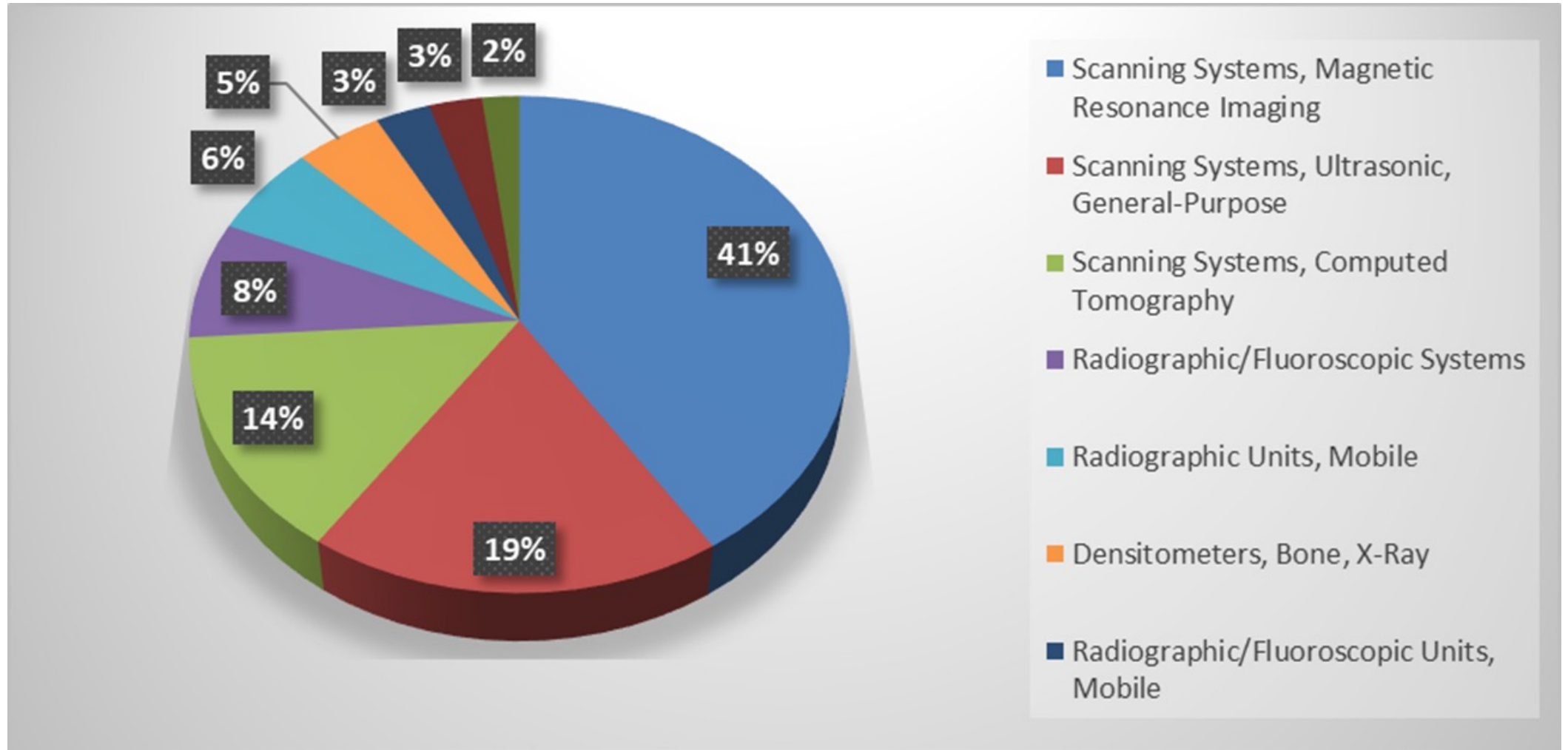
- Agreement
- MWBE requirements
- Award basis
- Security Assessment
- Vendor Background
- Service Specifications
- Architectural Assessment
- Visio
- Servers/IT infrastructure required
- Technical requirements
- Clinical scenarios
- Pricing / TCO
- References

Decision on How Vendors Were Invited

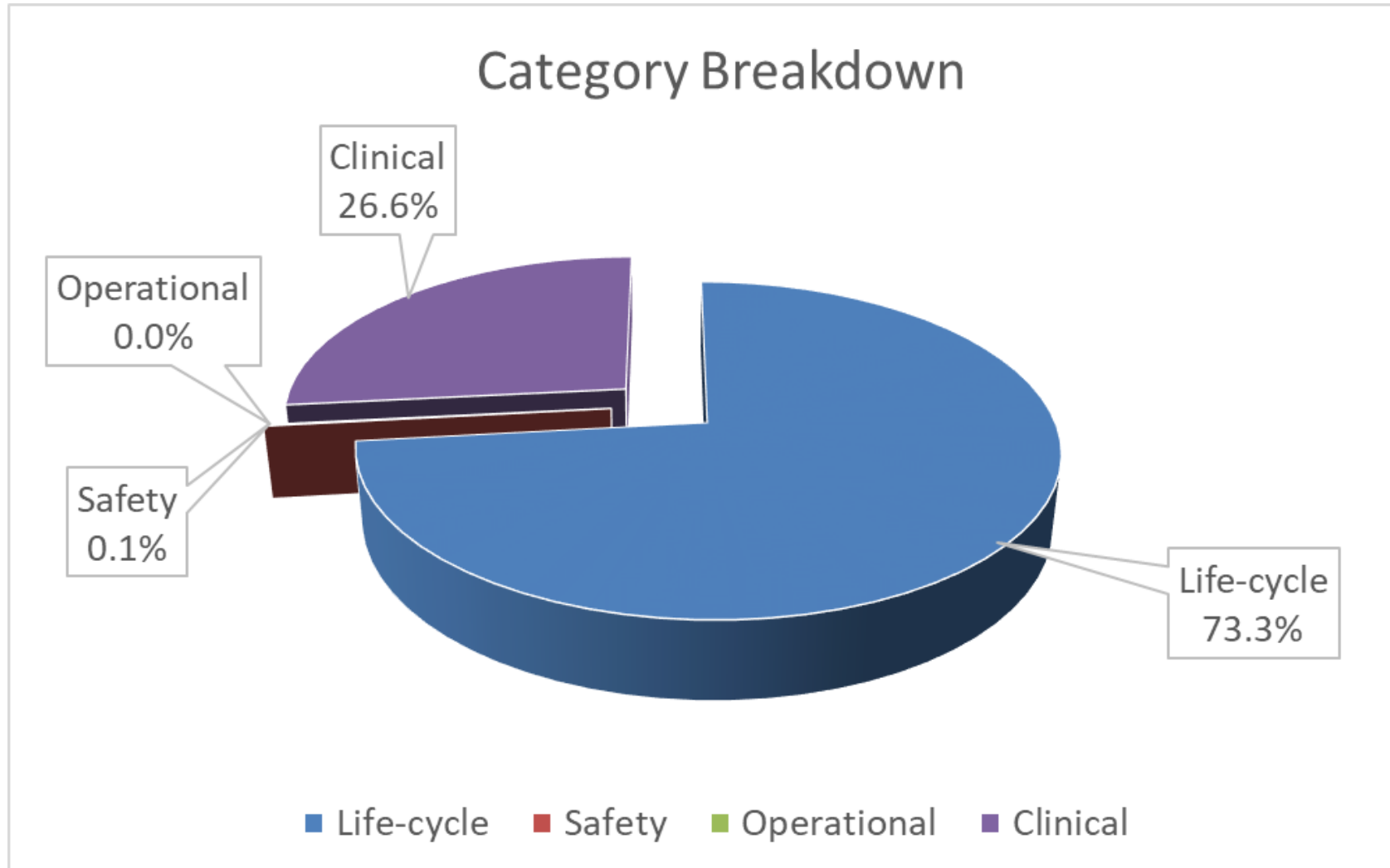
	CARESTREAM	FUJIFILM	GE	HOLOGIC	MINDRAY	PHILIPS	SHIMADZU	SIEMENS
ANGIOGRAPHY			X			X		X
CT			X			X		X
DEXA			X	X				
DIGITAL X-RAY	X		X			X		X
GAMMA CAMERAS			X			X		X
MAMO			X	X				
MR			X			X		X
PET/CT			X			X		X
PORTABLE C-ARM			X					X
PORTABLE X-RAY	X	X	X			X	X	
RAD/FLURO			X			X		X
ULTRASOUND		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

