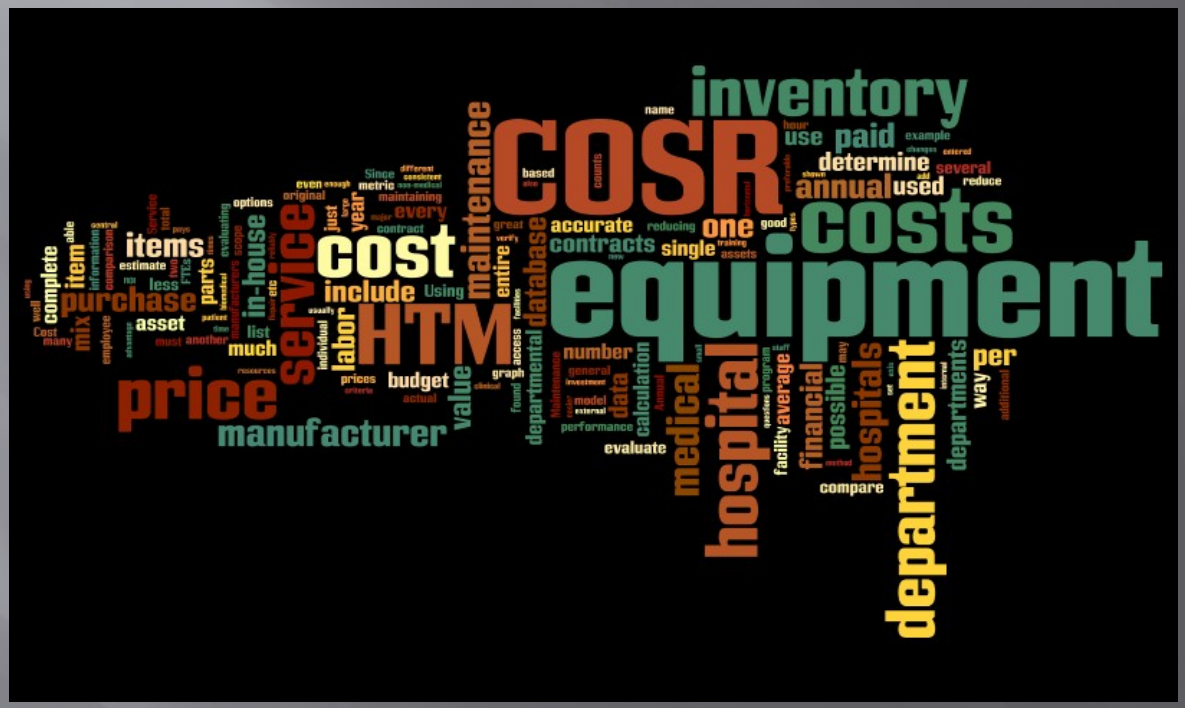
COSR AS A MAJOR METRIC FOR HTM



Patrick K. Lynch

CBET, CCE, fACCE, CPHIMS, CHTS-PW

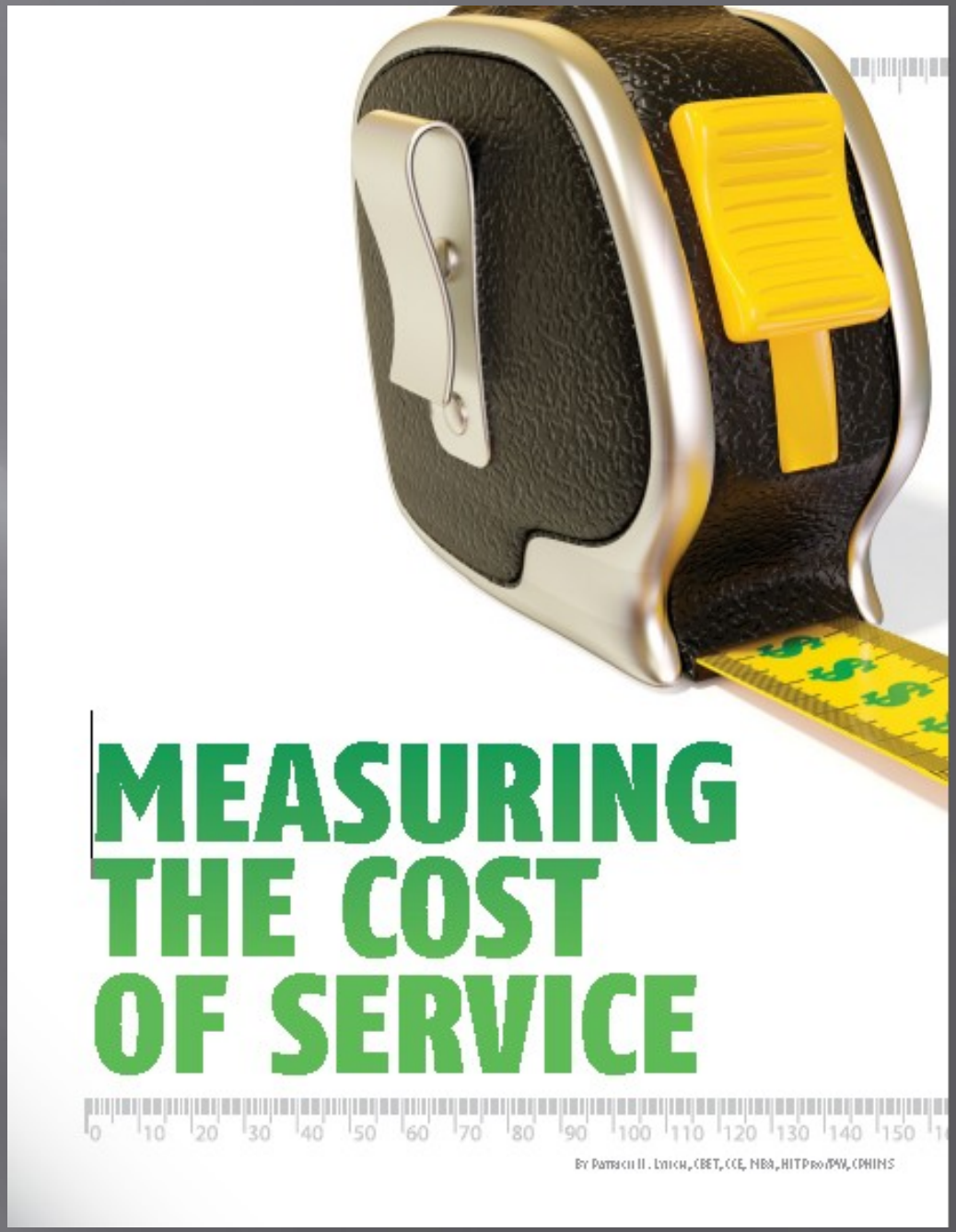
Global Medical Imaging (GMI)

