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Analyzing the Trajectories of Patients with Sepsis using Process Mining – Lessons Learned

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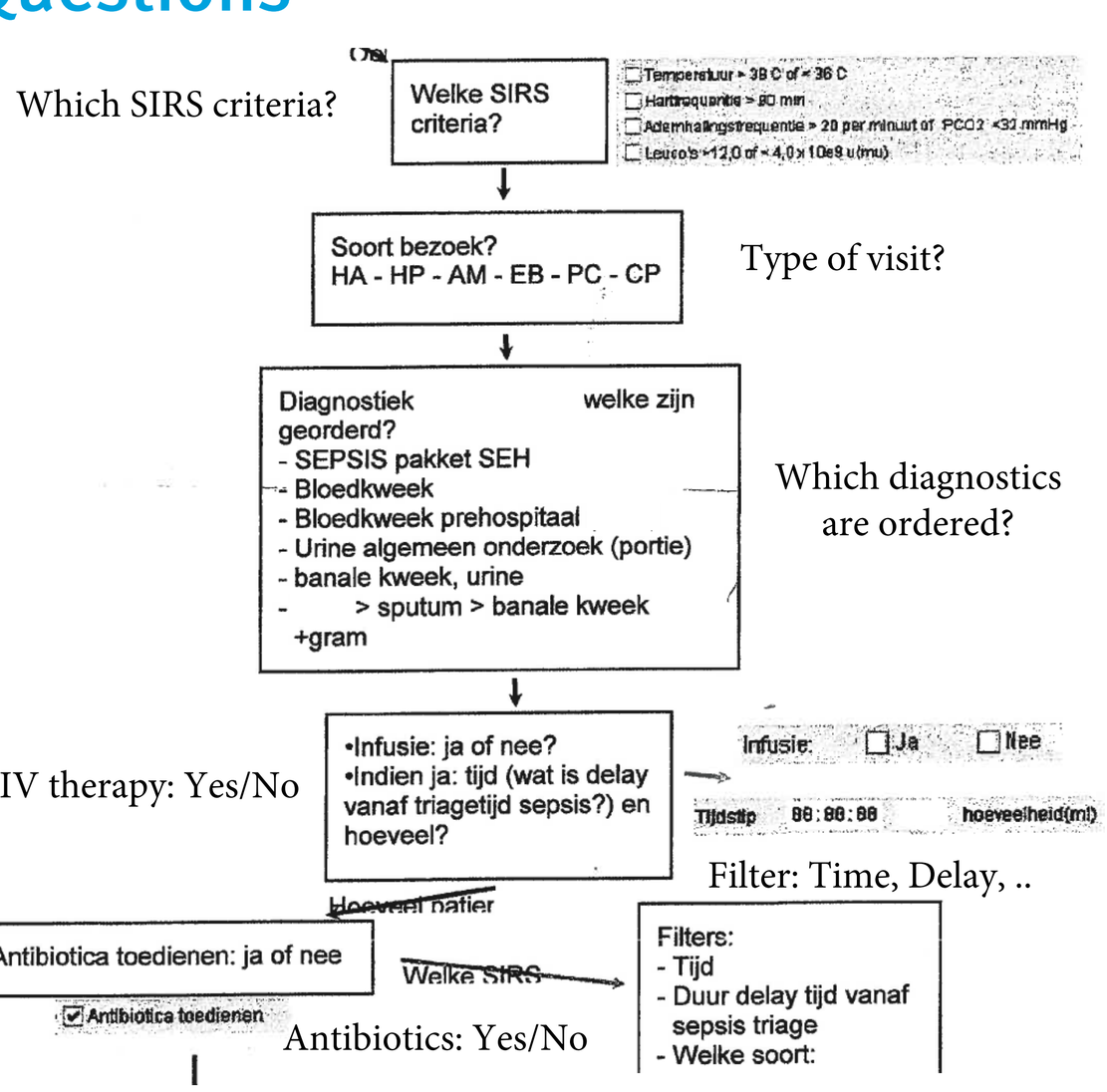
Lessons Learned

- Process mining can be used to **clarify the patient flow** in a hospital.
- Process mining can be used to check the daily clinical practice against **medical guidelines**.
- Process discovery methods may return **unsuitable models** that are difficult to understand for stakeholders.
- Process mining is an **iterative process**, e.g., **data quality issues** are often discovered and need to be addressed.