- Reviewed current installed base by modality and vendor
- Reviewed market share by modality and vendor
- Reviewed ECRI's ratings by modality and vendor

PRP Replacement Category by Spend



PRP Replacement by Reason

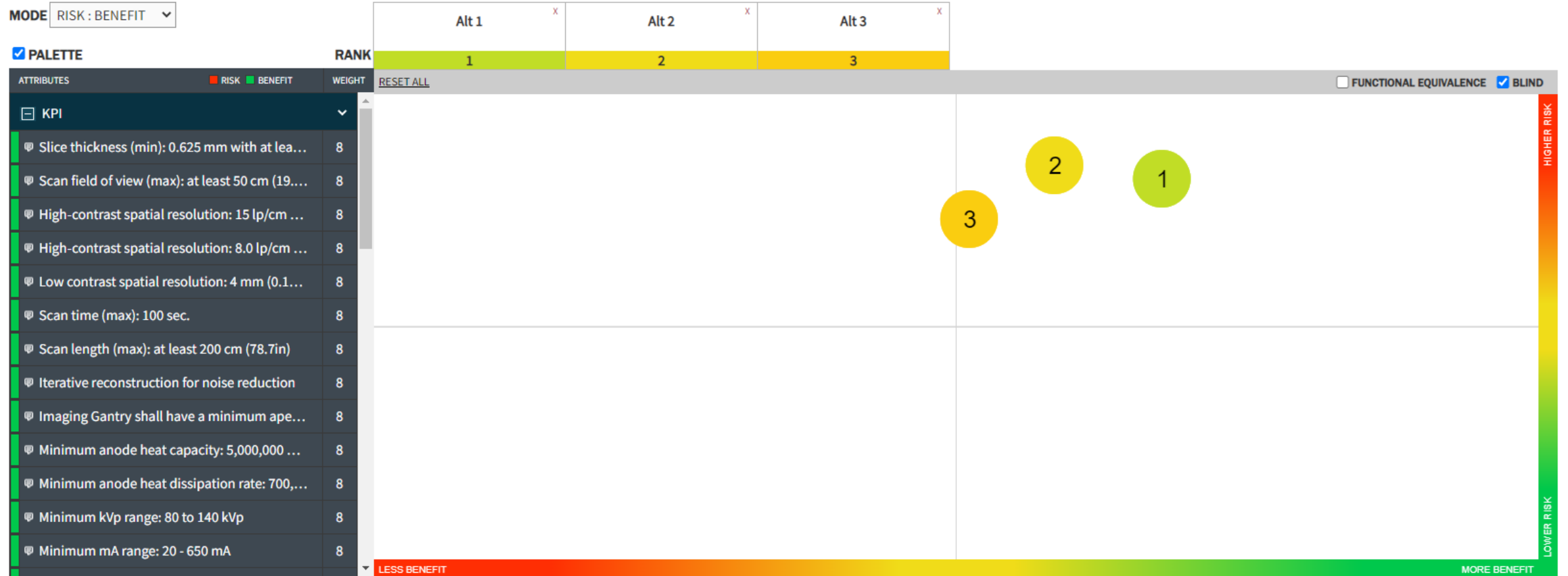


Base Technical Specifications Example

1. Digital Detector (10 inches x 12inch Wireless integrated digital detector)
2. Grip digital detector HD 10x12
3. Detector Battery 10x 12
4. Grid 6:1 10in x 12in
5. Battery charger 10 x 12 in
6. Digital detector (14 inches x 17 inch Wireless integrated digital detector)
7. Grip digital detector HD 14x17
8. Quick enhancement option
9. Repeat reject analysis
10. Auto protocol assist
11. Detector Battery
12. Battery charger
13. Attachable and removable detector handle assembly with integrated 6:1 ratio grid
14. Self-contain battery operated mobile digital x-ray design for point of care
15. Password access to patient data
16. Interface for HIS/RIS worklist
17. Bar code reader
18. Exposure can be taken and processed while unit is charging