Who am I?

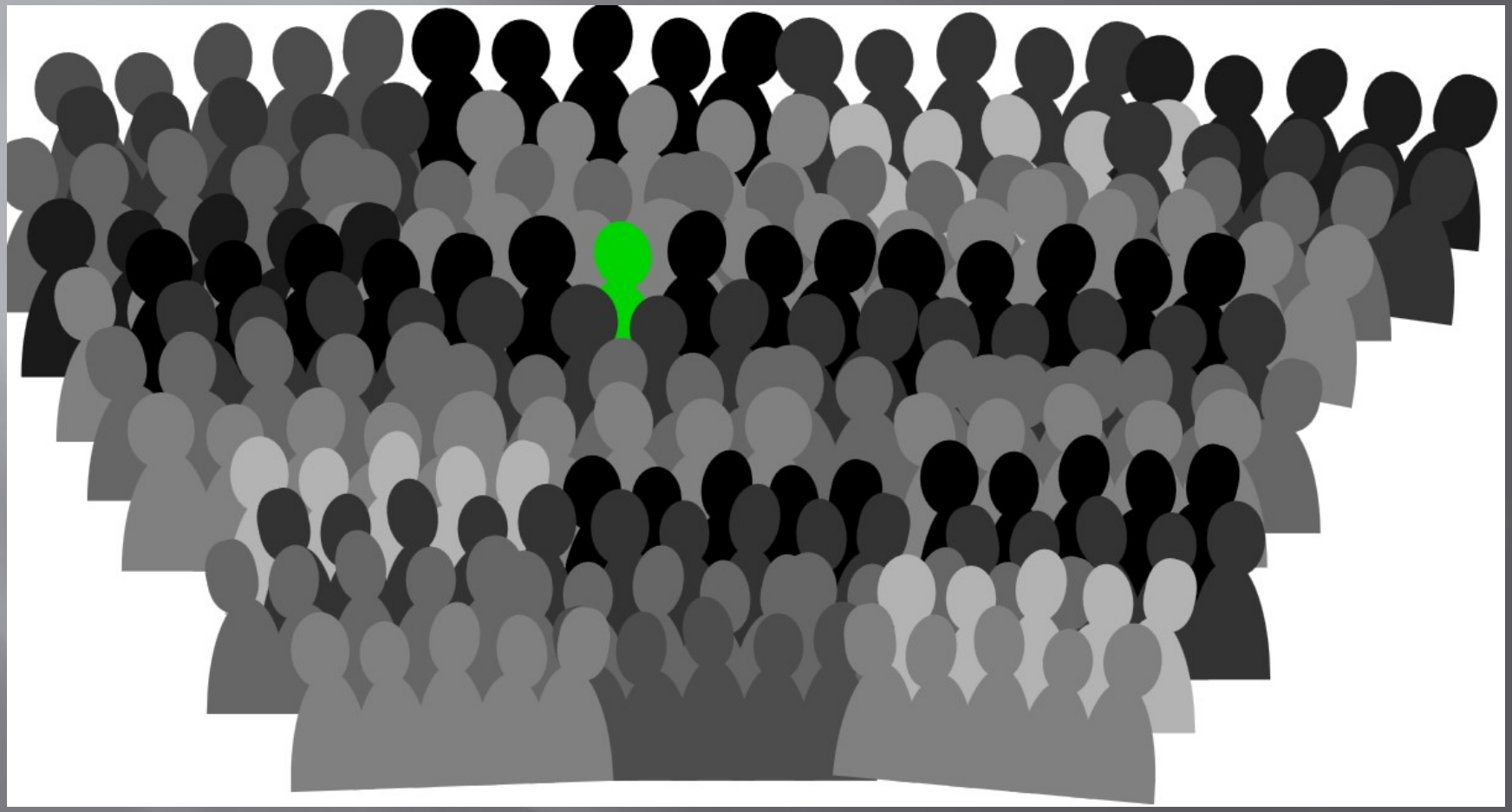
- CBET, CCE, CPHIMS, CHTS-PW, fACCE
- 35 years in Biomed
- Managed large In-house, ISO and corporate Biomeds
- Active in certification of BMETs and CEs
- 1st Pres of NCBA (North Carolina branch) - 1980
- President, HTMA-SC
- Member of all Biomed Associations (honorary NC and KY)
- Board Member – META and FMESA
- Advisor – OH, KY, TN, UT, VA, NC
- Trainer – Engineering World Health (Rwanda, Honduras)
- Trainer – ACCE (Cuba)
- Chief Clinical Engineer - Heineman Medical Foundation (Guatemala)
- **Currently, works for GMI is sales development, who sponsors my activities.**

