Implementation of Color Codes in Eye Hospital Erp Software by Using Poke Yoke Principle

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ABSTRACT

Hospital ERPs are very useful in planning, scheduling and management of hospital systems such as Human resource, Marketing, Accounts, Administration, maintenance, clinical departments and non clinical supportive departments. ERPs are mostly used for planning the available resources in the hospital that are required for the operation of the entire hospital system. This article is based on the colour codes that can be implemented to track the entire eye hospital clinical departments to reduce the patient timing inside the hospital premises using poke yoke principle. This principle is used to reduce the human error and implement tracking system in the ERP software

KEYWORDS:

Poke yoke, ERP, quality management, Time management, Mistake proofing, Optometrist and Ophthalmologist

INTRODUCTION

POKE YOKE is used as a quality principle that detects and prevents the error in the making process before it reaches to the customer, Poke yoke is a Japanese term initially poke yoke was called as “BAKA YOKE” but as this means idiot proofing or fool proofing it was then called as “POKE YOKE” which means mistake proofing derived from POKA O YOKERU that means avoiding an inadvertent process which cause mistakes

Eye hospital is a speciality hospital which takes care of peoples ocular eye diseases, ocular screening, retinal screening and refraction screening and treatment of respective eye diseases such as Refractive error, Cataract, Glaucoma, Diabetic retinopathy, ocular cancer, ocular injury and other ocular or eye related diseases. The eye diseases are properly screened, diagnosed, monitored and treated by the Ophthalmologist and the person who does the ocular scans and refractive screening is called Optometrist

ERP or Enterprise resource planning is a software which is used in many organisation such manufacturing, production, and services related organizations to plan, schedule and management of entire system of the organisation such as Human resource, Marketing, Accounts , Administration, maintenance, and other supportive services which also in the practice of hospitals such as clinical departments and non clinical supportive departments.

This article is the frame work of implementing colour codes in EPR software in eye hospital to reduce the patient timing in every department by tracking the patient time in the hospital from their arrival to departure

2. REVIEW OF LITERATURE

2.1 Poke Yoke: Poking into Mistakes for Total Quality! 2016

Priyavrat Thareja, Faculty of Engineering and Technology, GNA University, Hargobindgarh, Phagwara, Punjab, India

Mistakes happen. At times they are deadly. The statistics has those 25–30 mistakes at one level graduate the practitioner to a higher level of threat. Poke-yoke a Japanese quality assurance technique helps correct the process step where the error occurs. Thus it prevents incorrect parts from being made or assembled. The other option of avoiding inadvertent errors going to customer is ensured by detection by PokaYokes. The various types

encompassing the prevention and detection, Poka Yokes are exemplified in this paper using real life or common use exemplars. These are simultaneously linked with zero defect production. Further discussing the deployment of Poka Yokes in high performance applications I describe the techniques and abilities, namely the canny abilities of the scientist
in Dr Abdul P J Kalam. How do we enjoy the fruits by correcting mistakes and carry on the quality journey is deliberated in this paper.

2.2 Poka Yoke system based on image analysis and object recognition 2015
N Belu[1], L M Ionescu[2], A Misztal[3] and A Mazăre[3]

Published under licence by IOP Publishing LtdPoka Yoke is a method of quality management which is related to prevent faults from arising during production processes. It deals with “fail-sating” or “mistake-proofing”. The Poka-yoke concept was generated and developed by Shigeo Shingo for the Toyota Production System. Poka Yoke is used in many fields, especially in monitoring production processes. In many cases, identifying faults in a production process involves a higher cost than necessary cost of disposal. Usually, poke yoke solutions are based on multiple sensors that identify some nonconformities. This means the presence of different equipment (mechanical, electronic) on production line. As a consequence, coupled with the fact that the method itself is an invasive, affecting the production process, would increase its price diagnostics. The bulky machines are the means by which a Poka Yoke system can be implemented become more sophisticated. In this paper we propose a solution for the Poka Yoke system based on image analysis and identification of faults. The solution consists of a module for image acquisition, mid-level processing and an object recognition module using associative memory (Hopfield network type). All are integrated into an embedded system with AD (Analog to Digital) converter and Zync 7000 (22 nm technology).

2.3 A REVIEW ON TIME MOTION STUDY IN OPD OF TERTIARY CARE EYE HOSPITAL IN INDIA 2020
Ram Iswar Sah, Mrs.Rakhi Ahuja, Dhiraj Kumar Singh, Dr.Imran Ahmed, Dr.Mukesh Savaria 1Master of Hospital Management, Assistant Professor in DPSRU, Mater of Public Health, Master of Public Health, Master of Public Health 1Department of Hospital Management Delhi

Pharmaceutical Sciences and Research University, New Delhi, IndiaCongestion and extended waiting time in the eye OPD for treatment created several problems for patients, medical staff as well as management. Purpose of the time-motion study to know the time is taken in every work station in OPD and regarding the value time, non-value time and total time spent patient in OPD. Time-motion studies analysis different queues which create bottlenecks situation in different work station. The Time-motion indicator plays a vital role in patient satisfaction in OPD. Some tool like Lean Six Sigma which is the latest methodology in healthcare. It focuses on improving process, continuous quality improvements and increasing patient’s satisfaction by removing non-value time in OPD

3. METHODOLOGY

This is an descriptive study that aims on the reduction of patient time in an eye hospital hospital and by monitoring the work flow time by updating ERP software in an eye hospital, this study helps for the Top management and technician in the hospital to analyse the overall waiting time that occurs for patient, this is study is implemented based on the POKE YOKE principle.