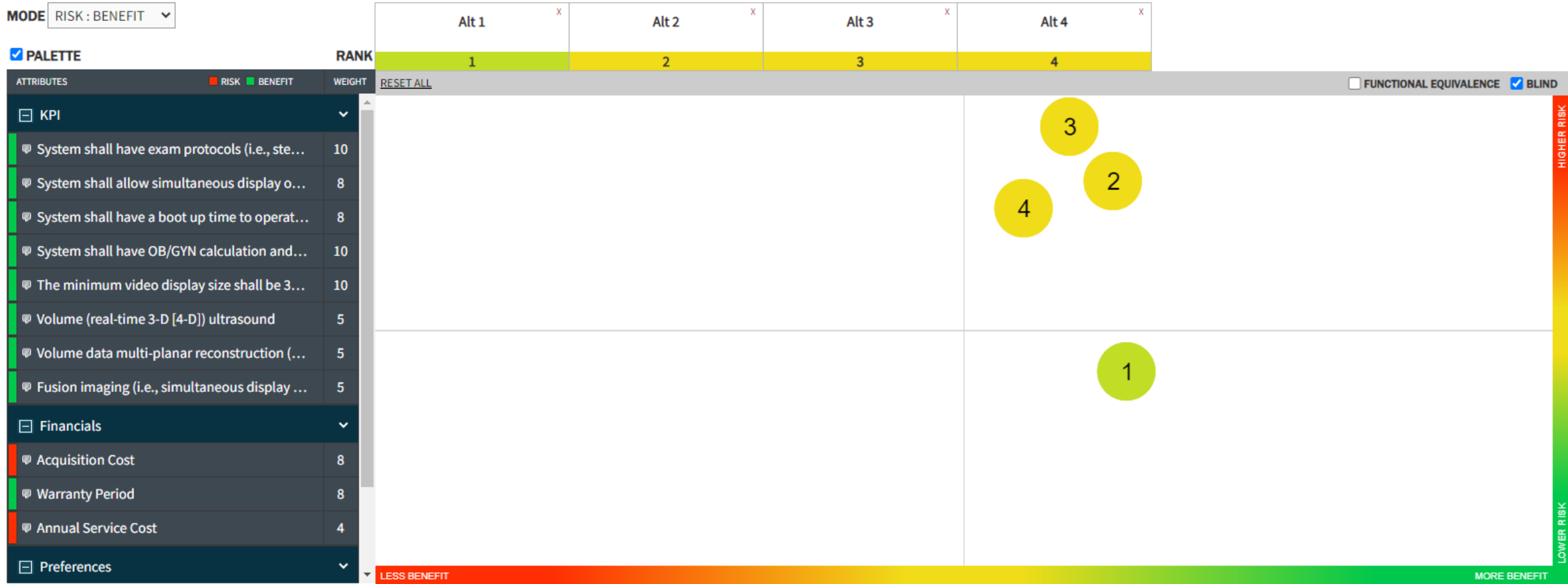
Example Decision Making Visualization Tool



* Click on Alternative Name or plot point to see scoring details.

[Disclaimer](#)

Example Decision Making Visualization Tool



* Click on Alternative Name or plot point to see scoring details.

[Disclaimer](#)

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 majority of director's
- Yellow = second choice(s)

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

ECRI's Recommendation 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								

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



Breakdown of Purchase Price Savings

Type of Device	Average Purchase Cost Before Standardization	Average Purchase Cost After Standardization	Anticipated 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

Breakdown of Service Contract Savings

Type of Device	Annual OEM Service Costs Before Standardization	Annual OEM Service Costs After Standardization	Total Number of Devices in System	Projected Yearly Savings
Angiography	\$57,945	\$35,926	28	\$616,540
CT	\$29,243	\$18,131	46	\$511,166
DEXA	\$1,875	\$1,163	18	\$12,826
Digital X-Ray	\$6,661	\$4,130	45	\$113,902
Gamma Cameras	\$11,338	\$7,029	12	\$51,700
Mammography	\$22,336	\$13,849	44	\$373,465
MR	\$117,424	\$72,803	34	\$1,517,118
PET/CT	\$167,164	\$103,642	4	\$254,090
Portable C-Arm	\$4,097	\$2,540	72	\$112,103
Portable X-Ray	\$5,008	\$3,105	56	\$106,564
Rad/Fluro	\$32,564	\$20,190	13	\$160,865
Ultrasound	\$1,926	\$1,194	375	\$274,455
TOTAL				\$4,104,795

Additional Savings

Description	Before Standardization	After Standardization	Savings
Parts Inventory	\$4,500,000	\$2,100,000	\$2,400,000
CE Outside Training	\$625,000	\$332,400	\$292,600 (yearly)
Clinical Staff Training	\$1,200,000	\$425,000	\$775,000 (yearly)

Example Recommendations

— Mindray Resona 7

- Score – 67%
 - 57% for Philips
 - 51% for Siemens
 - 46% for GE
- Cost – Considerable savings over next lowest priced alternative. This savings multiplied by the anticipated purchase of 300 units over 10 years amounts to \$15.6M
- Warranty – 60 months for Mindray, 24 months for Siemens, 12 months for Philips and GE
- Mindray willing to offer a clinical guarantee on their system
- Market share is 35% for GE, compared to Philips 21%, Siemens 16%, Mindray 4%
- Director preference = GE

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

Example Recommendations

— Siemens Somatom GO TOP/Somatom Definition Edge/Somatom Definition Drive

- Score (mean) - 72%
 - 47% for GE
 - 57% for GE
- Siemens warranty is 24 months, GE and Philips warranty is 12
- Market share

	GE	Philips	Siemens
1.5T	33%	17%	45%
3.0T	19%	19%	59%

- Director's preference = Philips

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Project Challenges

- Imaging directors and managers, as well as Radiologists had their pre-conceived preferences, which was usually the equipment they were currently using.
- Some vendors not as responsive as we would have liked.
- Final recommendation of a vendor outside the norm for Ultrasound

Project Breakdown

- Phase 1 – Imaging Committee Educational Support
 - 73 hours
- Phase 2 Imaging Services Replacement Plan Development (PRP)
 - 322 hours
- Phase 3 – Solicitation of Proposal and Supplier Selection
 - 259 hours
- **Total project hours = 654 hours over 7 months**

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

Project Results

- Decreased from 17 vendors to **6** vendors for capital imaging
- Standardized to a single vendor for each imaging modality
- Material shift in vendor alignment
- Simplified capital budgeting and acquisition
- Simplified design and construction

Lessons Learned

- The support of a very strong project sponsor is essential.
- Education is essential to have all department directors on the same level of knowledge.
- Strong engagement of department directors is crucial. This varied widely and delayed the project to a small degree.

Who Can Benefit From This Type of Project?