From TechNation Magazine
July 2013

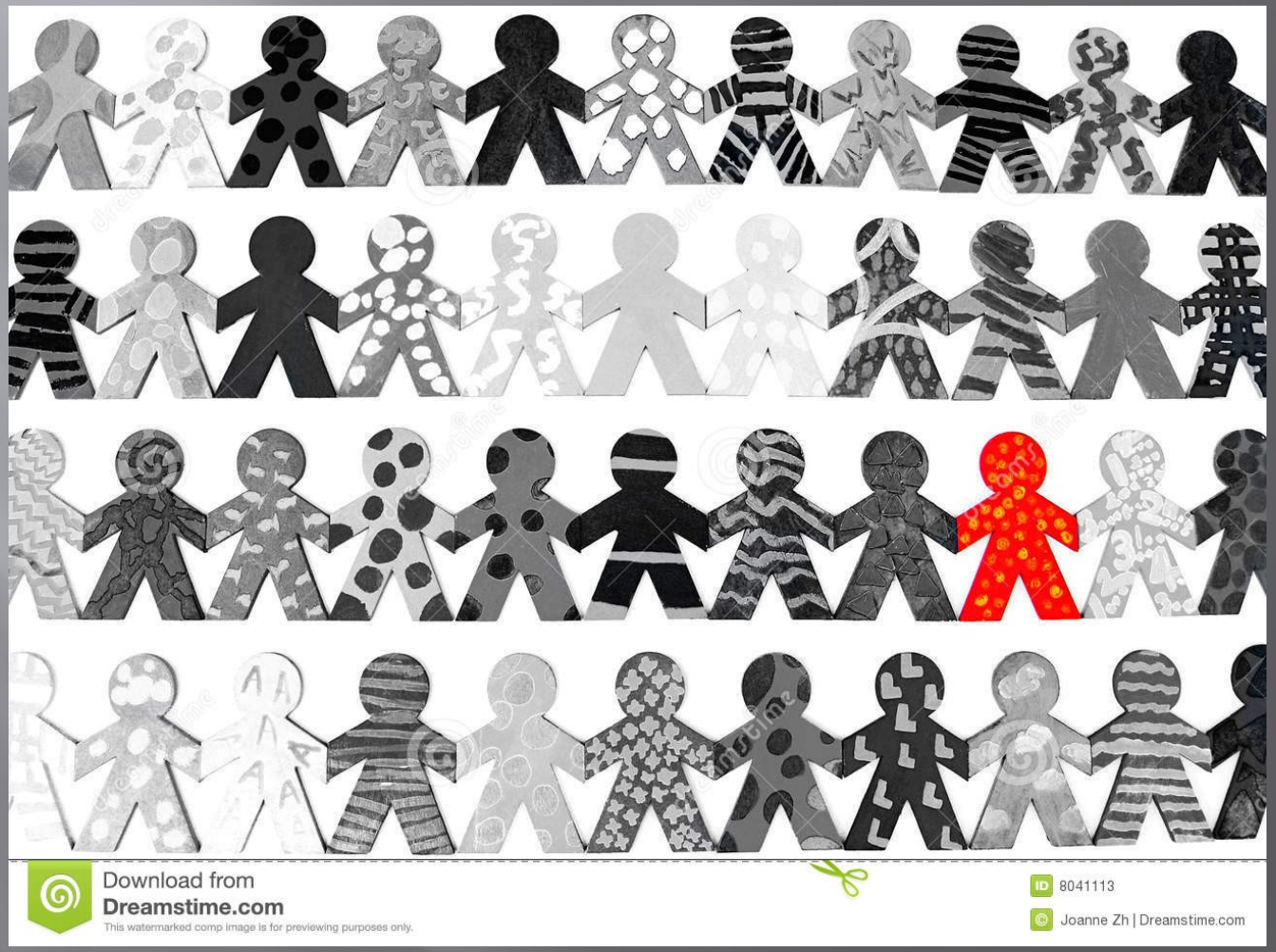
www.1technation.com



Where am I relative to others?



But everyone is different!



Why compare yourself to others?

- Where do I rank?
- Who is doing it better?
- How can I be better?
- What does 'BETTER' mean?
- Where should I place my scarce resources?
- Prove to Administration that we have value.
  - Staffing
  - Job Security
  - Pay

Benchmarking

- Customer Satisfaction
- Regulatory Compliance
- Cost

What to measure

- # of Beds
- # of Surgeries
- # of Radiology Rooms
- # of ICU Beds (or NICU Beds)
- # of monitored beds
- # of medical devices
- Adjusted Discharges
- Value of Equipment
- Cost of Operations
- Uptime

Problems with Benchmarking

Traditional Benchmarking calculations:

$$\sum_{i=1}^{N/2}\left(2*\mathrm{MidPoint}(i)\right)=\sum_{i=1}^{N/2}2*\left(i+\frac{N}{4}\right)$$

$$=2\sum_{i=1}^{N/2}i+2*\frac{N}{2}*\frac{N}{4}=2\frac{\left(\frac{N}{2}\right)\left(\frac{N}{2}+1\right)}{2}+\left(\frac{N^2}{4}\right)$$

$$=\frac{N^2}{4}+\frac{N}{2}+\frac{N^2}{4}=\frac{N^2}{2}+\frac{N}{2}=\frac{N^2+N}{2}$$

$$=\frac{N(N+1)}{2}\equiv\sum_{i=1}^{N}i \quad \text{Q.E.D.}$$

Things Biomeds Do

2 Commercially Available Solutions

- AAMI
- ECRI Institute

The Main Problems

1. We are all different.
2. We ask for information that does not exist.
3. We haven't decided what metrics matter.
4. We haven't decided what is the definition of:

Unacceptable

Poor

Adequate

Good

Excellent

Problems:

- Not manditory
- Extensive data entry requirements
- Small number of hospitals match your demographics
- Difficulty in contacting matches

Let's look at the hospital in a different way:

Think of every item of equipment as a sponge.

The size of the sponge represents the cost of the item.

