

# Monitoring quality indicators in the BIRPIS21 Hospital Information System

Recently healthcare organizations have been trying to improve accessibility and increase the quality of their services. The information system must keep abreast with the guidelines of quality development in healthcare and track the key data required for analysis and appropriate interpretation of the indicators. In cooperation with the medical profession, Infonet has recently developed special modules which allow entry and analysis of data allowing them to determine the key indicators defined by the Ministry of Health in accordance with the positions, recommendations and requirements of the World Health Organization.

## Why do we need to monitor quality indicators?

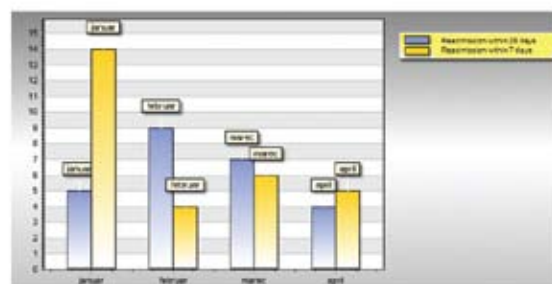
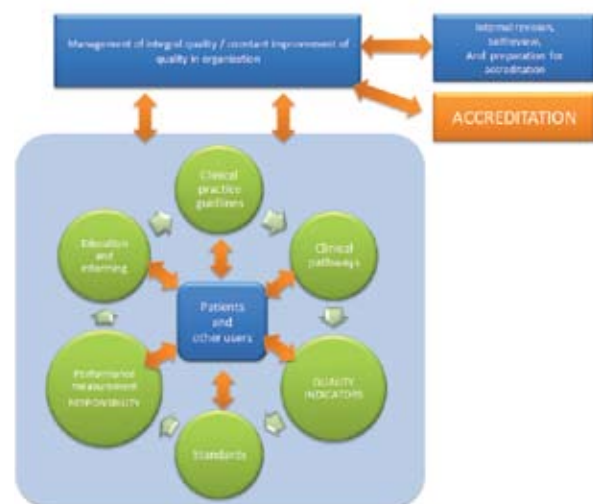
Monitoring quality indicators is a part of a healthcare organization's activity cycle which helps these organizations achieve the best possible treatment results and therefore the best patient care. Intensive introduction of clinical pathways in healthcare ensures standards which can be measured with quality

indicators, and with suitable IT support these can prove to be a valuable source of information when preparing measures to improve quality.

## BIRPIS21 and indicators

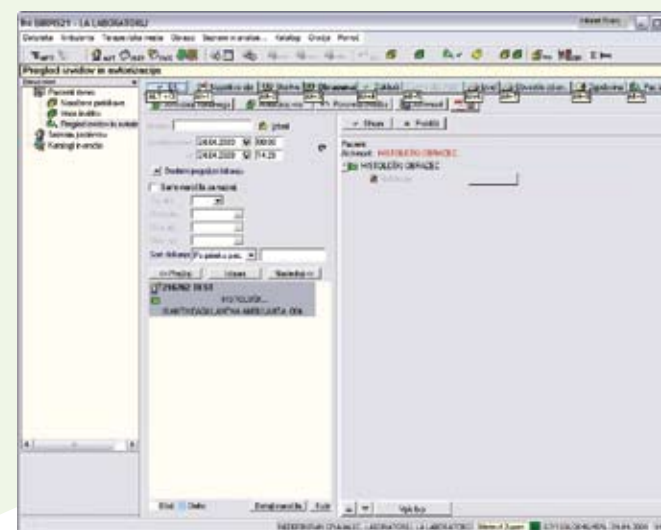
As the point of origin when developing the professional modules for monitoring quality standards we used the guidelines provided by the Ministry of Health, which stipulate the

mandatory quality indicators which hospitals are required to monitor. In addition to the actual data basis for the individual indicator, the indicator's corresponding link to quality is also defined. All indicators are monitored through time as incidence of individual phenomena. In order to perform an in-depth analysis and look for the causes for the value of an individual indicator, the data had to be interlinked in the professional modules.

