

Ct scanner justification

Finance



The demand for computerized tomography is on the rise now than ever. The current level of technology is a limitation to the provision of the service especially to the children. This is because small children have to be sedated before the diagnosis can be carried out. Other than the enormous cost of sedation to the children, the current scanners, may expose the children patients to unnecessary radiation which has long term consequences. The machines also consume a vast deal of energy leading to high operation costs. It is with this light that the radiology department wishes to propose the purchase of an advanced piece of equipment to facilitate the diagnosis. The Somatom Dual Definition Flash CT scanner from Siemens fits the current needs due to the technology used in its manufacture. Firstly, the machine reduces the conventional amount of radiation by a factor of up to 20. The conventional machines require between 8 and 10 millisievert in completing diagnosis. The new machine completes a similar diagnosis using a radiation of 1.9 millisievert. This becomes possible through the use of two x-ray tubes which counter rotate simultaneously. The effect is enormous reduction of time for scanning. With this technology, a thoracic scan can be completed in 0.6 seconds. This implies that scanning proceeds without patients having to hold their breath. The machine, also, has Sinogram Affirmed Iterative Reconstruction (Safire) technology that allows for the interactive reconstruction of slice images. This system allows images of high quality to be achieved even when under movement. This means that infants and young children can undergo a CT scan without being sedated and still achieve high quality imaging. In addition, the machine has dose reduction capabilities. The tube voltage should vary with the amount of radiation required and part of the body under scan. The conventional machines do not have a way of

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correlating the voltage requirement with the other scan parameters resulting to use of estimate values. The high voltage values result to excessive dosage or power loss. With the proposed machine, a component called Care Kv recommends the voltage to use for the set radiation and other parameters adjust correspondingly. This way, the radiation dosage, reduces by up to 60%. Another feature is the Care child function. This enables scans to be taken for babies at lower Kilovolt values (70) in comparison to the 80-140 Kilovolt range used in conventional machines. This makes the machine safer than the present machines for children.

Though the machine is more expensive than the conventional types, it carries with it a range of benefits that can be exploited to the hospital's profitability. The capital cost from a Siemens vendor is \$ 390, 291. This price range is competitive in comparison to that of other high performance machines like the Toshiba Aquillon 64 which costs around \$ 400, 000.

However, the cost receives modulation due to the benefits in increasing the throughput of patients who require the CT scans. The manufacturers also give incentives to purchase the high cost machine. With its high speed, patients will not queue to receive the service. The power consumption will also be lower due to the various interventions aimed at reducing the voltage consumption. The operation cost will, therefore, be low. In addition, the machine will create value for infants and babies who will not require sedation. Sedation costs increase the expenses on treatment. The low radiation values coupled with the accuracy will create confidence in the adjacent community encouraging them to undergo the diagnostics. The high radiation values reduce the willingness to undergo a CT scan due to the negative after effects of the test. Since no other hospital in the neighborhood

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has the technology, the facility, being a pioneer will receive scores of referral patients increasing the profitability.

It is with the view of the above advantages that a request for consideration in buying the capital equipment is made. The benefits offered by the expensive equipment easily outweigh the cost considering the role it will play in sensitive applications. Through increased treatments per day, and improved accessibility of children and infants to treatment, the return on investment is guaranteed making the investment worthwhile.

References

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