

THE IMPACT OF INSTALLING A RFID CABINET FOR THE INVENTORY OF INTRAOCULAR LENSES AS PART OF THE CATARACT SURGERY PATHWAY: A SPANISH PUBLIC HOSPITAL PERSPECTIVE

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BACKGROUND AND OBJECTIVE

- Cataract surgery is the most frequently performed surgical procedure in Spain, with ~400,000 operations per-year.¹ To continue delivering expeditious treatment to a large and still-growing cataract population, hospitals may wish to seek time-saving digital solutions to enhance efficiency in the existing care paradigm.² RFID Cabinets for inventory management of intraocular lenses (IOLs) (see Fig 1) may facilitate such time savings and realise enhanced efficiency. Installing such technology in a hospital is associated with certain process IOL management process changes (described in Fig 2).³ The research objective was to estimate time-related inefficiencies associated with existing IOL inventory process and to forecast the post-implementation impact of the RFID system

Fig 1
RFID Cabinets for inventory management of IOLs



METHODS

- An interactive analytic model was built using MS Excel™. The variable of efficiency was time associated with the IOL management process. Data collection was based on qualitative and quantitative data collected via a structured survey which was provided to those engaged in the IOL management process (n=8) in the Spanish public hospital sector. Onsite observations and experience from previous implementations informed the responses. Key respondents validated the data, thereby increasing their reliability. Salary rates were based on the Economic Research Institute's Spanish compensation data.⁴

References

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RESULTS

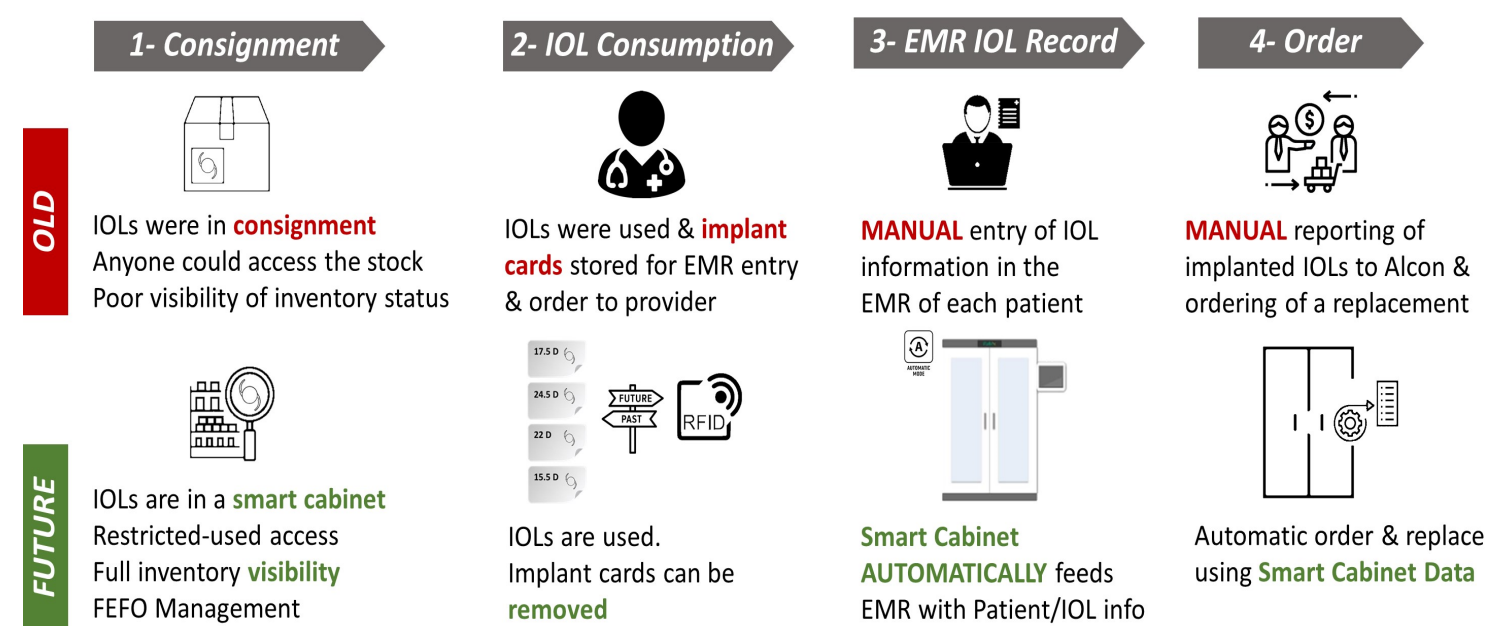
- Survey respondents detailed the following benefits of the RFID Cabinets for inventory management of IOLs: reduction of manual data entry, time-savings, real-time inventory availability, easier monitoring of expiration dates and avoiding cancelled/delayed surgeries through controlled access to stock.
- Recurring time savings potentially obviated by the installation of the RFID Cabinet ranged from 2.5 mins per-surgery (manual data entry into ERM) to 8.6 mins per-week (managing expired lenses).
- Further expected efficiencies include verifying received goods (7.4 mins-daily) and ordering IOL stock (5.2 mins-daily).
- Assuming 2,000 cataract surgeries annually, forecasted productivity gains from the installation of the RFID cabinet are estimated at €11,242 annually.
- It was also estimated that the RFID cabinet may also reduce the number surgeries cancelled due to lack of IOL stock (10 surgeries) and due to manual data entry error (7 surgeries), while freeing up to 217 hours of nurse time.

DISCUSSION

- RFID technologies in hospital logistics have been commonly applied in management of pharmaceutical inventories, traceability of medication distribution from warehouse to pharmacy, and from pharmacy to the patient.⁵ This study demonstrates significant potential for this type of technology to provide efficiency benefits in the ophthalmology workflow. Our survey results demonstrates time-savings such as obviating the need for verifying received goods, manual data-entry and managing expired lenses – freeing up time for healthcare professionals to focus on delivering care. This is particularly salient in the case of nurse time and workload, and indeed, evidence suggests that improving nurses' work environments, including staffing, may lead to improvements in patient experience as well as help bolster a hospital's financial performance.⁶

Fig 2

IOL MANAGEMENT PROCESS MAIN CHANGES



CONCLUSIONS

- RFID cabinets which manage IOL inventory have the potential to create significant time savings in the existing cataract workflow pathway, offering opportunities to improve efficiency while enabling reallocation of resources in the ophthalmology department. Future research could focus on the specifics of this resource reallocation.