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The UK Centre for Evidence-Based Purchasing (CEP):

Assessing Cost-Effectivenessin the Radiology Department

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In September 2005, the Centre for Evidence- Based Purchasing (CEP) was created within the UK National Health Service (NHS) Purchasing and SupplyAgency (PASA), as the first key outcome of the Healthcare IndustriesTask Force (HITF), a joint government and industry strategic group, convened to answer a number of industry criticisms, including that the value of innovative healthcare technologies was poorly understood in the NHS and subsequently their adoption in the UK was low.

The Centre for Evidence-Based Purchasing is funded by the UK Department of Health and aims to be the leading independent source of information supporting the uptake of medical technology solutions in health and social care, focusing on the cost-effectiveness of technology and services, leading to an appraisal of value.

This article will focus on CEP projects in imaging, and report on how we contribute to the evidence-base for demonstrating cost-effectiveness in procurement and cost management in the radiology department.

CEP reviews existing evidence and develops economic models to describe the key costs and benefits of novel imaging solutions, thereby informing decision-making and supporting their uptake in theNHS. Universal benefits demonstrated by technological advances in imaging include improved speed and accuracy of diagnosis, with potential workflow gains from minimising repeat exposures as well as changes in patient pathways for managing clinical conditions, enabling cost-effective imaging strategies and resource usage.

Chest Radiography

One of the first published CEP reports in imaging was an economic report, titled ‘Cost-effectiveness of direct digital radiography (DDR) versus computed radiography (CR) for chest examinations’. The aim was to identify whether there was a turning point, in terms of patient throughput, at which the higher initial outlay for a new DDR installation was balanced by a benefit gained in whole-life costs over CR.

If the throughput is less than 80 patients per day, then CR may be more cost effective. Between 80 and 95 patients per day, the difference between the two modalities is negligible and will depend on each individual service. For greater than approximately 95 patients per day with CR, extra resources will be required to manage throughput.

Therefore, above this level of throughput, a DDR room is more cost effective. DDR was shown to have a number of advantages over CR, such as reduced queue sizes, more efficient use of operator time and reduced patient waiting time. Additionally, for DDR, the amount of time a patient spends in the x-ray department was found to be less, with fewer patients having to wait for 30 minutes or more.

Mammography

To inform the future procurement of digital mammography, CEP has published an economic report: ‘Cost-effectiveness of full field digital mammography (FFDM) and computed radiography (CR) versus film/screen imaging for mammography’.

Results show that while capital costs may be perceived as a large component of the cost associated with digital mammography equipment, other components also have significant impact. Of particular importance for mammography are per image costs, such as film and image storage, because of the large number of images acquired on mammography systems during their lifetime, and staffing costs, which account for well over half of the total costs regardless of the system type, technology or location. The cost-effectiveness of either CR or FFDM depends heavily on the cost per image for image storage, and it is vital that particular attention is paid to this cost during any purchasing process.

Cost Effective Procurement

CEP delivered draft core technical specifications for nine modalities of imaging equipment to underpin the award of suppliers to the NHS Supply Chain to run a single comprehensive procurement exercise for an imaging framework, which would comply with EU public sector procurement rules.

Ultrasound systems are the largest proportion of sales in percentage terms (over 60%); however, there has also been a significant take up of larger pieces of equipment (MRI, CT, angiography, fluoroscopy and gamma cameras) at around 9%. This demonstrates that a framework approach is proving successful across the range of imaging equipment. By using the framework, trusts are removed from the obligation of submitting their individual capital equipment requirements through the Official Journal of the European Union (OJEU), and are assured best prices for the equipment, saving significant staff time and costs.

Payment by Results and the 18-WeekWait

Many NHS trusts question the value of capital equipment procurement, versus leasing arrangements, such as those offered by managed equipment service providers. The unbundling of many imaging procedures from the whole pathway of provision of patient care means increasing numbers of radiology exams now have mandatory or indicative tariffs under Payment by Results (PbR).

NHSTrusts seeking to procure capital equipment must consider their equipment whole life costs versus the service capacity they can offer to commissioners and projected income generation from PbR. Commissioners now range from primary care direct access, or the more conventional secondary and tertiary care pathways. By maximising utilisation of equipment capacity, including extended and outof- hours working, imaging departments play a vital role in maintaining short diagnostic waits within the maximum 18-week referral to treatment time (RTT) target.

However, a downside to driving imaging equipment at extended capacity may be reduced lifetimes and more frequent servicing and maintenance intervals, with costly replacement parts, which will need to be budgeted for.

The National Stroke Strategy and the NHS Next Stage Review

In the last six to twelve months, improving access to stroke services has become a driver for change in the NHS. CEP supports this through the following report: Evidence review: ‘Diffusion-weighted magnetic resonance imaging and competing imaging technologies for the diagnosis of stroke and transient ischaemic attack (TIA)’.

The CEP verdict from this evidence review is that diffusionweighted magnetic resonance imaging (DWI) shows significant potential in the study of minor stroke and TIA. In addition, DWI combined with other MRI techniques is currently superior to non-contrast computed tomography (CT) for the exclusion of stroke mimics and shows significant potential in excluding haemorrhage and identifying patients who may experience a better clinical outcome through pharmacological treatment. However, DWI may not be suitable for all patients on account of safety restrictions and there may be considerable practical problems with validating MRI patient suitability within the time-window required for acute TIA and stroke scanning.

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