

110: A 3D tool to visualise clinical pathway indicators: The case study for total hip arthroplasty

Vanhaecht K., Croes L., Sermeus W., Delesie L.

Objective:

In Belgium and The Netherlands, 56 organisations are developing, implementing and evaluating clinical pathways. A new 3 dimensional tool for indicator visualisation opens new perspectives for the multidisciplinary task forces.

Methods:

A clinical pathway is a tool to systematically plan and follow up a patient focussed care program. The Leuven Clinical Pathway Compass (1) is used to systematically define the clinical pathway indicators. Within the Belgian Dutch Clinical Pathway Network (www.nkp.be), 17 multidisciplinary teams are benchmarking clinical, process, financial, team and service indicators. Within this multi centre study, a sample of 373 patients was included. The selected clinical pathway indicators were demographic variables, ASA score, wound status, drain removal, pain score, start of mobility, day of 50 metres walking, day of 100 metres walking, mobility parameters, day of visit by social worker, number of X-rays during hospital stay, number of blood units, total LOS, LOS on ICU and patient satisfaction.

Results:

This multi-centre study resulted in the production of an extensive benchmarking report. Descriptive statistics with tables, bar charts and box-plots were used to feedback the scores. The main complaint of the multidisciplinary teams was the lack of overview: 15 indicators for 373 patients in 17 different centres. Therefore, we turned to information visualization to allow the team managers to gain insight and discovering THA knowledge. This visualization uses a top-down approach to keep track of the total picture without context switching. The total picture basically "represents" all patients and teams as points and all indicators as lines in a 3D graph on the basis of the relationships among the patients – more or less similar - and the relationships among the indicators – more or less correlated. We apply non-linear multidimensional scaling methods to generate this virtual graph. The IT tool moreover provides interactivity, zooming-in facilities and windowing (2). By using this tool we found differences between the hip arthroplasty teams and the differences within the teams on some of the indicators. The paper based report can still be used for in depth analysis.

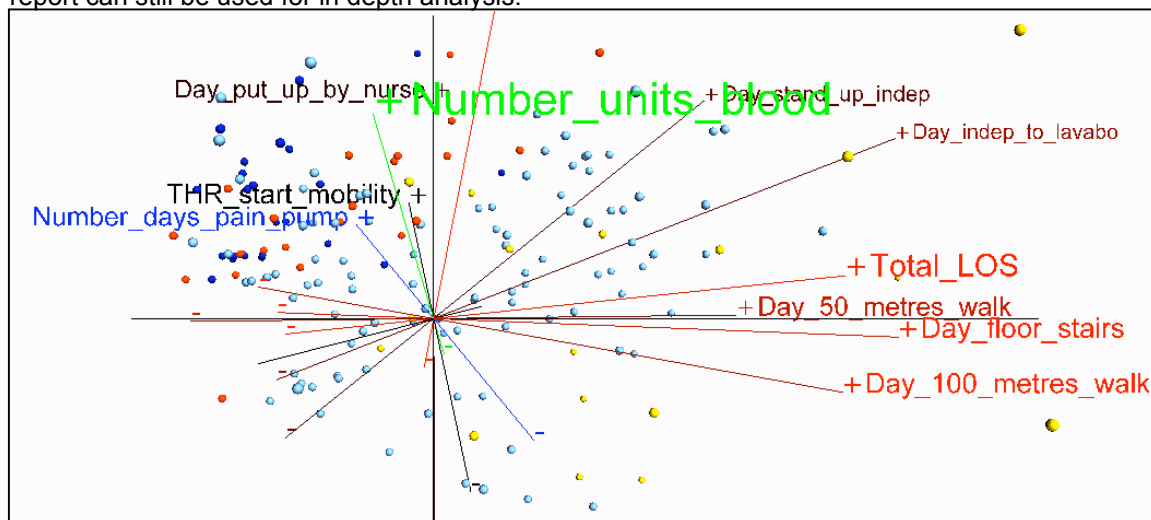


Figure 1. shows the opening shot of a discovery session.

Conclusions:

This new way of visualisation, has an added value over the paper report. It pilots the learning process towards the improvement of the quality and efficiency of the clinical pathway.

Reference List

1. Vanhaecht, K. and Sermeus, W. The Leuven Clinical Pathway Compass. *Journal of Integrated Care Pathways* 2003;7:2-7.
2. Delesie, L. and Croes, L. Monitoring the Variability in Drug-Prescribing Patterns: Benchmarking and Feedback in Belgium. *Eur. J. of Clin. Pharm.* 2004;58:215-21