

The CIRS-case microscope - the analysis of 52 unselected cases with the OPT-Model

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Introduction

Critical Incident Reporting Systems (CIRS) are event reporting and learning systems of critical incidents to improve patient safety in hospitals. The main idea is to learn from errors: anonymized case reports help to understand the various kinds of mistakes. CIRS are usually operated in house but some are also publicly accessible.

In Germany, different institutions operate such systems. The CIRSmedical (<http://www.cirsmedical.de/>) is an open nationwide system of the Center of Quality in Medicine (Ärztliches Zentrum für Qualität in der Medizin, Berlin). The case structure and data items allow a review of individual case reports. Our report covers 52 unsorted, not entity specific, up-to-date-cases analyzed by the Open-Process-Task Model (OPT-Model)[1].

Methods

The 52 cases were chosen randomly from case reports published by CIRSmedical before November 2017. The OPT-Model analyses the structure of complexity in medical tasks by determining the various properties related to the input and output of the task (information, patient, specimens/drugs) and the properties of the task itself (e.g., contamination, number of involved persons, communication properties, invasive/non invasive procedures). The analysis follows a systematic pathway through each task in each case report using lists of properties comparable with checklists. Besides this structured analysis of the tasks, the correctness of information, diagnosis, therapy plan, technical equipment and other items (called status item) is evaluated too.

Results

A case report may include problems related to one or more medical or organizational tasks. The reports of the 52 examined cases describe errors related to a total of 60 tasks. Many cases show a lower or medium complexity: in 25 of 60 tasks, only one staff member is involved, in 22 cases 2 or 3 staff members were involved (for the remaining tasks, no information was available or not relevant). If the diagnostic or therapeutic task involves two or more medical domains (e.g., surgery and cardiac disease), the complexity increases. The majority of cases cover only one medical domain. The analysis shows that 37 of 60 tasks could be classified as everyday actions or as routine medical processes. Concerning the priority of the patients' medical conditions we found that the priority was low in 23 reports, middle in 13 and high in seven cases.

Conclusions

This systematic analysis using the OPT-Model uncovers essential structural aspects of case reports in CIRS. In contrast to other methods such as London Protocol, the OPT-analysis does not detect medical errors directly. The structured evaluation unifies the view on the cases and allows the application of statistics independently from the medical domain and helps to detect typical patterns. Not only the properties or events related directly to the mistakes are collected but also all structural aspects of medical and organizational tasks. A particular focus lies on the probability and possibility to detect and correct wrong status items such as wrong diagnosis or wrong therapy plan. This expresses the stability of a medical task against the illegal status from previous tasks.

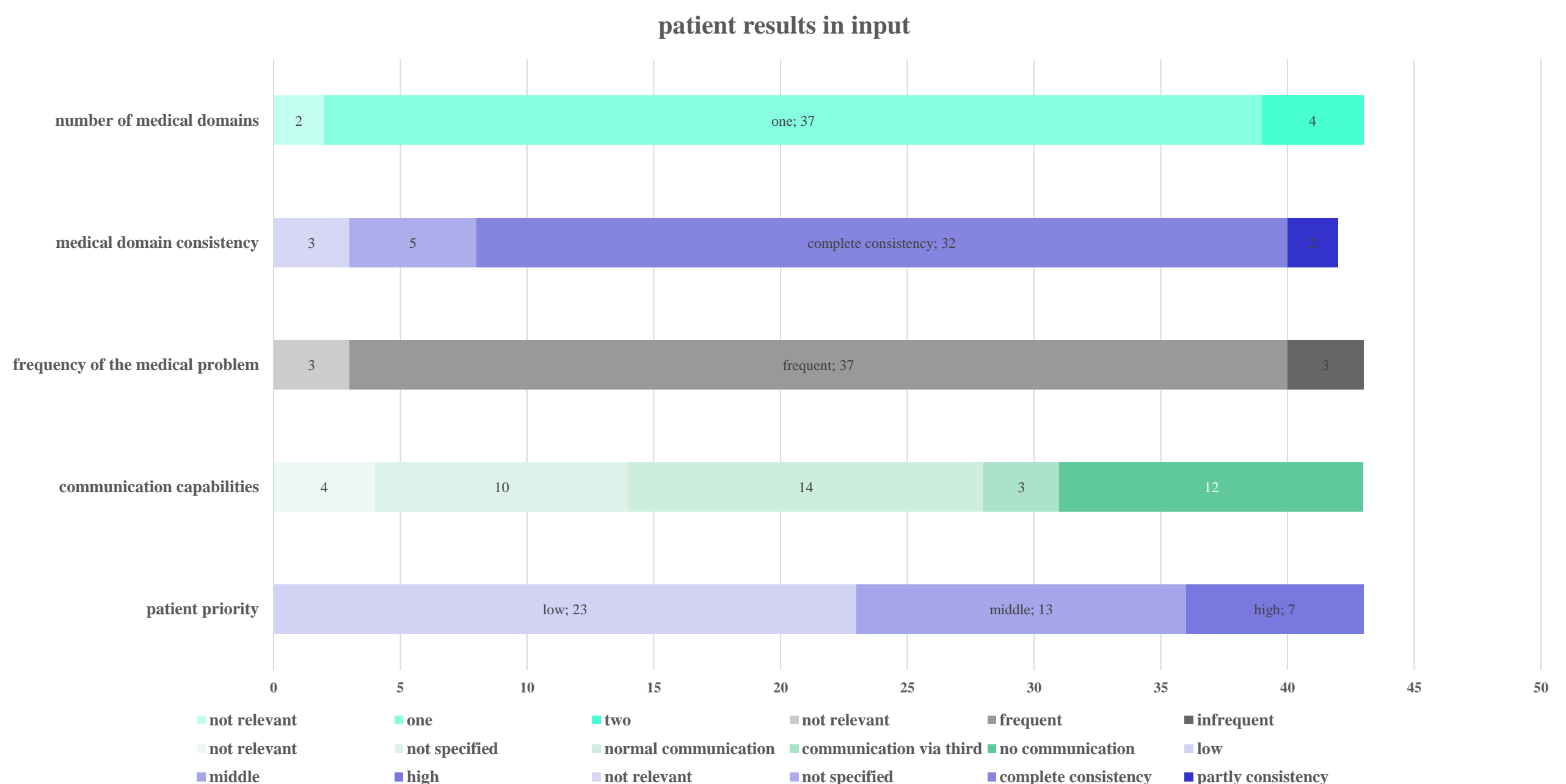


Abb.1: patient result in input