ing on Risk: Reducing Intra Ocular Lens Reservation near misses through Digital Intra Ocular Lens Systems (DIOL)

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Background & problem statement

Cataract operation with lens implant is the most common ophthalmic procedure. Although lens implantation related serious adverse events are rare, they increase patient ocular morbidity due to the need of unintended repeat surgery and thus has significant impact on patient safety.

Capturing all near misses events is a core principle under pinning our commitment to patient safety. Data analysis of Intra Ocular Lens (IOL) related near misses from March to Aug 2012 showed surgeon and process related factors leading to these near miss events. The main **surgeon related factor** was inconsistent description of various IOL models while **process related factors** comprised of variability in processes involved in IOL reservation, for instance transcription errors on the reservation chit and issues arising along multiple manual reservation points leading to missing, non-availability of IOL order to the OT team
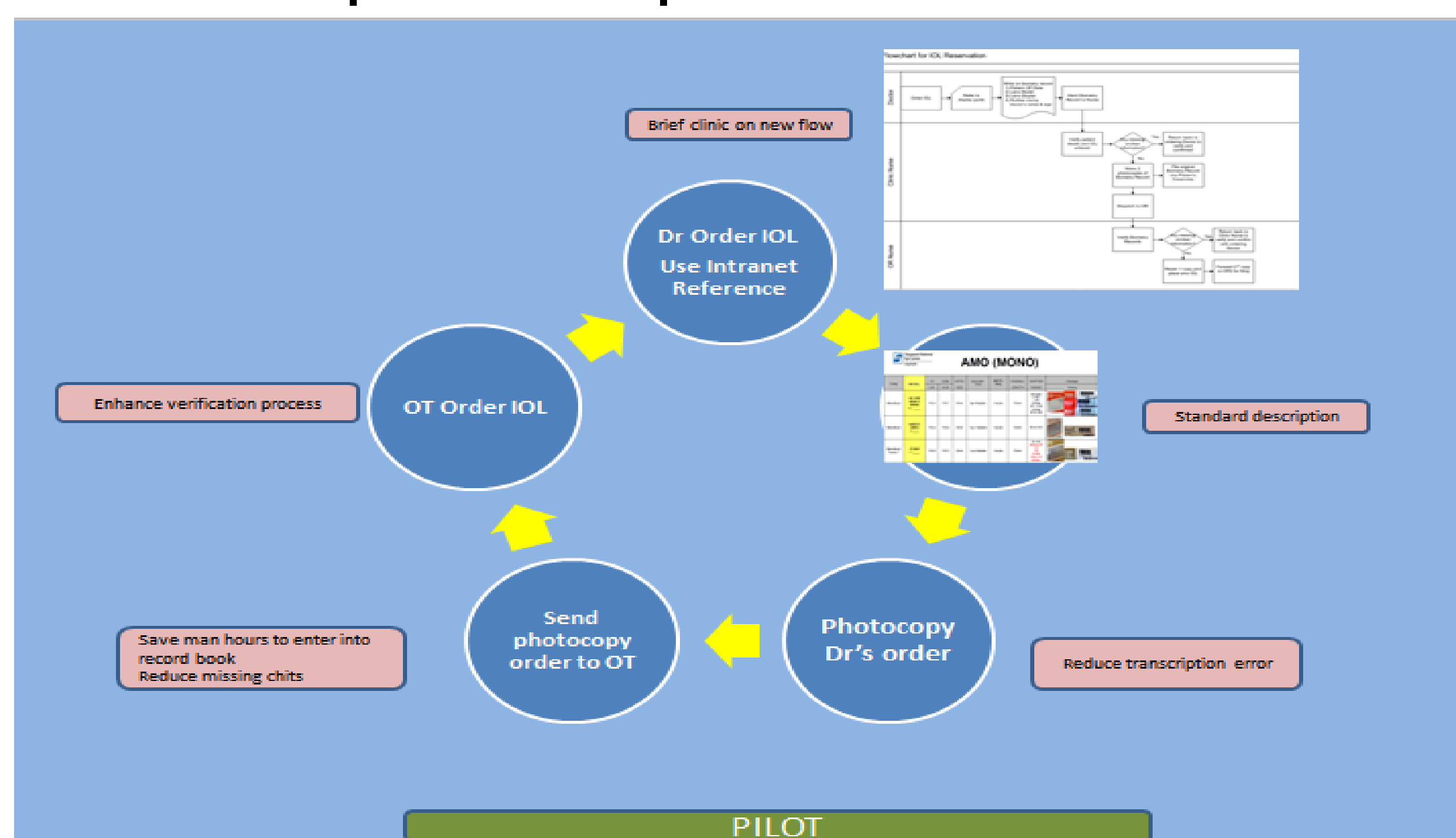
Aims:

