

## **COST EFFECTIVE UTILISATION OF DIAGNOSTIC TESTS: HOW GOOD ARE WE AS DOCTORS?**

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### ***Abstract***

The NHS Leadership framework requires every doctor to be involved in the effective running of the unit they work in. This requires doctors to effectively use the resources available in order to provide high quality patient care. However, for effective use of resources, doctors need to understand the cost of the investigations they are requesting. This will reduce the number of unnecessary and duplicate investigations and ensure that sound medical rationale has been applied before requesting investigations.

### ***Keywords:***

*'Cost-effective utilisation of diagnostic tests', 'medical leadership'*

## **INTRODUCTION**

With increasing financial pressures on the National Health Service (NHS) it is increasingly important to ensure that there is efficient usage of available resources and 'do more with less' in order to deliver 'high quality, value-for-money service'<sup>1</sup>. There is a belief that strong clinical engagement, good leadership and effective management practices are the cornerstones on which efficiency can be improved<sup>1</sup>.

The NHS Leadership framework requires every doctor to be involved in the effective running of the unit they work in. Doctors are expected to be able to accurately identify the level of resources required to deliver safe and effective services and ensure services are delivered within allocated resources and minimise waste<sup>2</sup>.

Investigations such as blood tests and radiology tests are routinely requested during a surgical admission and are important diagnostic resources. There has been a steady overuse of diagnostic tests over the years, which has been fuelled mainly by defensive medicine, lack of experience, 'routine' clinical practice and also by a lack of understanding of the cost of the tests requested<sup>3,4,6</sup>

Overuse of diagnostic tests not only leads to overloading of services but also results in the ineffective use of NHS resources. A sound understanding of cost analysis of diagnostic tests in the NHS is essential and will help reduce the number of unnecessary and duplicate investigations.

In consideration of the increased responsibility and accountability of doctors in order to efficiently utilise the available resources we decided to conduct a survey to analyse doctors understanding of the cost of basic diagnostic tests that are requested in every surgical admission at a district general hospital.

## **METHODS**

The survey was conducted using a semi-structured questionnaire (using the NHS National Leadership framework as a guide) across the medical and surgical departments between the months of February 2014 and June 2014 at a District general hospital.

## RESULTS & DISCUSSION

A total of 52 healthcare practitioners were invited, out of which 44 responded (85% respondent rate). The respondents included the following grades: Consultant ( 13.7%, n=6), Specialist registrar (27%, n=12), Core trainees (13.6%, n=6) and Foundation trainees (45.5%, n=20). Out of the respondents, no one was aware of the costs of all diagnostic tests. Only 2.3% (n=1) were aware of the costs of basic biochemical tests, whilst only 4.5% (n=2) were aware of the costs of radiological tests.

There was a huge variation in the range of estimated cost of both biochemical and radiological tests (Table 1, 2).

**Table 1: Estimated cost of biochemical tests**

Biochemical markers	Estimated cost range by respondents
FBC	£0.05 - £20
U&E	£0.02 - £20
LFT	£0.02 - £20
CRP	£0.03 - 15
D-dimer	£0.03 - £20
Clotting	£0.02 - £20
Group and save	£1 - £20

**Table 2: Estimated cost of radiological tests**

Imaging modalities	Estimated cost range by respondents
X-Ray Abdomen	£0.02 - £100
X-Ray Chest	£1.00 - £100
USS Abdo	£0.02-£200
CT Abdo Pelvis	£27-£350
CT KUB	£7,50 to £400

This was also reflected in the estimated cost of routine surgical procedures (Table 3).

**Table 3: Estimated cost of routine surgical procedures**

Elective Operation	Estimated cost range by respondents
Laparoscopic Cholecystectomy	£300 - £20,000
Laparoscopic Appendicectomy	£400 - £6,000
Open Appendicectomy	£50 - £10,000
Open Mesh Hernia Repair	£100- £8,000

100% (n=44) of the respondents agreed they had no training in the cost analysis of routine test. 97.7% (n=43) agreed that they should be taught about the cost of the investigations as they felt this would affect their clinical practice.

## CONCLUSION

Inappropriate testing can cause inefficiency in the delivery of healthcare and can lead to patient discomfort, overloading of diagnostic services and waste valuable healthcare resources. All of which ultimately undermine the quality of health services <sup>6</sup>.

With increased integration of medical leadership within the undergraduate and post-graduate curriculum, there should be training provided by the healthcare trusts to its doctors regarding cost-analysis within the NHS so that doctors are aware of the cost of the tests they request.

The huge variation in the estimation of cost demonstrates that most doctors have no idea at all of the cost of various diagnostic tests. It also highlights the fact that most doctors feel that having the knowledge of the cost of various diagnostic tests would have an impact on their clinical practice and help them provide more efficient care.

If indeed the NHS wants to 'do more with less'; it is extremely important that doctors understand the cost of the resources they have, so that they are able to use it efficiently and provide high quality patient care.

## REFERENCES

1. [http://www.england.nhs.uk/wp-content/uploads/2013/07/nhs\\_belongs.pdf](http://www.england.nhs.uk/wp-content/uploads/2013/07/nhs_belongs.pdf) (Accessed 19th July 2014).
2. <http://www.leadershipacademy.nhs.uk/discover/leadership-framework/managing-services/managing-resources> (Accessed 19th July 2014)
3. A Todd et al, Reducing Unnecessary Inpatient Laboratory Testing in a Teaching Hospital, American Journal of Clinical Pathology, 2006;126(2):200-206.
4. Wong E T, McCarron M M, Shaw S T, Ordering of laboratory tests in a teaching hospital. Can it be improved? JAMA 1983. 2493076–3080.3080\
5. Young D W. Improving laboratory usage: a review. Postgrad Med J 1988. 64283–289.289 [ HYPERLINK "http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2428514/" PMC free article] [ HYPERLINK "http://www.ncbi.nlm.nih.gov/pubmed/3054854" \t "pmc\_ext" PubMed].
6. Hindmarsh J T, Lyon A W. Strategies to promote rational clinical chemistry test utilization. Clin Biochem 1996. 29291–299.299

7. T Mountokalakis et al, Factors contributing to inappropriate ordering of tests in an academic medical department and the effect of an educational feedback strategy, Postgraduate Medical Journal. Dec 2006; 82(974): 823–829.

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