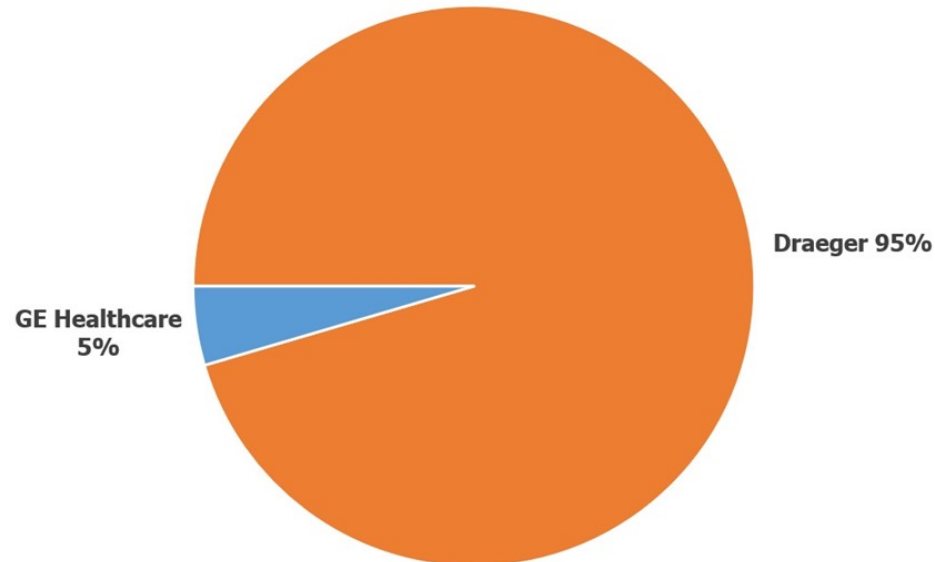
- Systems that have recently undergone a merger
- Systems without a system director or VP overseeing department directors with large capital assets
- Any hospital with multiple vendors being represented within a single modality or department

Why Go Outside For This Type of Project

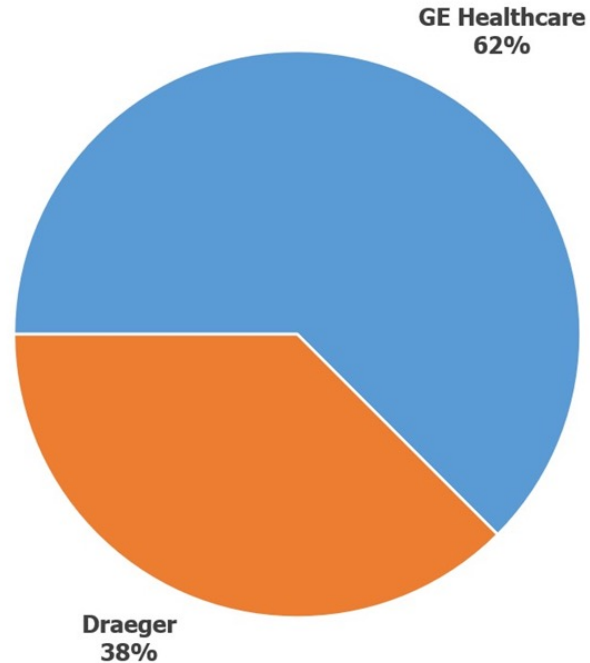
- Political reasons
- Time restraints
- Better resources
- Independence
- Expertise

Just How Non-Standardized Are Health Care Systems?

 - Anesthesia Machines



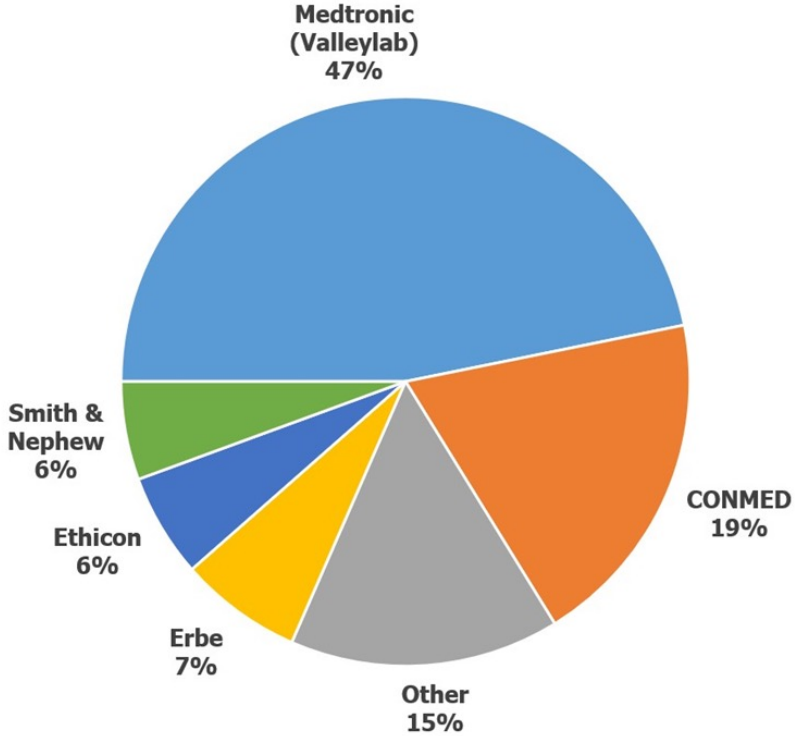
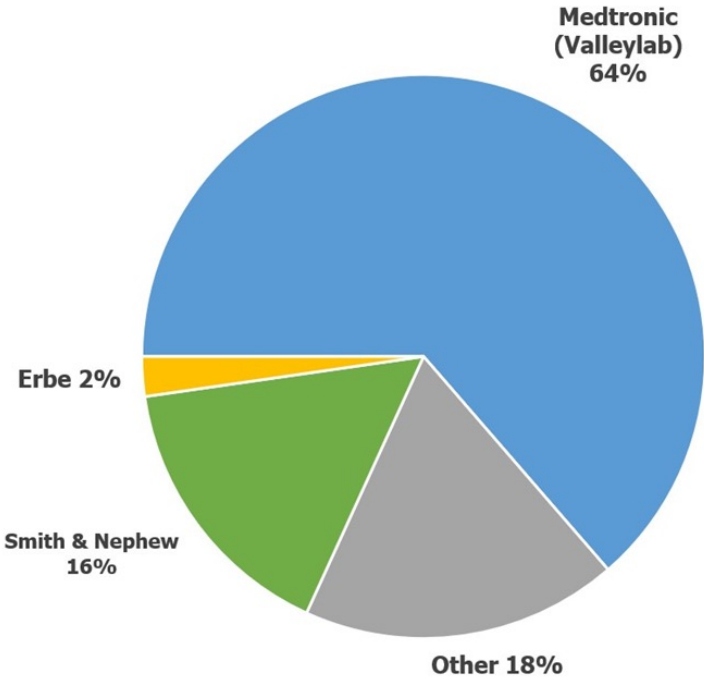
System Wide - Anesthesia Machines



Just How Non-Standardized Are Health Care Systems?