Reduce incidence of IOL reservation related near misses/SREs particularly those related to process and surgeon factors
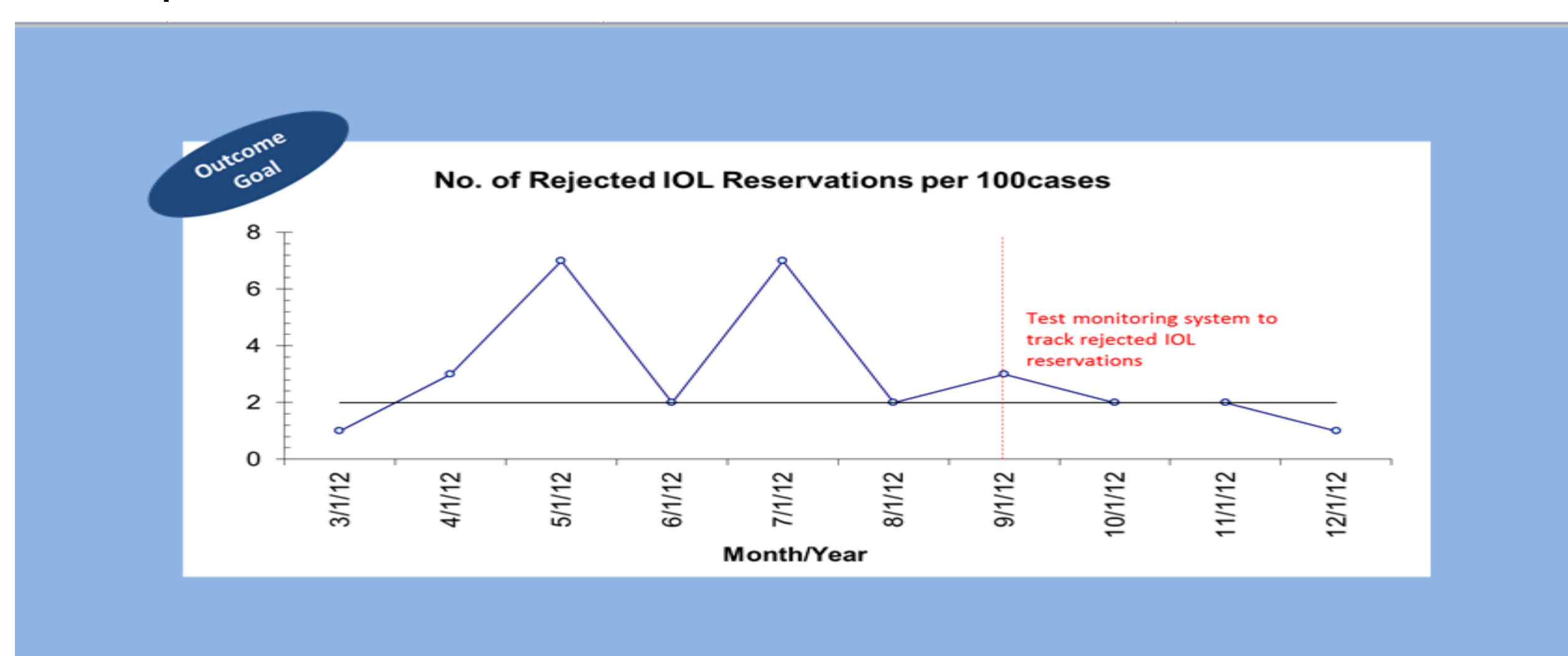
Methodology:

