

Management cost of Clinical engineering services

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Medical technology

- ACCE, American College of Clinical engineering [1] presents the definition of the field Clinical engineering (norwegian: medisinsk teknikk):
- *“As clinical medicine has become increasingly dependent on more sophisticated technologies and the complex equipment associated with it, the clinical engineer, as the name implies, has become the bridge between modern medicine and equally modern engineering.”*

[1]

<http://www.accenet.org/default.asp?page=about§ion=definition>

MDD European Union

- Active since June 14, 1998
- Norwegian authorities on security and safety perform regular audits on CEDs and equipment management systems, based on a specific amendment to MDD
- Thus, the data provided by Norwegian MD inventory systems is considered generally as a valid representation of the medical equipment situation in Norway

Research question and method:

- Is it a general correlation between the MD population and the cost of managing and running all necessary activities (providing the Clinical engineering services)?
- Method: Benchmarking - Measure the cost associated to service, engineering, procurement, education, inventory systems, research and development
- Dataset: All medical devices in Region South of Norway, approx. 40.000 units with an accumulated procurement cost of approx. 3.5 bill NOK

Management index

- MI = the cost of running all CES divided by the accumulated procurement cost of all medical devices (equipment) – i.e. accumulated historic cost (no manipulation of price indexing, depreciation etc)
- The cost comprises wages for the employees, spareparts, service contracts with vendors, on-call service from vendors, Research & Development, i.e. all costs associated with owning, running and keeping the MD population in a proper working order, and safe according to regulatory definitions

	2002		2005		2008*	
Accumulated procurement cost of MD	2,62 bill NOK		3,134 bill NOK		2,543 bill NOK (*3,63 bill NOK)	
No MD in inventory system	-		39 536		32 138 (* 45 911)	
CED total servicecost	104,3 mill NOK		130,4 mill NOK		112,1 mill NOK (*160,4 mill)	
	Mean (%)	Deviation (%)	Mean (%)	Deviation (%)	Mean (%)	Deviation (%)
Management index (MI)	<u>4,0</u>	3,5 – 4,9	<u>4,2</u>	3,3 – 4,7	<u>4,4</u>	4,1 – 5,5
MI Rikshospitalet	4,2		4,1		4,1	
MI <u>only maintenacne</u>	3,5	3,0 – 4,3	3,5	2,9 – 4,3	3,7	3,3 – 5,2
MI <u>only maintenance</u> Rikshospitalet	3,3		3,2		3,5	
Cost ratio intenal maintenance CED of total servicecost (spareparts and employees involved in maintenece)	-	-	37	-	42	-
Cost ratio vendor on call of total servicecost	76	-	26	-	22	-
Cost ratio vendor servicecontract of total servicecost		-	37	-	36	-

Discussion and comparison MI

- Monique Frize 1990: Worldwide survey teaching and non-teaching hospitals median: 3 – 5 %
- National Audit Office UK: median 4 %
- Audit Scotland median 5.6 %
- The norwegian Region south dataset correlates well with comparable internationally published datasets

Conclusion

- The norwegian dataset from region south shows that the cost of running all Clinical Engineering services is median 4.4 % of the accumulated equipment cost (historic cost, with no indexing or price adjustments). This result correlates well with international data .

References and acknowledgment

References

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