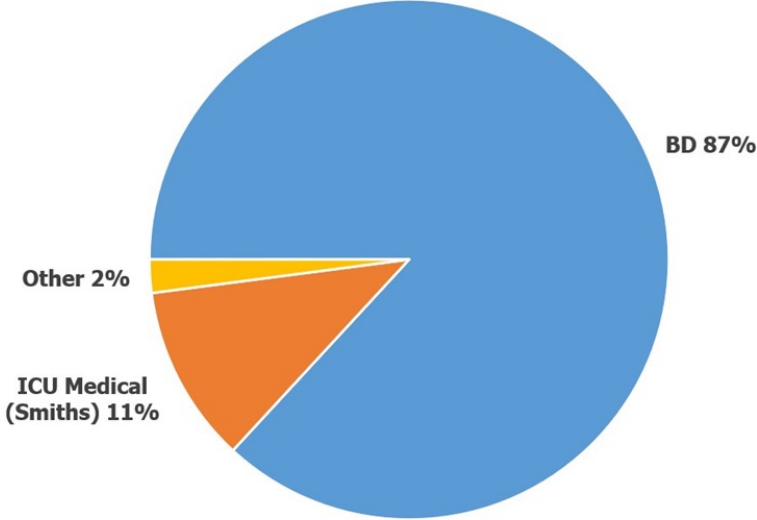
█ - Electrosurgical Units

System Wide - Electrosurgical Units

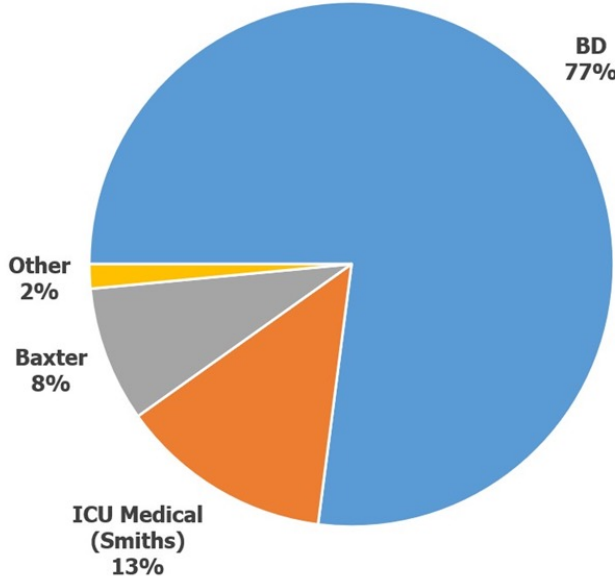


Just How Non-Standardized Are Health Care Systems?


[Redacted] - Infusion Pumps

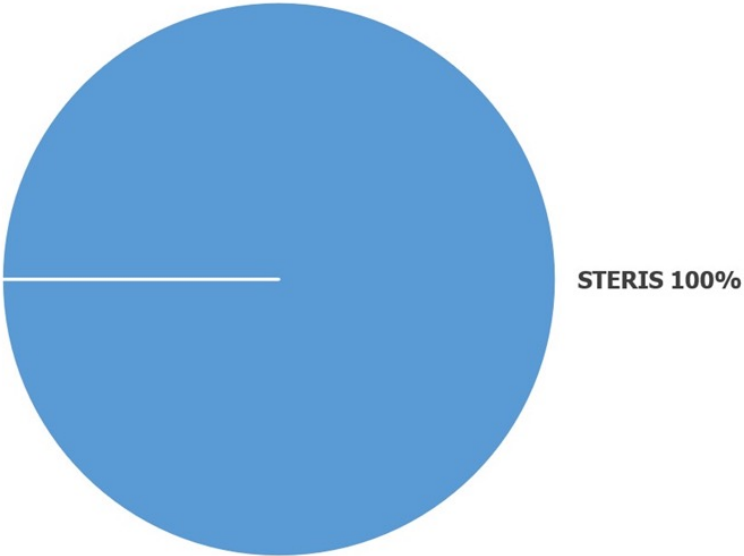


System Wide - Infusion Pumps

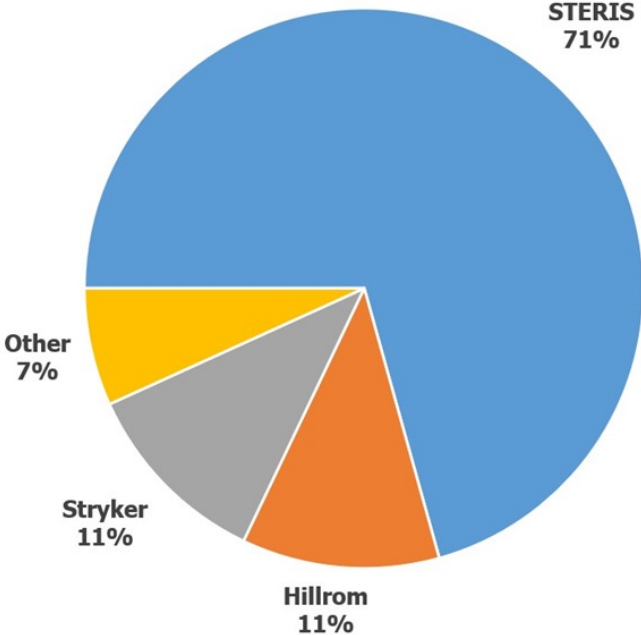


Just How Non-Standardized Are Health Care Systems?