The project was carried out in 2 phases using PDCA

PDCA 1 – Simplification of process & Intranet IOL reference

Eliminated transcription errors and number of rejected orders from inaccurate description reduced from 0.22% to 0.05% within 1 week


Increased staff satisfaction was reported on simplified process and time saved for reservation process from 40 seconds to 10 seconds per staff.
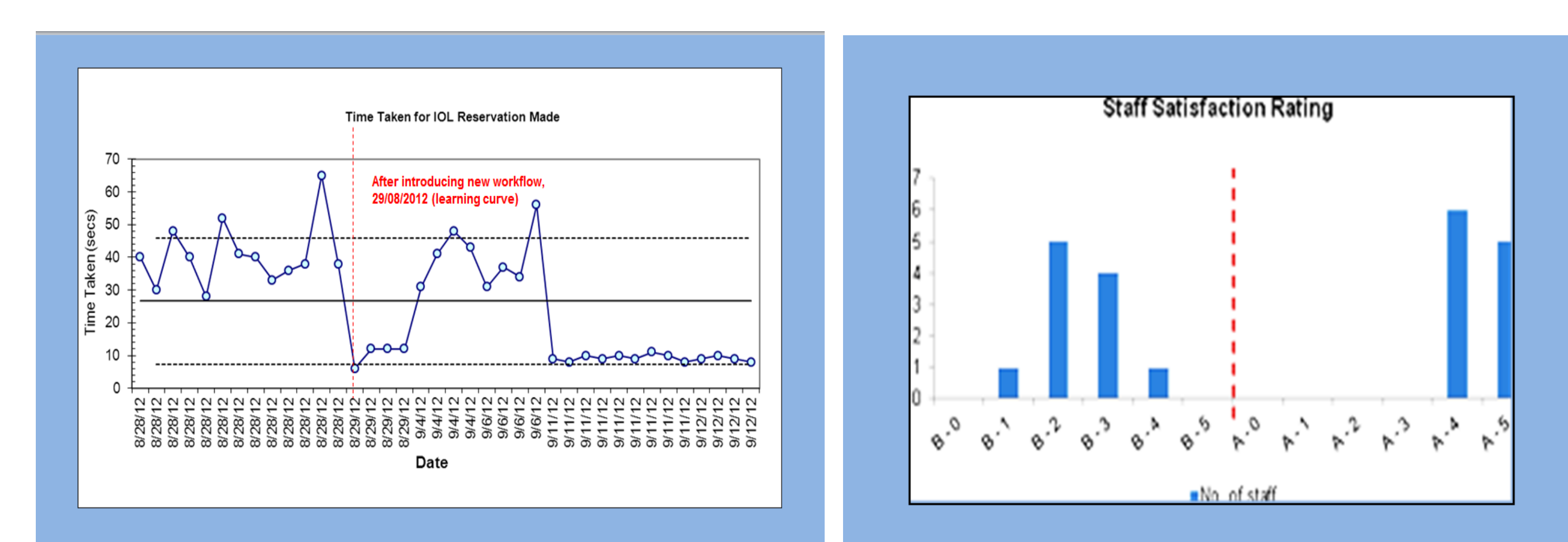
Key points from PDCA 1 such as standardization of order, reducing steps in ordering were used to develop digital IOL ordering system