Project Scope

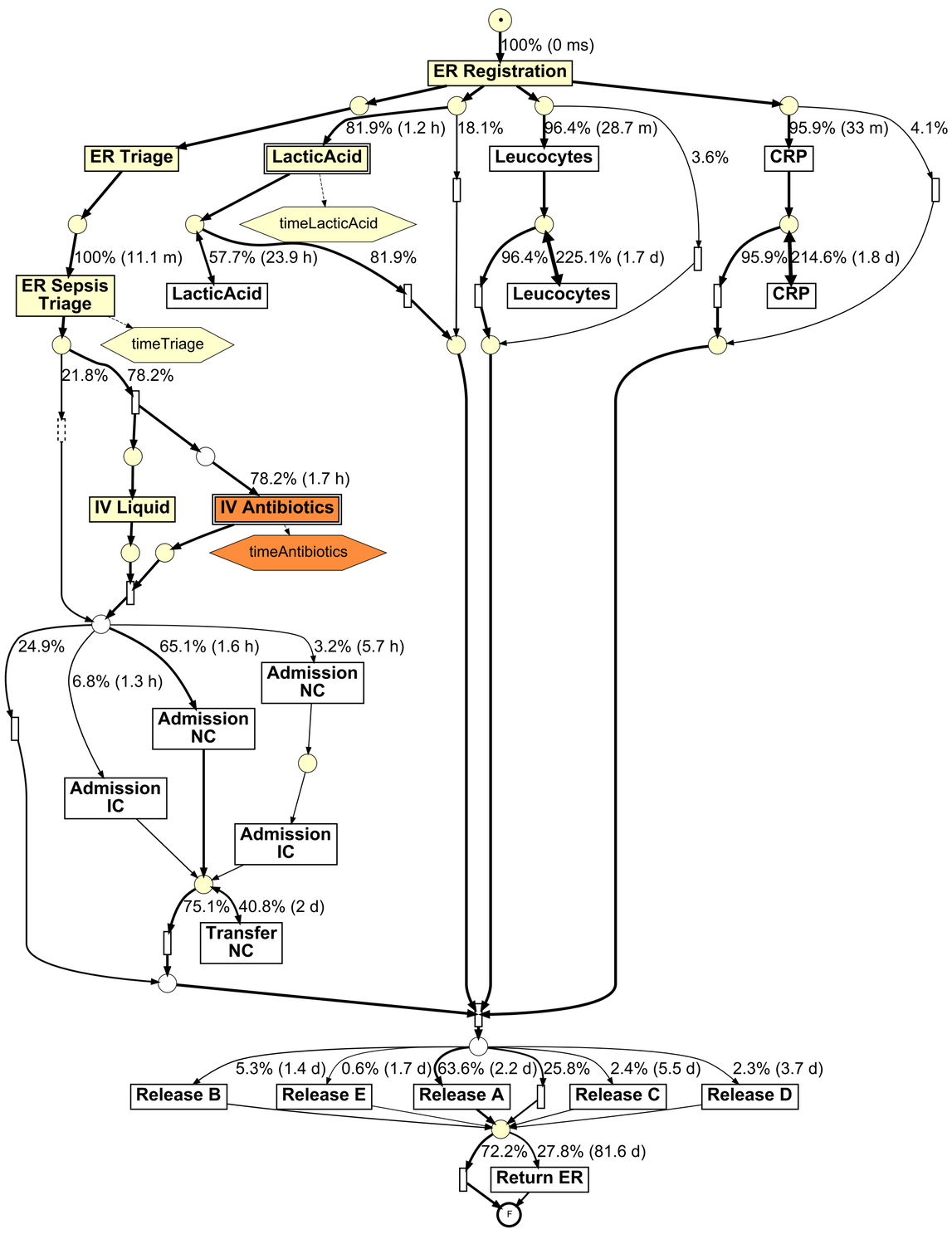
- Regional hospital with 700 beds at several locations and 50,000 patients per year.
- Analyze **patient trajectories** for patients admitted to ER.
- Focus on **sub group**: patient with a **sepsis** condition.
- Event log donated (anonymized) for further research [1].

Questions



- Conformance of medical guidelines
- Visualization & investigation of patient trajectories
- Discovery of interesting/deviating behavior

Approach



- Classical process discovery provided unusable results
- Iteratively designed normative process model
- Multi-perspective conformance checking [2] with our MPE tool [3] in ProM: `fmannhardt.de/g/mpe`

References

[1] Felix Mannhardt. *Sepsis Cases - Event Log. Eindhoven University of Technology. Dataset.* 2016.
[2] Felix Mannhardt et al. “Balanced multi-perspective checking of process conformance”. In: *Computing* 98.4 (2016).
[3] Felix Mannhardt et al. “The Multi-perspective Process Explorer”. In: *BPM 2015 (Demos)*. Vol. 1418. CEUR Workshop Proc. 2015.