 - Operating Tables

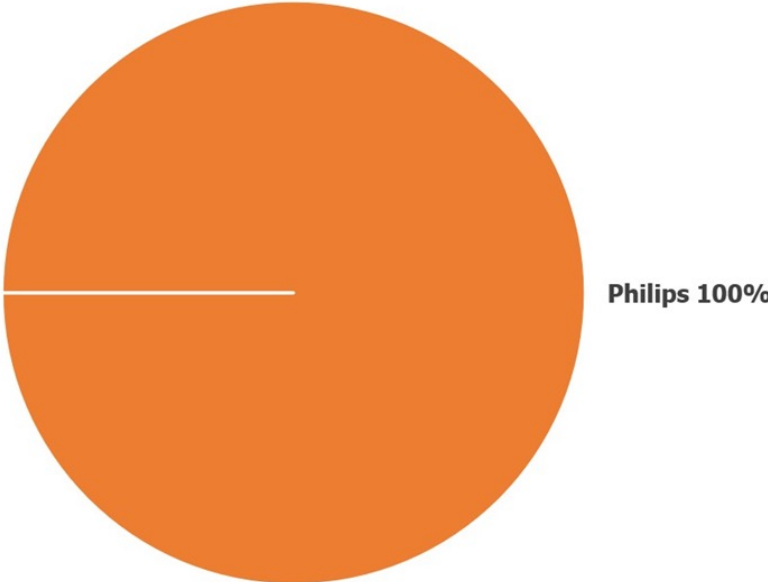


System Wide - Operating Tables

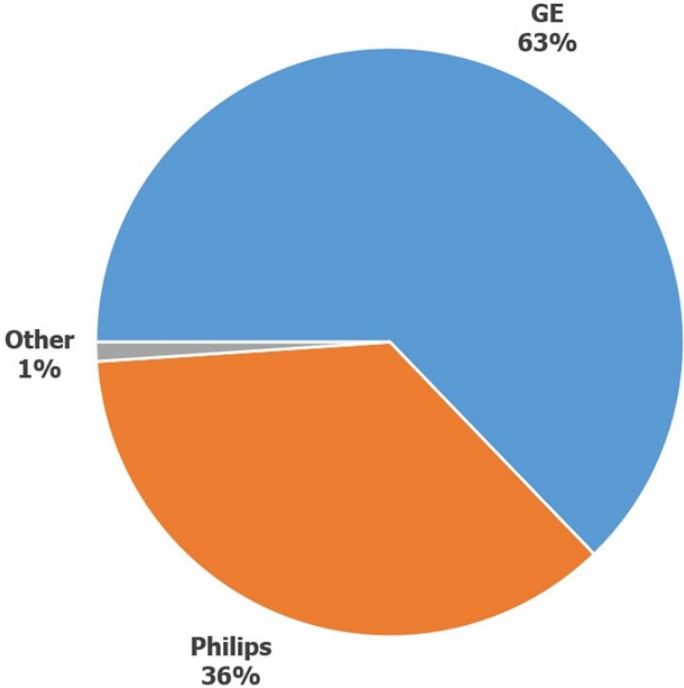


Just How Non-Standardized Are Health Care Systems?

 - Physiological Monitoring

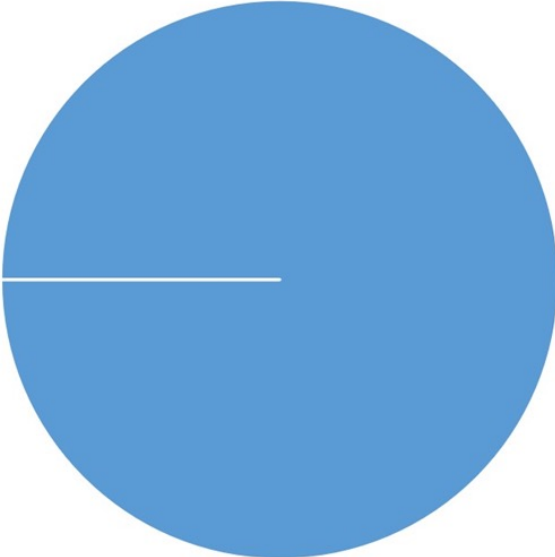


System Wide - Physiological Monitoring



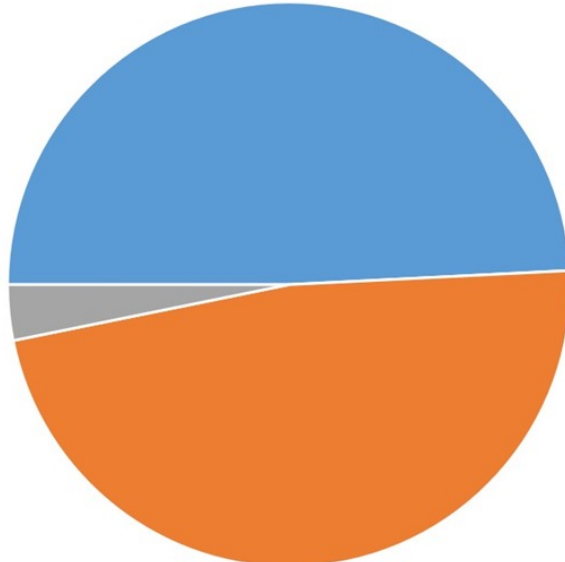
Just How Non-Standardized Are Health Care Systems?

 - Scopes



Olympus Medical 100%

System Wide - Scopes



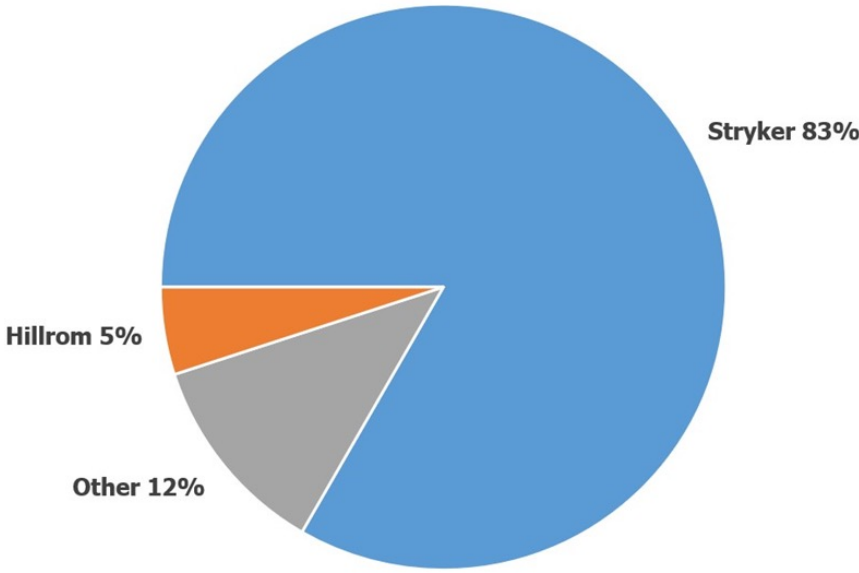
Olympus Medical 49%

KARL STORZ 3%

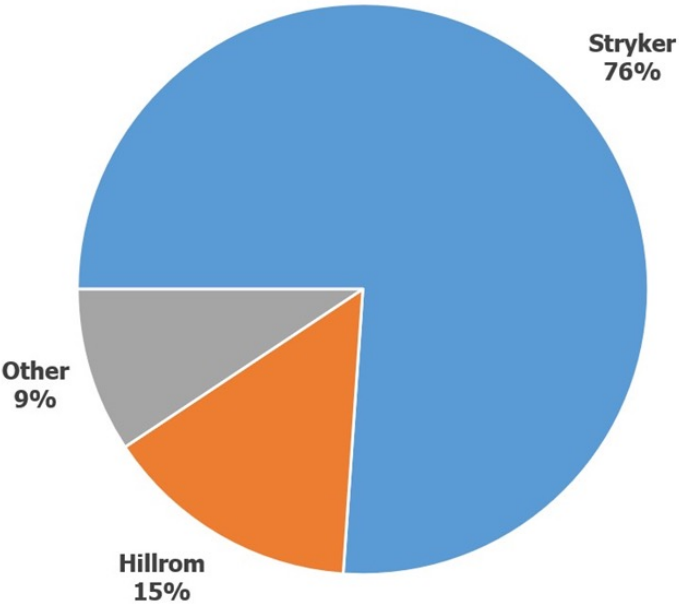
PENTAX Medical 48%

Just How Non-Standardized Are Health Care Systems?

