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Development of Critical Pathway System based on Hospital Information System

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Abstract and objective

Usefulness of Critical Pathway (CP) method is widely recognized. However, there are still few examples of utilizing information technology for CP. We developed Electronic Critical Pathway System (e-Path) based on our Hospital Information System (HIS). Users can place orders from the e-Path and records made on e-Path are automatically transferred to Electronic Medical Record. Variance analysis and clinical assessment can be done by this system.

Keywords:

Critical Pathways, Hospital Information System

Introduction

Critical pathway (CP) is a useful tool for improvement of quality and efficiency of medical care. So far, more than 100 paper-based CPs have been prepared in Osaka University Hospital. There are some dissatisfactions in paper-based CPs. Entry columns are too small for daily record, so that doctors have to do a lot of redundant office duties such as order entry, nursing instruction and chart entry. Information of the patient is dispersed; coherence becomes tend to be lost in paper-based CP, which becomes the result where the advantages of CP are impaired. We developed e-Path which is well linked to MIS to solve these problems.

Description of e-Path

Overview

In our e-Path, a course of medical treatment can be divided into some periods (steps), in every period, orders are fixed and at the time of step end outcome assessment is done.

Our e-Path system consists of three parts: Path Editor, Path Entry and Path Application. First, users register s new CP in advance, various order information as well as nursing plan and nursing instruction can be set in the system. After a CP is applied to a patient by Path Entry, a concrete plan is displayed in overview form. With Path Application, the orders are processed by step. These consecutive records are recorded to the progress note of the Electronic Medical Record automatically.

Path Editor, Path Entry and Path Application

Path Editor is a system to design a new set of CP. First, base date such as admission day and day of surgery is set. Then what order should be placed on the relative day counted at the base date, and what nursing plan should be done is registered. Further, the item which is not order item such as verification matter and schedule of explanation can be registered. Variance which is expected in each CP is registered to the list in advance. The outcome of each step can be set, and the assessment item that is the condition to have to fill the outcome be set.

A patient is selected from the list in HIS, and a CP is applied to the patient concerned is selected. Some small adjustment can be made such as rescheduling surgery date due to holiday.

Path Application is a body of our e-Path System. All orders prior registered within current step are transferred ordering server and nursing plan is placed. Order correction can be made. There are check boxes to check non-order items when they are processed. In order to advance to the following step, outcome item must be achieved. When variance that should deviate from CP is occurred, the variance is registered, and CP is discontinued. After CP ends, the evaluation of the entire CP can be registered.

Integration with the Electronic Medical Record

Most information such as e-Path entry information, orders, outcomes, assessments, variances, non-order items, comments can be seen in progress notes or flow sheets in EMR. It is also possible to add and various records from the progress note as usual.

Results

The e-Path was introduced to respiratory ward in June 2006. Between June 1 and November 30, total number of cases is 52. Final evaluation had been done in 26 cases, 24 cases (92%) were appreciated that e-Path is effective.

Some disadvantages of e-Path have been point out. Individual order correction is more difficult than paper-based CP. Since medical documents of our institution have not fully computerized yet, staff still have to do redundant paperwork.