Portables

Linear Accelerator

Mammo

Ultrasound

R&F

CT Scanners

MRI

Cath Lab

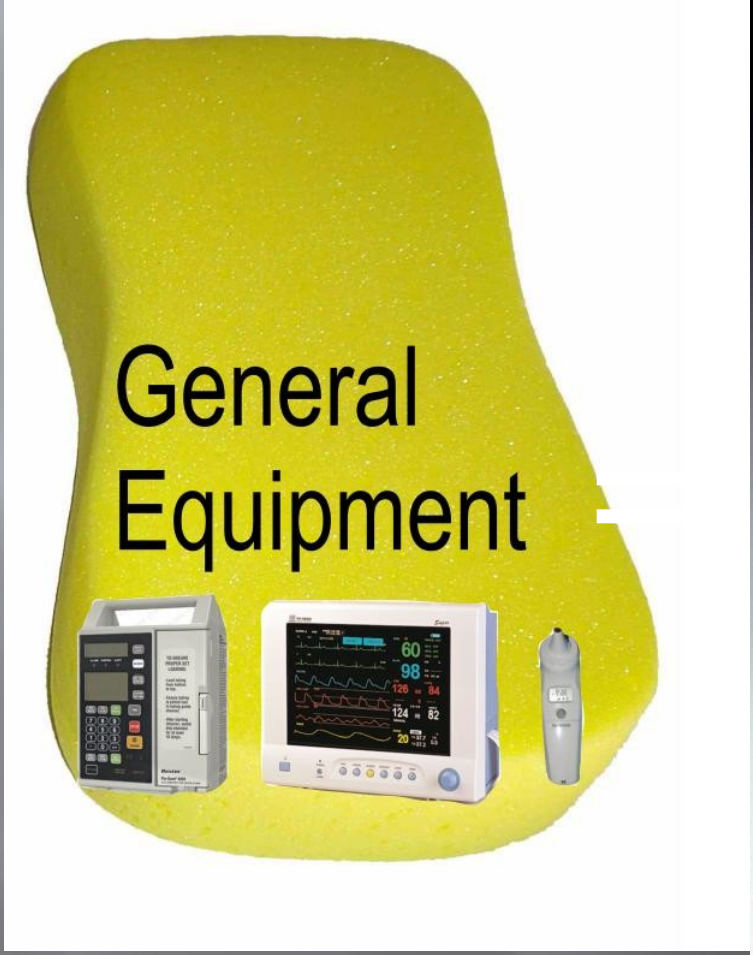
PACS

CR / DR

Your world in Imaging . . .

The amount of water the sponge holds represents the annual cost of maintaining the item.

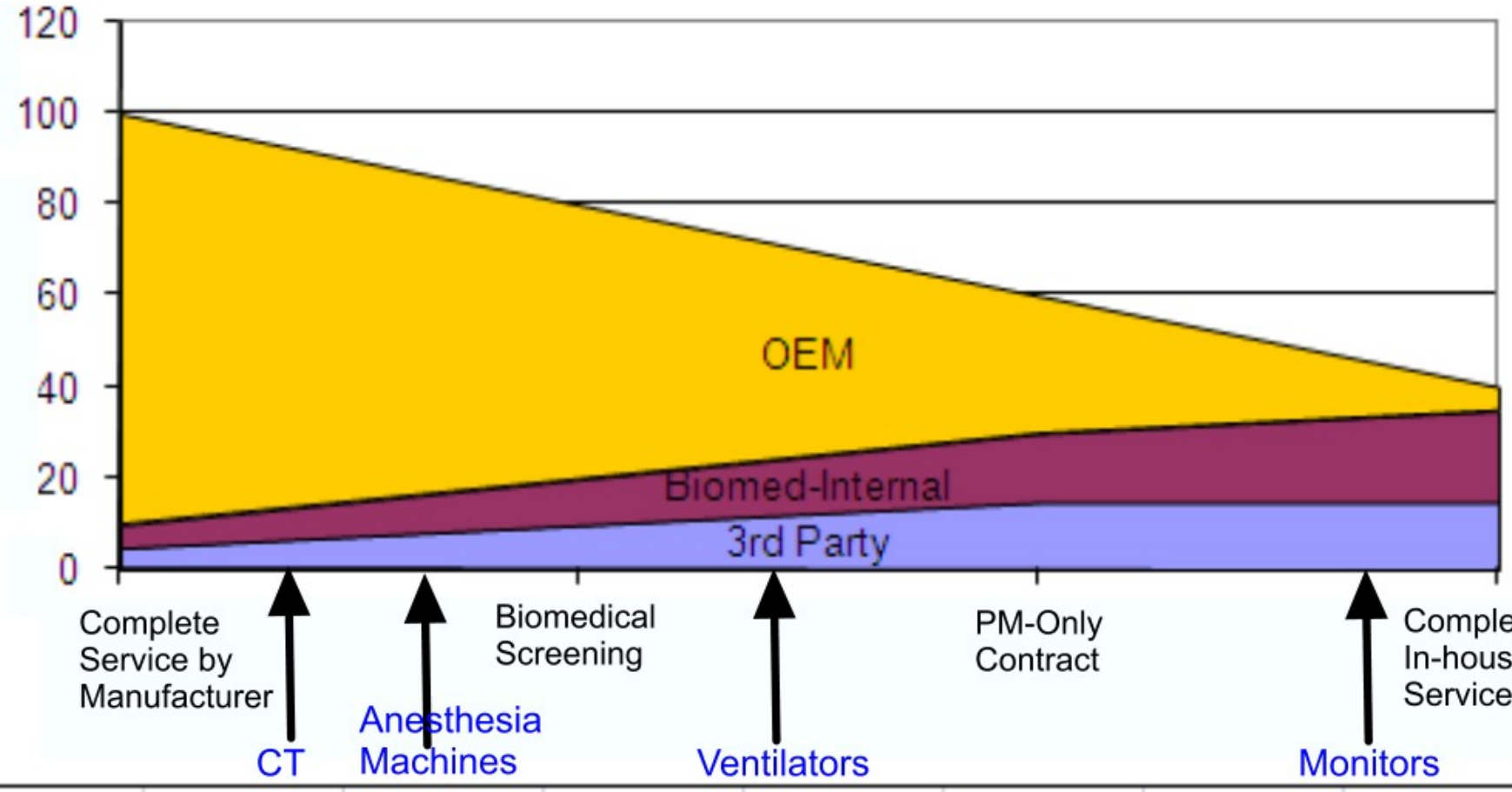
Our job:
Squeeze the excess water (dollars) out of the sponges.