 - Stretchers

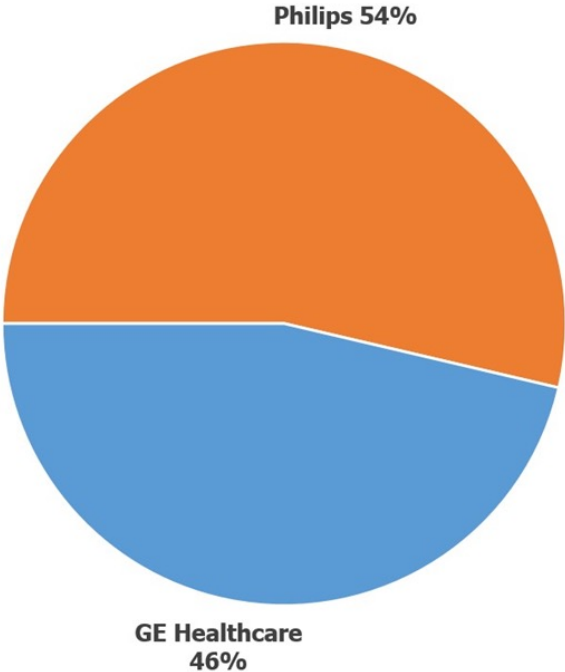


System Wide - Stretchers

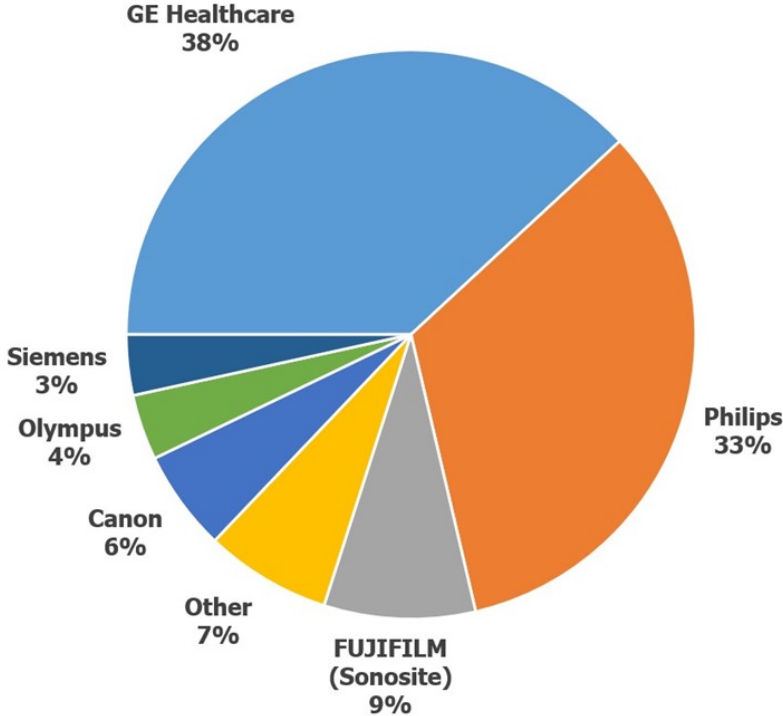


Just How Non-Standardized Are Health Care Systems?

[Redacted] - Ultrasound, Diagnostic



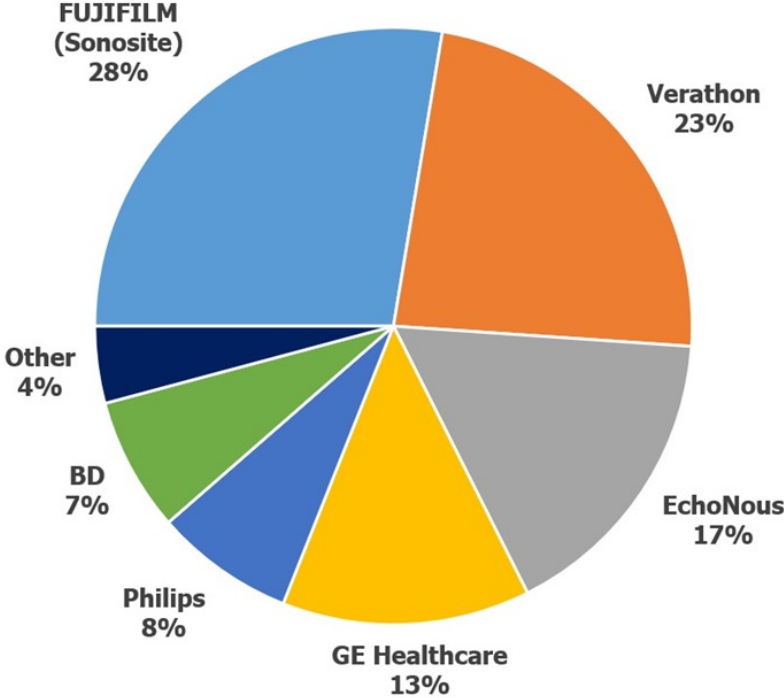
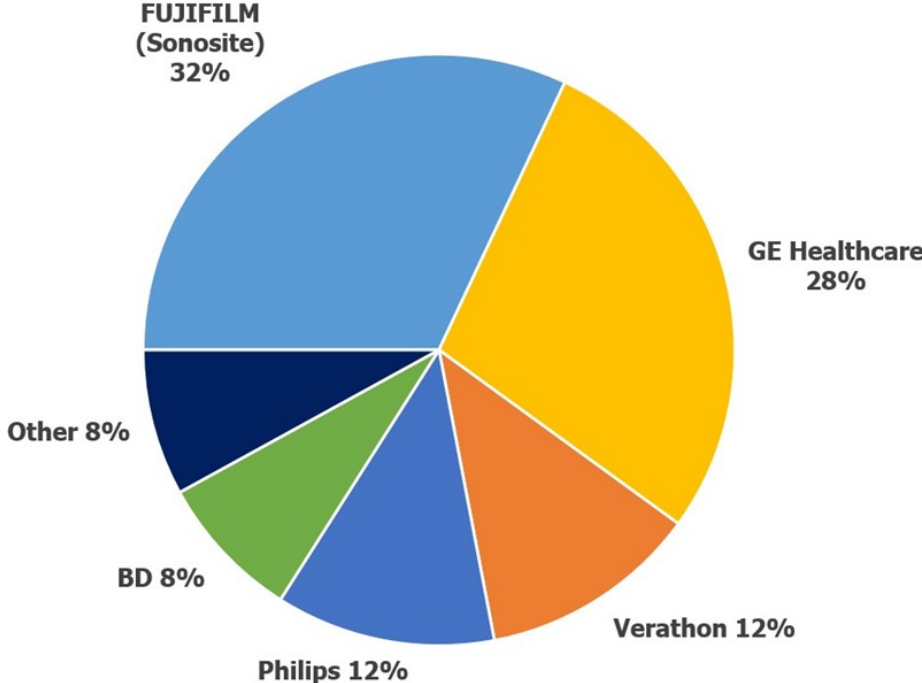
System Wide - Ultrasound, Diagnostic



