An Example of Cycle Time in the Operating Theatre

All hospitals have a wait list for the operating theatre. This buffer ensures that the operating theatre is not idle if a patient arrives late or is cancelled.

A delay in the operating theatre

Let's imagine that in a particular hospital the operating theatre is fully booked with knee replacements. They can complete 4 per day with an on-call wait list of 2 patients. In the operating theatre there is a problem with the cautery machine, which works intermittently. Surgeries proceed because this is not considered a serious issue, but each surgery takes 10 minutes longer. Therefore one scheduled surgery is delayed to the following morning. The following day the wait list is 3 patients, and due to the cautery problem another operation is delayed. The next day the on-call wait list is 4 patients.

None of the operating room staff report the misbehaving cautery machine, because there are often small problems in the operating theatre and nobody notices the extra time that surgeries take. At the hospital there is no protocol for how big the on-call wait list can be, so the pre-surgical clinics continue to book 4 new patients every day.

Problems cause cycle time to increase

At this point, the cycle time for the entire process has increased (there are already 2 extra patient-days) and every day the cycle time increases by one patient-day. If extra operating time is not booked to clear the backlog (an extra half-day of operating time is already needed), the cycle time has increased permanently. And we know that longer cycle times cost more money and result in lower quality care. There are only two solutions: either stop booking new patients or temporarily increase the operating theatre capacity (usually by booking longer days or an extra shift).

Monitoring cycle time allows rapid resolution of problems

Now imagine that cycle time is well monitored. Particular attention is given to monitoring the operating theatre on-call wait list, because that is an indicator of problems. A maximum on-call wait list of 4 patients has been defined. Reaching this maximum on the second day triggers the pre-surgical clinic to stop booking new patients for surgery. In addition a rapid-response team is activated to find the problem, and within an hour they have identified and solved the issue (in this case, by replacing the faulty cautery machine). An extra operating session is scheduled to clear the backlog, and the pre-surgical clinics resume.

Monitoring cycle time allowed rapid identification of a problem that may have continued unnoticed. Cycle time, which trended briefly up, is back to its baseline, meaning that costs are well controlled and the quality of patient care is high.