The 'Golden Patient': Improving Theatre Efficiency

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Mark Morton BVSc DSAS(Orth) MRCVS

At the time of writing, Mark Morton was employed at Chestergates Veterinary Specialists.

Introduction

Improved theatre efficiency has significant patient care benefits. For example, increased anaesthesia time is a well reported risk factor for surgical site infection and may be a contributory factor in post-operative regurgitation. A common factor in team retention is a stress-free working environment. Efficient workflow contributes to this and minimises the impact of emergency cases on team member well-being. Team members were frequently staying late to finish routine cases impacting work-life balance. Whilst improving efficiency has obvious benefits to productivity that was not the main driver of this project.

The 'Theory of Constraints"[1] is widely used in the manufacturing industry. The idea behind the concept is that every system has multiple links, one of which constrains the system – the weakest link in the chain. To improve the system, one needs to systematically improve this constraint until it is no longer the limiting factor. Time spent improving anything other than the primary constraint does not help improve the system. In our system (getting cases into theatre and performing surgery) we identified the primary constraint as the start time (the time the first case of the day gets into theatre).

Aims of the clinical audit

A previous QI project at our hospital aimed to benchmark factors associated with efficiency in our operating theatres. Data collection and benchmarking of multiple factors around theatre workflow included:

- Case and procedure
- Surgeon/Assistant/Nurse
- Prep time
- Anaesthesia time

- Time in and out of theatre
- Surgery start and end time.

Any issues with theatre kit or equipment (relating to availability/stock control/maintenance) were recorded by our sterile supplies team. We displayed this information as an infographic which was shared with all teams monthly.

In this next phase of the project, we focused on how we could improve our primary constraint of the time the first case of the day went into theatre.

Actions

We introduced a concept called 'Golden Patient'. This initiative was initially reported following use in human trauma surgery lists [3,4,5]. The 'Golden Patient' is a pre-selected, first patient of the day with a clear 'routine' surgical requirement and no other co-morbidities. The patient is selected by the theatre and anaesthesia teams the previous day and must fulfil set criteria:

- Hospitalised the night before.
- Have all pre-operative blood tests done.
- All surgical paperwork (surgical request form/anaesthesia plan, etc) completed.
- Have no reason (other than another life-threatening emergency) that this patient should not be the first case the following day.

Team members are also allocated to the case the day before so nurses and anaesthetists arrive with a clear plan of what they would be doing first that day. We shifted the work patterns of our theatre nurses and anaesthetists to ensure we had appropriate team members early each day to start cases.

Data was recorded in our theatre log which records all the case details and timings (e.g. time of induction, time in/out of theatre, start/end time of surgery). We used a separate log to record all the days when we had a 'Golden Patient' and the time it went into theatre. This helped with data analysis.

Results

We involved the whole practice team in this project. Improving theatre start time requires a team approach:

- The kennel nurses ensure patients are ready for surgery, have an intravenous catheter placed, and any blood tests required are done.

- Theatre nurses ensure theatre is set up early ready to start and make sure surgical kits and equipment are ready the day before.

- Surgeons are required to complete surgical request forms and kit requests the day before procedures so equipment can be organised, and the operative list can be planned.

- Anaesthetists to complete pre-operative assessments the day before surgery and complete anaesthesia plans for the 'Golden Patient'.

Whilst we already tried to do all these things, the concept of 'Golden Patient' gave everyone a target to aim for. This initiative created no additional work, it just meant all the steps required to get a patient into theatre were completed at an appropriate time. If one step is delayed the process falls apart. An informal process audit identified that not having patients admitted the day before surgery was a major reason why we didn't have a 'Golden Patient', which we have tried to improve.

We compared data from the first 5 months of our 'Golden Patient' initiative with baseline data from the previous 12 months:

- The time the first case of the day moved into theatre improved by 43 minutes (reducing from 10.19 am to 9.36 am).

There was a noticeable change in activity in the practice early in the day. We wanted to demonstrate that theatre lists were finishing earlier in the day as a result of the earlier start. This was not possible as the caseload was a mixture of elective and emergency work and inevitably emergency cases arrived late in the day.

Subjectively, however, we improved capacity to deal with these emergencies, and it became rare we were unable to accept a patient because we were too busy with our elective lists. This was not always the case previously, or accepting cases meant teams staying late. The frequency of this has reduced, with the outcome that the first case of the day is no longer a primary constraint.

Impact of intervention

The project generated a buzz around the clinic. Clinicians request that their patients be the "Golden Patient' as the benefits of this and the effect of starting early are readily acknowledged. It has also allowed better scheduling of surgical procedures following assessment, for example, not leaving patients that may require significant post-operative monitoring until the end of the day when there will be fewer team members available to monitor them.

We tried to assess whether there was an effect on overtime claims by team members, however, this was difficult to objectively assess due to our recording systems, with many extra hours worked being taken as time owed generally on an informal basis. Subjectively teams felt there were fewer late finishes. Our senior nurses processed fewer overtime claims and nurses appeared to have less time owed for late finishes.

This initiative has resulted in earlier starts in theatre with surgeons needing to be organised with other administrative tasks they previously performed whilst waiting for cases. We soon got to the point where we needed to focus on the second and third cases of the day to maintain momentum. We continued to reflect on our efficiency and introduced an electronic system for recording data which made analysis much easier.

Senior Leadership was very supportive of this project. Initially, we organised a meeting each day with the team leaders of each area of the practice, the practice manager, and the hospital director. The workload for the following day was assessed and a 'Golden Patient' was identified. Whereas we had previously struggled at times to promote the need for efficient workflow, having a 'name' for this initiative made a big difference in engagement. "Golden Patient" is now in common parlance in the clinic, and people ask, "Who is the 'Golden Patient' today?" or "Why isn't there a 'Golden Patient' today?". Clinicians are now disappointed if their patient isn't the 'Golden Patient' each day.

The initiative also expanded around the practice with other areas (i.e. imaging) adopting a similar process. Other teams also engaged with the process, for example in kennels the team made identifying labels for cage doors so the 'Golden Patient' could be easily identified overnight prompting people to check everything was in place to start early the next day. The project has developed more leaders or champions as it has evolved with people helping to drive it forward.

References

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