## PDCA 2 – Phase 1 & 2 development and enhancement of Digital IOL Order system

Phase 1 involved developing a digital IOL order system (SCM based) with detailed IOL information incorporated into the system including various ranges of IOL models, available range of IOL power for each IOL model, lead time required for IOL to be reserved (certain IOL required mandatory 2 months manufacturing lead time), ease of IOL reference etc. No manual transcription was required by the surgeons while they placed the order online (avoiding transcription errors) and orders were routed directly to the operating theatre for reservations by the OT team.
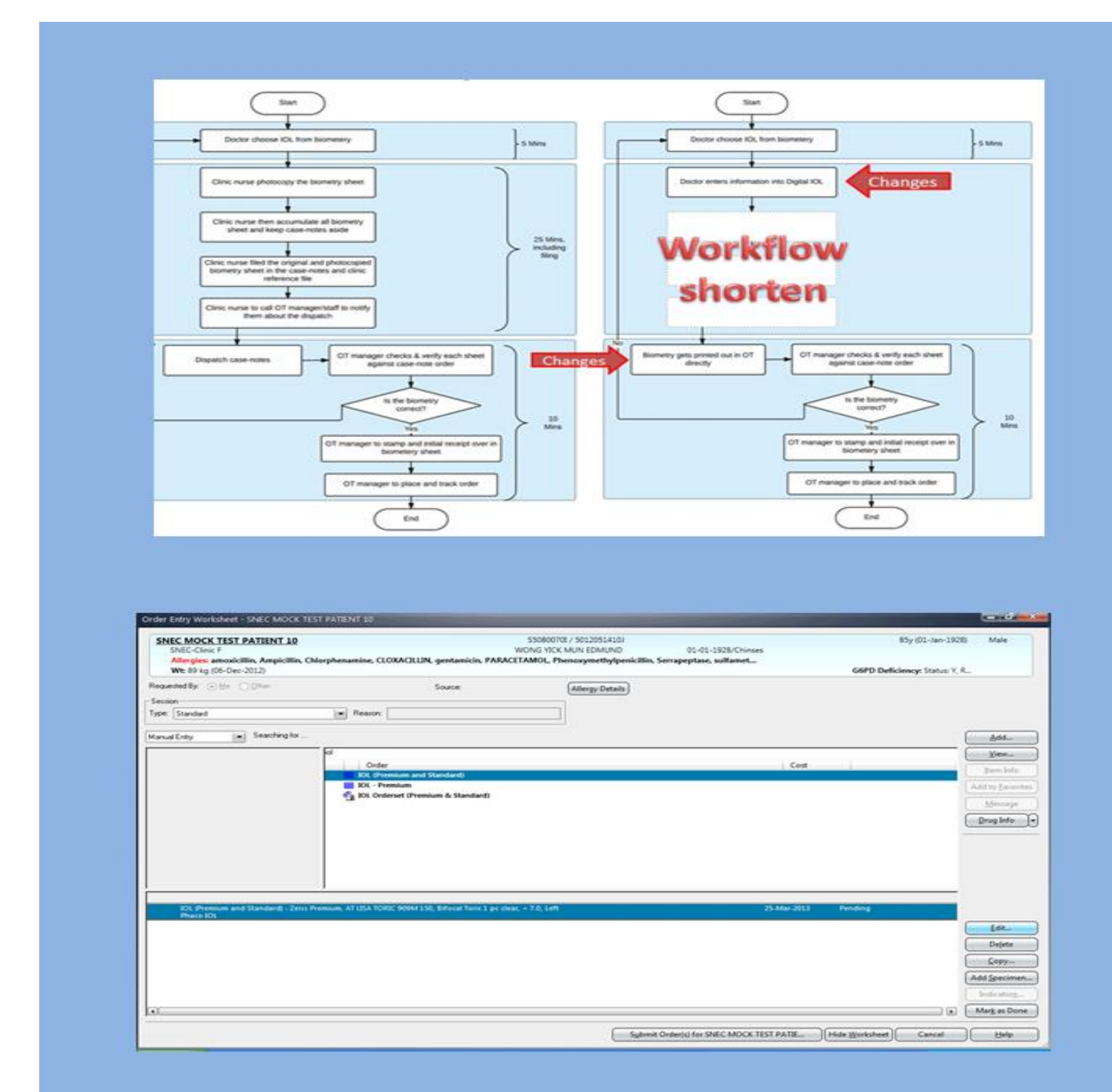
System wide IOL ordering process (Phase 1 June 2013) eliminating manual processes