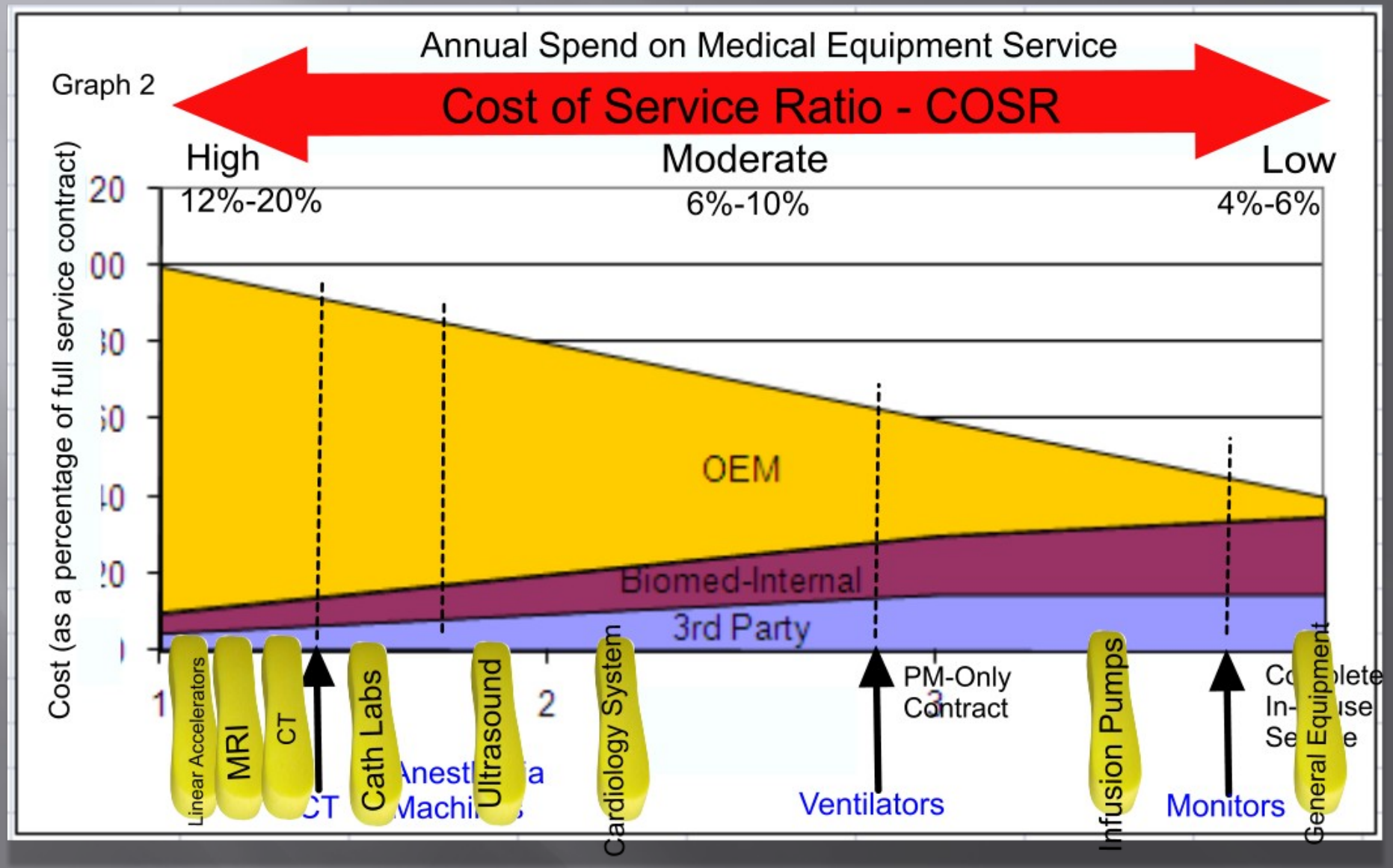

General
Equipment

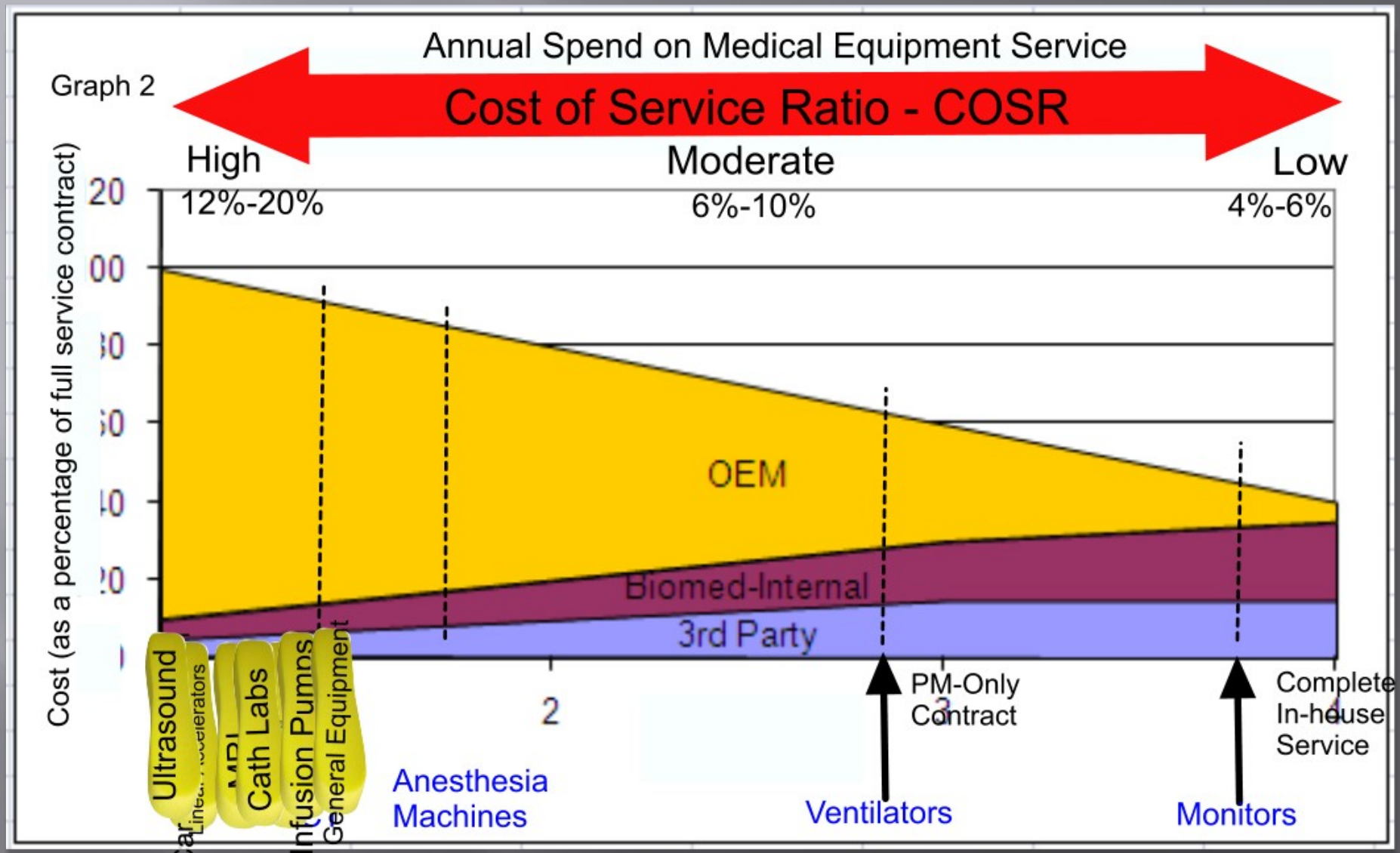
Phenomenom

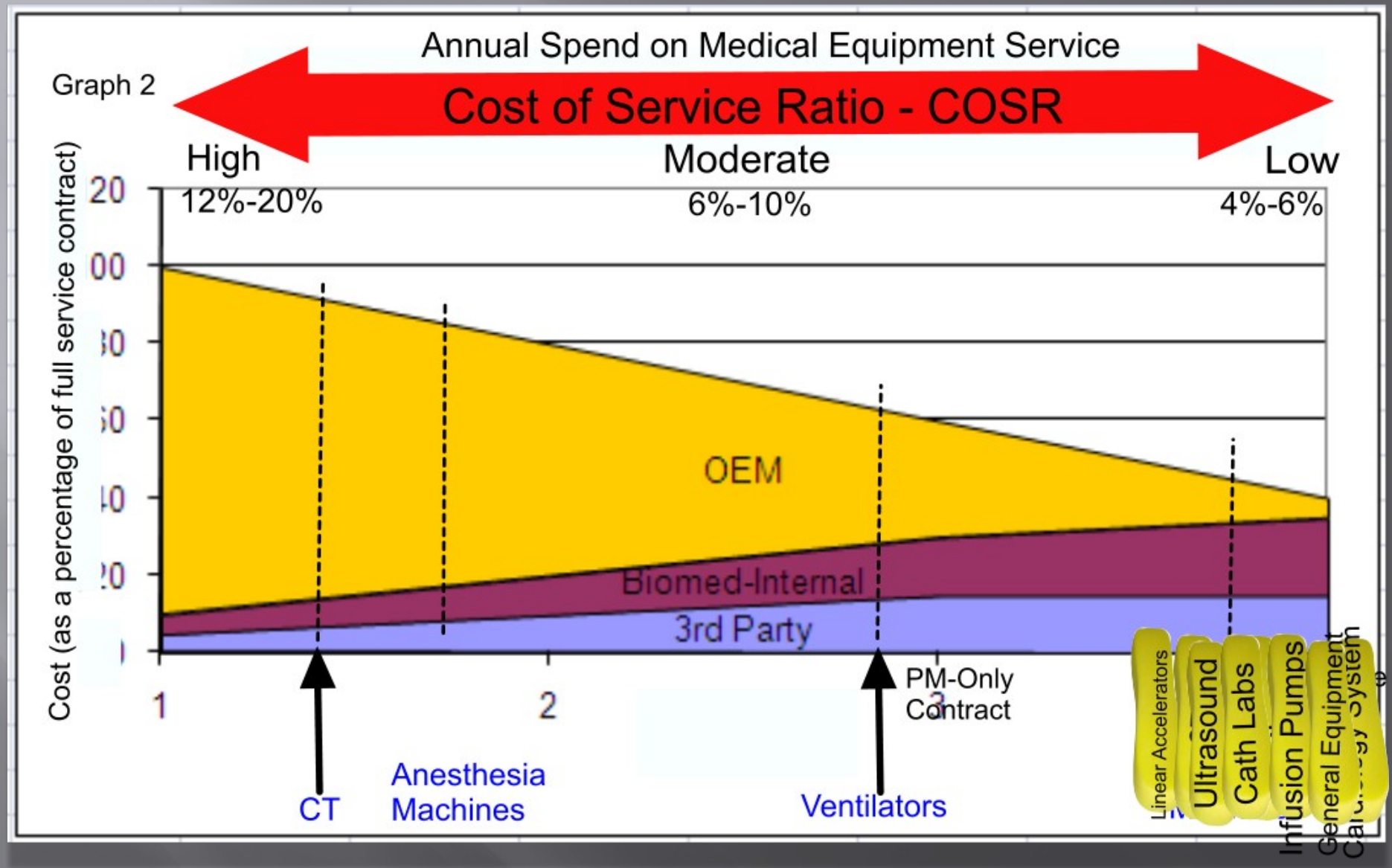
- Annual cost of service is proportional to the purchase price
- Amazingly consistent throughout the economy
- Look at Extended Warranties for Office Products (Best Buy, Office Depot, etc.)
- 2nd year warranty = 10% to 25% of purchase price
- The same with Medical Devices.

