HealthManagement
Promoting Management and Leadership

Volume 6 / Issue 1-2 / 2011 - Cover Story

IT Meets Medical Engineering:

Cost effectiveness and process optimisation by computer assisted structured medical documentation has been discussed for some time but has yet to be proven by code numbers. The article demonstrates the cost effectiveness of the medical documentation system MediColor for structured medical documentation by means of clear figures. This article uses a real example to prove which costs and process optimisation in a referral hospital have already been achieved, and potential for further optimisation is discussed.

Introduction

Optimising efficiency with regard to treatment processes in hospitals is of great importance. In times of cost-cutting measures it is essential for hospitals to improve processes, work out potentials for saving money and increasing efficiency and to systematically implement these. It is commonly known that structured medical documentation is of great importance and a substantial part of the physician's everyday working life. The assumption that computer assisted systems are supposed to effectively organise treatment procedures in image and findings diagnostics and thus achieve savings is also known. However, so far there has not been a code number analysis regarding the assumption of cost savings and process optimisation by computer assisted medical documentation known to us.

Method

MEDNOVO Medical Software Solutions GmbH had the aim to carry out a cost-benefit analysis within the installation of its medical documentation system (MDS) in the endoscopy/ sonography department of a reference institution. The analysis aimed at evaluating the current introductory status of this MDS, whereby MEDNOVO focussed on the achieved increase in efficiency of the users of MediColor during the entire treatment process. Furthermore, more improvement potential regarding the endoscopic process in general as well as thanks to using MediColor was pointed out.

By integrating IT and medical engineering, no matter which and how many different interfaces are available, MediColor provides a gateway establishing an optimal communication flow between all systems in a hospital. Via the interface to the hospital information system (HIS) on the one hand, to the medical device on the other hand as well as to the Picture Archiving and Communication System (PACS), all data can be provided in digital form (complete and of high quality) at the required workstation when needed.

The intelligent and holistic integration of IT and medical engineering in medical documentation enables the elimination of workflow shortages that result in additional expenses, time pressure and additional pressure on staff. The following illustration shows exemplary shortages which often occur in endoscopy.

The results of the study speak for themselves. Importing patient data and accessing pre-findings thanks to an interface to the HIS and PACS improves workflow and reduces the actual amount of time spent. The integration of data from modalities (image and measuring values) into medical findings, results in, findings and less repeated examinations. Due to more clearly elucitaded findings, there is no need for further explanations to the ward's staff and the referring physician. Also, the complete digital recording of performed examinations and diagnoses of each case guarantees correct invoicing.

As illustrated, the time for all mentioned administrative tasks involved in the treatment process is reduced by more than 50 percent in some cases thanks to the introduction of MDS. Regarding telephone calls between the hospital and the referring physician, the processing time remains the same. However, the number of calls is reduced by half as the findings are more expressive. Result: Significant savings of time and costs that can now be invested elsewhere, creating new potential for optimisation.

Apart from evaluating the investment in MDS quantitatively and proving long-term savings, further optimisation opportunities within the treatment process, growth potential for coordinating processes and software as well as advantages in benefits have clearly been presented and proven.

Due to digital data processing and their availability at all Medi- Color workstations, the number of appointments is reduced by 60 percent, even if the processing time for each case remains constant. Improved commissions of patient transportation, filing of inpatient findings and signing of outpatient findings by using batch processing system saves approximately 50 percent of processing time. Digital findings documentation in MediColor allows a reduction of four minutes, from five to one minute per case, when writing a discharge letter. Batch processing within this restructuring would reduce the distribution of findings to just once a day, which in turn would mean more time for processing.

Due to the positions of the people completing the work (medical assistants and nursing staff), savings in administrative processes, as described above (commissions of patient transportation, filing of inpatient and signing outpatient findings), are higher than the additional costs caused by additional processing time within the communication of findings. This costbenefit analysis can easily be transferred to any other clinic and presents an increase in efficiency and in cost investments in a transparent and calculable way.

Published on : Thu, 16 Feb 2012

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