Version 1

Phase 2 was enhancement of the phase 1 by dividing the IOL types into two major categories to avoid confusion related to numerous types and models of IOLs. This ensured a systematic flow to IOL order for ease of surgeons and to avoid errors in order.
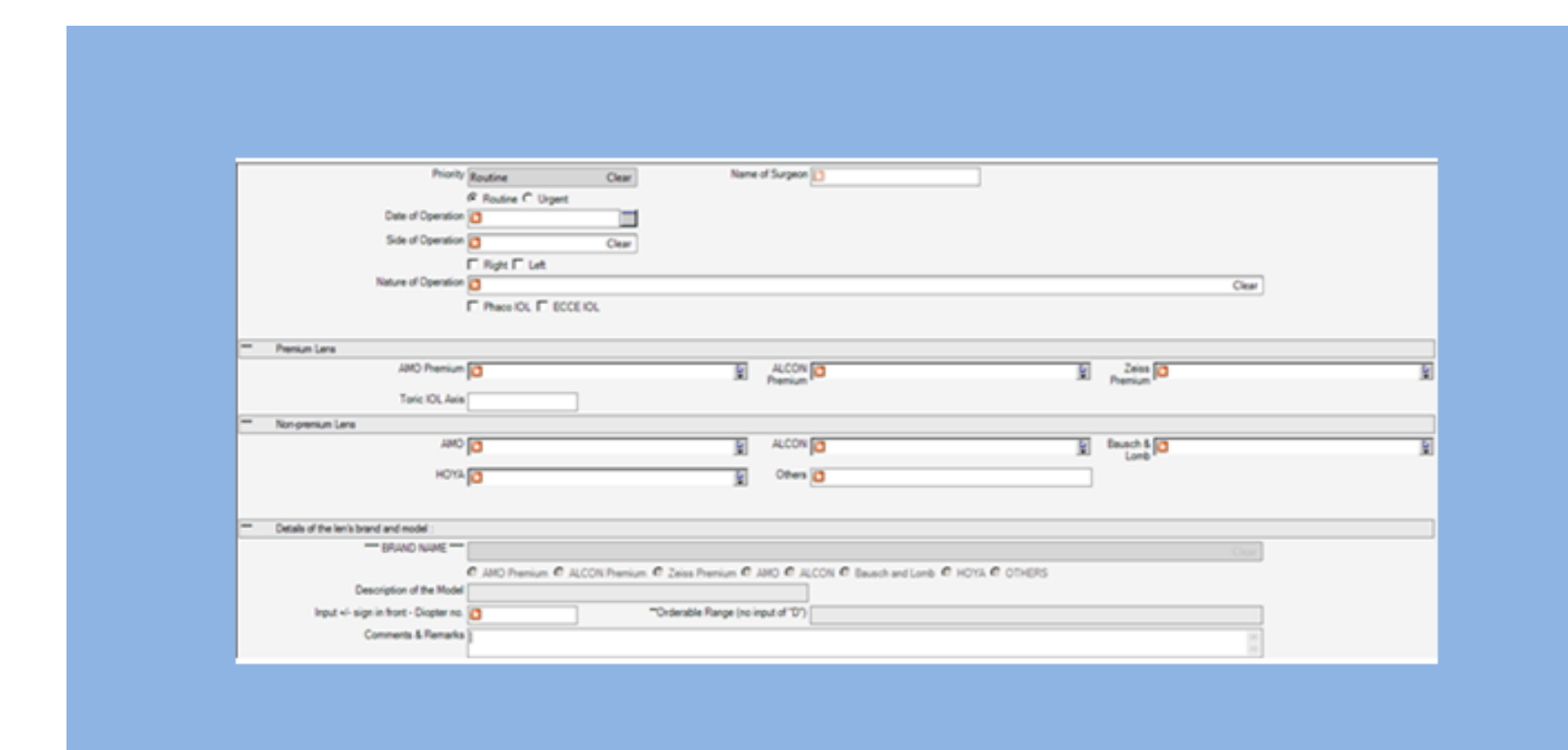
Version 2

Results:

