PHD WORKSHOP ON INDUSTRIAL AND INFORMATION ENGINEERING

Improving performance of healthcare processes through BPR and SNA techniques

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Understanding crucial insights through text mining techniques

Our research started from investigating the applications, tools, and objectives in the healthcare sector:

APPLICATIONS

- Operating rooms
- Patient flow
- Sterilization service **OBJECTIVES**
- Cost reduction
- **Resource utilization**
- Patient satisfaction \bullet TOOLS
- Process modelling
- Simulation •
- Mathematical models
- Standardization





A preliminary framework for process reengineering

Define a **framework** applicable to the various healthcare applications that is general and allows for process standardization and performance benchmarking



The steps of Business Process **Reengineering (BPR)**



Ongoing research Ongoing research RE-ENGINEERING OF INTRA-OPERATIVE PATHWAY COST AND RESOURCES EVALUATION OF THE STERILIZATION SERVICES Review of the **Decision support** tool that antibiotic prophylaxis, electrode provides a **mathematical** intraoperative processes placemer aimed at optimizing **model** for the Pre-room patient transport Patient preparation timelines and dimensioning of resources in the Central Sterilization standardizing activities. check list The patient pathway Service Department (CSSD), in term of within the operating Accepted block was analyzed and machines, operators, Arrival of the patient in the operating block graphically represented number of instruments and work-shifts.

to evaluate the capacity of the CSSD. By the output of the

dimensioning, it is possible to evaluate the **total costs** of the sterilization activities and evaluate outsourcing scenarios.

using the **BPMN** methodology. A **KPI** dashboard was defined to measure the improvements achieved following the implementation of the



suggested corrective interventions. Preliminary analyses indicate a reduction in changeover times.

depending by the number and types of surgeries that a structure realize. The tool also allows to perform scenario analysis under different conditions







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