Just How Non-Standardized Are Health Care Systems?

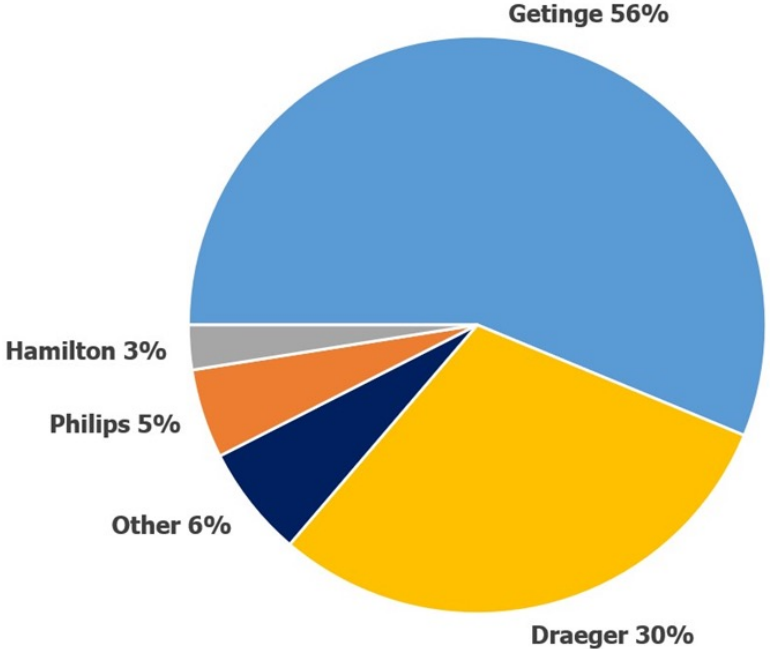
█ - Ultrasound, Point of Care

System Wide - Ultrasound, Point of Care

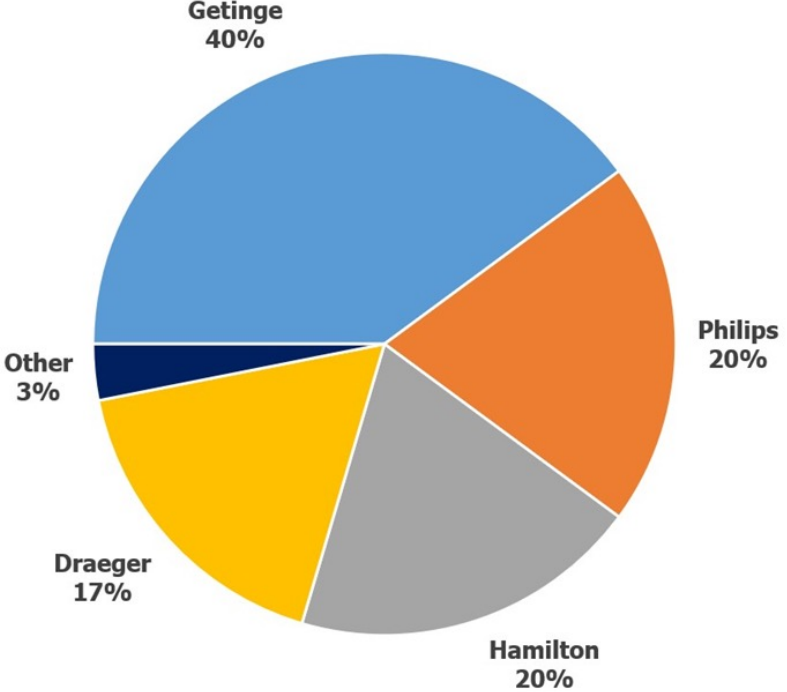


Just How Non-Standardized Are Health Care Systems?

 - Ventilators



System Wide - Ventilators



What Are The Potential Savings With Standardization?

- Vendors were provided with the information on the following slide and provided probable discount data.
- Replacement volume was based on a four-hospital system, total bed count of 1,265.
- Replacement volume based on a 10-year capital replacement plan.

What Are The Potential Savings With Standardization?

DEVICE TYPE	QTY.	QUOTED \$	TOTAL \$	DISCOUNT	DISCOUNT \$	SAVINGS \$
Anesthesia Units	66	\$58,172	\$3,839,352	6%	\$3,608,991	\$230,361
Beds	950	\$17,519	\$16,643,050	10%	\$14,978,745	\$1,664,305
Infusion Pumps	5,250	\$2,058	\$10,804,500	4%	\$10,372,320	\$432,180
Ultrasound Units	75	\$126,128	\$9,459,600	12%	\$8,324,448	\$1,135,152
Ventilators	92	\$39,201	\$3,606,492	5%	\$3,462,232	\$144,260
POC Ultrasound	310	\$42,247	\$13,096,570	9%	\$11,917,879	\$1,178,691
OR Tables	72	\$70,265	\$5,059,080	7%	\$4,704,944	\$354,136
Physiologic Monitors	410	\$17,933	\$7,352,530	7%	\$6,837,853	\$514,677
Endoscopes	170	\$34,850	\$5,924,500	11%	\$5,272,805	\$651,695
Stretchers	814	\$10,049	\$8,179,886	4%	\$7,852,691	\$327,195
					TOTAL SAVINGS	\$6,632,652
					AVERAGE YEARLY SAVINGS	\$663,265

Speaker Biography & Contact Info

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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, Cardiology, Neurology, Physical Medicine, Radiology, Wellness, and Pharmacy.

In his current role at ECRI, Mr. Schlessinger is the Principal Associate in the 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.

Thank You