For each type of medical equipment, plot your mix of service providers on this graph (along the bottom axis)




Annual Spend on Medical Equipment Service
Graph 2
Cost of Service Ratio - COSR
High
12%-20%
Moderate
6%-10%
Low
4%-6%
Cost (as a percentage of full service contract)
OEM
Biomed-Internal
3rd Party
Linear Accelerators
MRI
CT
Cath Labs
Ultrasound
Cardiology System
PM-Only Contract
Infusion Pumps
Monitors
Ventilators


Annual Spend on Medical Equipment Service
Graph 2
Cost of Service Ratio - COSR
High
12%-20%
Moderate
6%-10%
Low
4%-6%
Cost (as a percentage of full service contract)
OEM
Biomed-Internal
3rd Party
Ultrasound
Cath Labs
Infusion Pumps
General Equipment
Anesthesia Machines
Ventilators
Monitors
PM-Only Contract
Complete In-house Service
2
3


Annual Spend on Medical Equipment Service
Graph 2
Cost of Service Ratio - COSR
High
12%-20%
Moderate
6%-10%
Low
4%-6%
Cost (as a percentage of full service contract)
OEM
Biomed-Internal
3rd Party
1
2
PM-Only Contract
CT
Anesthesia Machines
Ventilators
Linear Accelerators
Ultrasound
Cath Labs
Infusion Pumps

A Single metric to compare any hospital, system or clinic

Cost

Of

Service

Ratio

SERVICE VALUE RATIO

$$COSR = \frac{\text{Original Cost of Equipment}}{\text{Annual cost of all Maintenance}} = \_\_\_\_\%$$

Annual Cost of Maintenance = Contract costs
Parts in excess of contract
In-house labor provided
All repair parts
Fee-for-service labor purchased

} For: all repairs
all scheduled maintenance
all operation errors

Equipment Price = Manufacturer's List Price for equipment and standard warranty.
Does NOT include training, extended warranty, etc.

COSR IN ACTION FOR A SINGLE ITEM

Cost of CT Scanner - $1,000,000

Annual Service Contract - $150,000

COSR = $150,000/$1,000,000 = 15%

COSR IN ACTION FOR A SINGLE DEPARTMENT

Cost of Equipment in Central Supply - $290,000

Annual cost of Maintenance - $20,000

COSR = $20,000/190,000 = 6.90%

COSR IN ACTION FOR A SINGLE CONTRACT

Cost of Anesthesia Machines = $3,600,000

Cost of Annual Service Contract = $432,000

COSR = $432,000/$3,600,000 = 12%

COSR IN ACTION FOR A SINGLE VENDOR

Cost of Equipment (Patient Beds) = $12,000,000

Annual costs from HillRom (contract + PM + parts) = $2,220,000

COSR = $2,200,000/$12,000,000 = 18.5%

COSR IN ACTION FOR A SINGLE TYPE OF EQUIPMENT

Cost of all Infusion Pumps = $2,400,000

Annual sum of Maintenance costs = $264,000

COSR = $264,000/$2,400,000 = 11%

COSR IN ACTION FOR A SINGLE HOSPITAL

Cost of Equipment = $6,000,000

Annual Biomedical Budget = $369,000

COSR = $369,000/$6,000,000 = 6.15%

COSR IN ACTION FOR A HOSPITAL SYSTEM

Cost of Equipment = $113,000,000

Annual Biomedical Budget = $5,200,000

COSR = $5,200,000/$113,000,000 = 5.13%

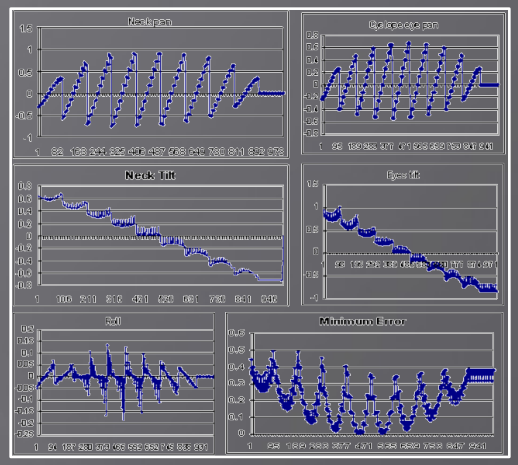
COSR IN ACTION FOR AN ENTIRE SERVICE COMPANY

Cost of all equipment =
$28,000,000,000.

