Development of standardized technique using EHR to describe clinical processes

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Background

- We did the computerization of patient information in our hospital.
- Patient information was recorded in an individual data base.
- The standard method to retrieve by skewering two or more patients has not been established yet.
- We aim at operating analysis of clinical procedure.
- We aim at evaluation of the validity of care process.

Objectives

- To establish the methodology of clinical process analysis.
- To develop prototype application that use the methodology.
- To analyze the patient data by using the prototype application.
- To evaluate the methodology by assessment of analytical result.

Method 1: Definition of various events in clinical process

- INPUT: condition of the patient on admission.
- PROCEDURE: therapeutic intervention
- OUTPUT: condition of the patient at discharge

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Method 2: Type of Therapeutic Intervention

- Event type intervention
  - Endotracheal intubation, one shot injection, etc
- Continuation type intervention
  - Use of incubator, oral intake, tube feeding , etc.

Method 3: Treatment intervention analysis algorithm

- Patients are sampled according to the condition on admission.
- Treatment intervention data of the sampled patients are extracted from electrical flow chart.
- Various analyses are tried to each intervention.
- Analytical results are compared with the output.

Result 1: Development of prototype application

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Result 2: Difference of analysis method according to type of the record.

- Event type intervention.
  - It is possible to evaluate it quantitatively by the frequency.
  - Other table that describe quality of the record is required for a qualitative evaluation.
- Continuation type intervention (string data)
  - When the intervention is described on one record, the beginning day of the procedure, the end day of it, the continuation days are appreciable.
- Continuation type intervention (numerical value)
  - The beginning day of the intervention, the end day of it, the continuation days of it are appreciable.
  - The maximum value, minimum value, average value are appreciable.

Result 3: Analysis sample

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Discussion

- The study was retrospective study that had examined the analysis method based on an electronic record.
- In the event type intervention, a qualitative evaluation was difficult though a quantitative evaluation was easy.
- It is necessary to prepare the relation-table for a qualitative evaluation separately.
- In the continuation type intervention, it is necessary to structurize the accumulated database.
- If a related item is not described in the same record, the table that describes the relation of another record is necessary.

Conclusions

- The methodology of operating analysis of the clinical process was studied using the electronic hospital record.
- There were variety of operating analysis of clinical procedure by way of the various patient's extraction method.
- The importance of the construction of the structurized patient information data base was suggested.

References, acknowledgments and contact details

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