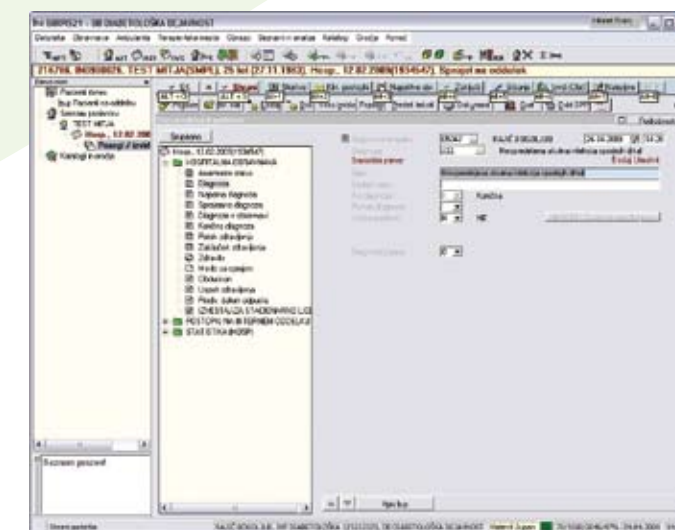


Picture 2. An example of monitoring a quality indicator: readmission of a patient, the graph shows the number of readmitted patients for the same diagnosis or complication for a specific hospital department.

Picture 1. (Source: National Policy for the Development of Quality in Healthcare, Slovenian Ministry of Health, 2006)



Picture 3.



Picture 4.

Main three indicators relate to the individual treatment of the patient, and the BIRPIS21 system monitors them on the patient level. These indicators are the Waiting Period for Computed Tomography, Waiting Period for Discharge and Repeat Admission for the Same Diagnosis or Complications. These indicators are directly linked to the organization and the work process within a hospital.

For the indicators Number of falls, Number of decubitus ulcers (bed sore), Number of MRSA colonizations, we developed special modules which allow entry of all data defining the indicator. In collaboration with experts from Slovenian hospitals gathered in special working groups, we defined the datasets required for detailed monitoring of expert data for the individual indicator.

These working groups defined the methodology to monitor curative and preventive measures (Waterlow and Norton schemas) for decubitus ulcers, the list of data significant for recording cases of patients falling out of bed and similar records of hospital infections.

Only good and complete medical information collected on the basis of clearly defined methodologies allow analysis and development of measures for improving quality.

The modules for monitoring quality indicators have already been installed on our clients' systems.

## Analysis of the indicators

Analysis of the quality indicators was implemented using Infonet's K21 analytic tool and the OLAP cube. Adaptable OLAP analyses are crucial for searching and cross-referencing samples influencing the individual indicator. The large number of various specific expert data requires close familiarity with the professional field and the work methods used in the individual hospital.

In indicators related to the treatment of the patient, it is customary to analyze the value of the indicator and its relation to all the attributes of patient treatment. We can compare data such as the number of readmissions, waiting periods or unplanned hospitalizations across the hospital's organizational structure, healthcare service provider, or another professional criterion. All analyses are always performed in a specified timeframe, as the timeframe is the principal requirement for monitoring individual indicators and how they move in relation to time. For a comprehensive analysis of the quality indicators we prepared the analytical cubes "Infections", "Decubitus Ulcers" and "Bed Falls".

## Conclusion

Due to intense introduction of quality indicators in hospitals, Infonet closely monitors activities and introduces upgrades to expert modules to include new functionalities which support the monitoring and analysis of these indicators. Currently, our hospital information system BIRPIS21 complies with the requirements of the Ministry of Health regarding collection of data for the mandatory quality indicators. The goal for 2009 is to allow our users to monitor quality indicators across various methodologies, e.g. WHO PATH (Performance Assessment Tool for quality improvement in Hospitals) and in the context of various more specific, specialist activities.

Borut Škraba