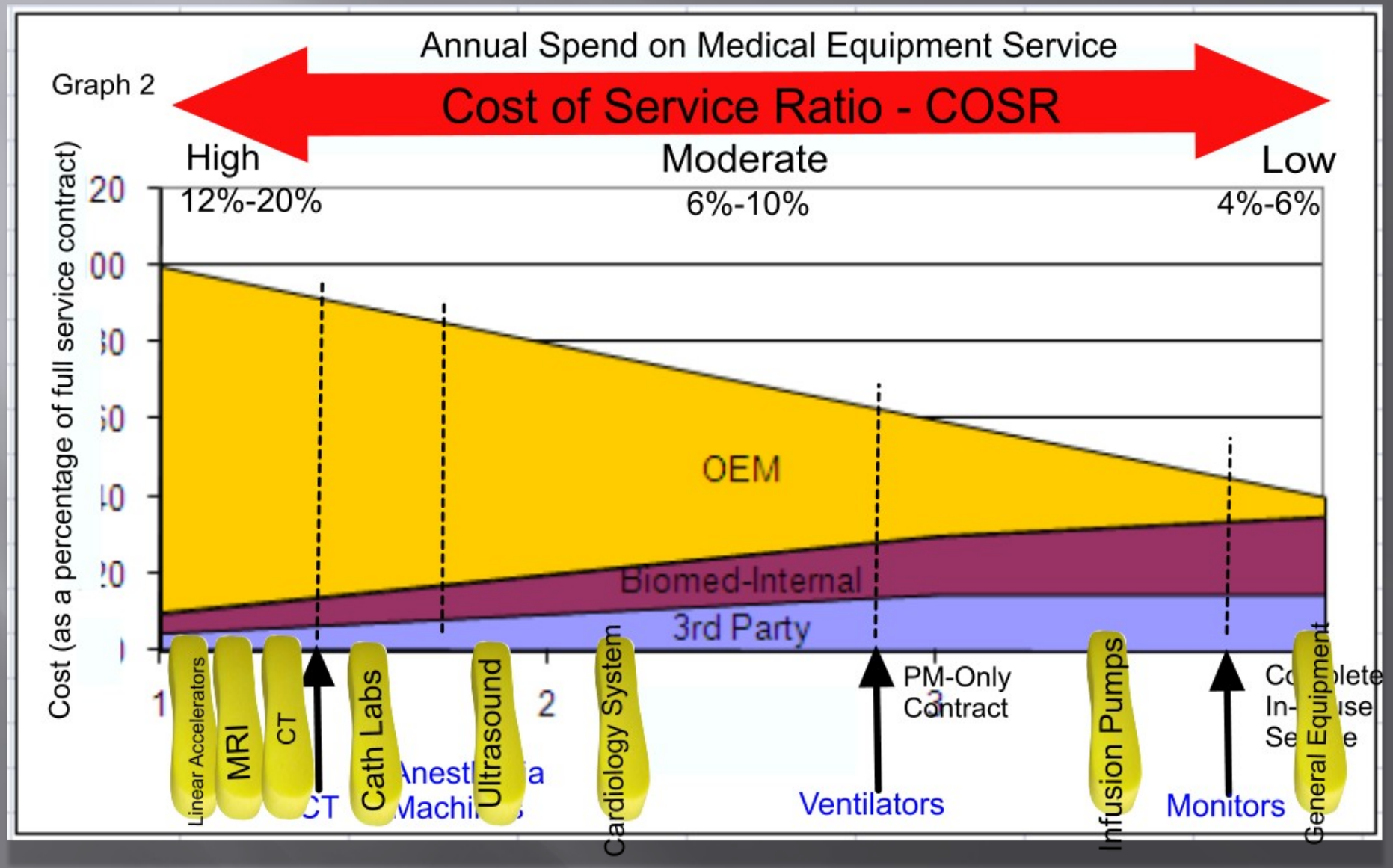
Annual sum of Maintenance costs =
$1,260,000,000.

COSR = $1.24b/28b = 4.5%

Results



- 12% - 20% - Manufacturer Contract
- 9% - 15% - 3rd Party Contract
- 4% - 8% - Hospital-based programs


Annual Spend on Medical Equipment Service
Graph 2
Cost of Service Ratio - COSR
High
12%-20%
Moderate
6%-10%
Low
4%-6%
Cost (as a percentage of full service contract)
OEM
Biomed-Internal
3rd Party
Linear Accelerators
MRI
CT
Cath Labs
Ultrasound
Cardiology System
PM-Only Contract
Infusion Pumps
Monitors
Ventilators

COSR Works for . . . .

- Any size facility (or facilities)
- Simple or complex operations
- Any scope of services
- Any geography
- Contract or in-house
- In-house or outsourced

The Main Problems Answered

1. We are all different. Use Metric that adjusts for variables. Bottom line is $$$$$.
2. We ask for information that does not exist. Use a Metric that uses FEW, easily accessible numbers.
3. We haven't decided what metrics matter. Always $$$$$ $$$$$$
4. We haven't decided what is the definition of:

Unacceptable SVR greater than 15%

Poor SVR greater than 12%

Adequate SVR less than 12%

Good SVR less than 8%

Excellent SVR less than 6%

Disadvantages

- Examines only costs
- Simplicity may cause it to be rejected by some
- Does not include Value-Added Services

How do I do it?

- Simple - Two Numbers to determine.
  - Original cost of your equipment
  - What it costs per year to maintain your equipment.

Original Equipment Cost

- Most CMMS do not have it for all equipment.
- No time to research it.
- No way to locate the original cost.

- So . . . . .

Apply a simple technique

- Take total number of items in your inventory.
- Multiply by $12,000.
- The resulting number is within 4% of your total equipment value.

Annual Cost of Maintenance

- If you have a consolidated budget (meaning you pay for all maintenance and all parts and all contracts) from one budget, it is simple.
- If not, you have to collect those numbers from wherever they reside.

COSR

- Then do one calculation. If your COSR is

<5%	Excellent
5%-7%	You've got opportunities
>7%	Get it down or risk outsourcing

Simple – now go do it!

To download these presentations:

- Join HTMA-SC for free.
- (www.htma-sc.org)
- Download from Member's Only Section

Patrick Lynch
plynch@gmi3.com
704-941-0116


QUESTION & ANSWER