Digital system have completely eliminated process issues related to illegibility, inconsistency and duplication of order, System is able to flag special order requiring lead time and improved surgical planning (figure 1) however new near misses from use of digital system (figure 2) not related to PDCA 1.
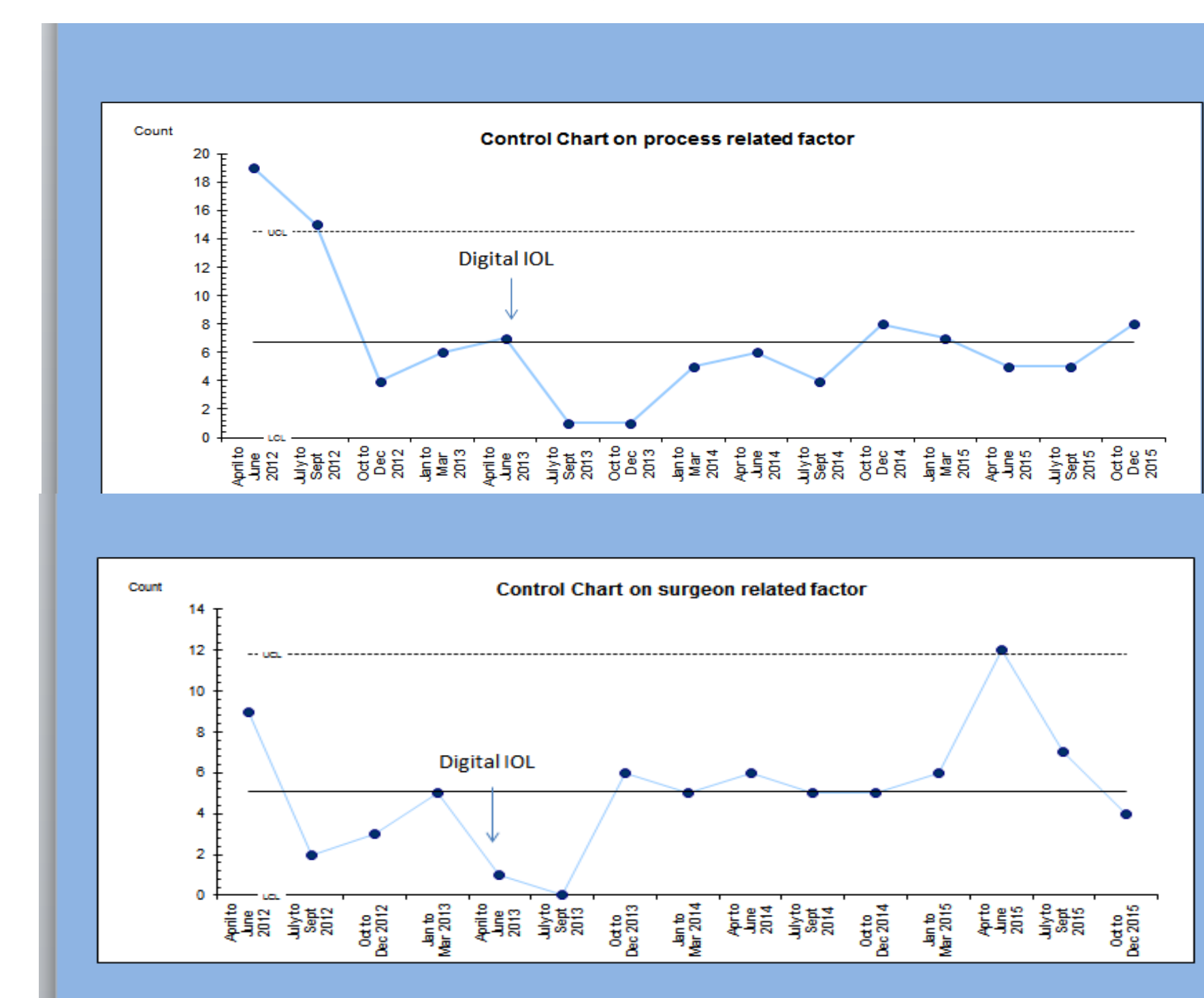

Figure 1
Process related factors reduction from 0.3% to 0.14%

Figure 2
Surgeon related factors did not show significant improvement from 0.12% to 0.16%

Sustainability:

Monitoring and sharing of data every quarterly to management and departments

Conclusion and future plans:

Post enhancement from phase 1&2 reduces incidence of near misses from 0.41 % to now 0.38%.Improving the system using human factor principles may need to be addressed.