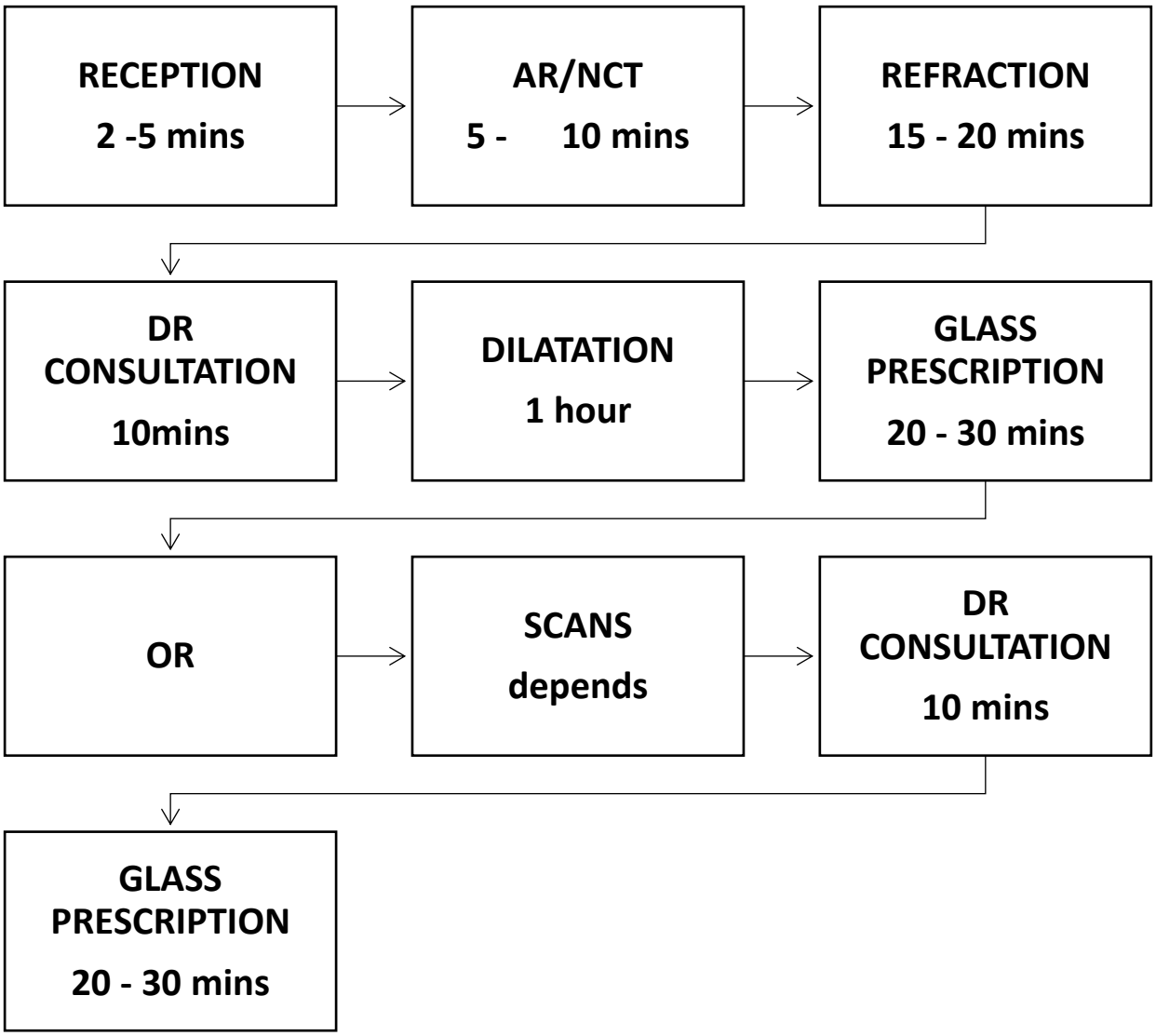
4. HOSPITAL PATIENT FLOW TIME

It’s a fact that hospitals consume more of people time then other servicing centre but those time is essential in healthcare when the hospital gives quality care to the patients, at the same time the hospital should also concern about the patient valuable time and punctuality

This study focuses on a eye hospital where patient used to spend at least one day or 2 day in six months , if the patient needs more attention, treatment and care they used to spend atleast once in a month

The patient flow of time in a eye hospital is the frame work of how patient spend their time in eye hospital and what are the treatments they have gone through during the service time

FIGURE 4.1 PATIENT FLOW OF TIME IN AN EYE HOSPITAL



RECEPTION

Reception is the first stage of patients when the patient arrives which involves patient admission, registration and cash payment for the consultation after the registration patient may have to wait for 2 to 5 mins

AR/NCT

Auto refraction or NCT Which is used to check Automatic refractive power of patient eye and NCT to check patient ocular pressure, these are two instruments used to check priory before refraction

REFRACTION

Refraction is the process of checking the refractive status of patient ocular condition. the refraction is done by primary eye care professionalist called optometrist which takes 15 to 20 mins

DOCTOR CONSULTATION

Doctor or ophthalmologist consultation occurs after refraction by screening the ocular condition using slit lamp and ophthalmoscope Which occurs for about 10mins

DILATATION

Dilatation is a process that occurs before or after doctor consultation to check the accurate refractive power and diagnose the anterior and posterior segment of the eye using a dilating drops which extends pupil size about 2 to 3 mm which needs two intervals of dilating drops this accounts for 1 hour

GLASS PRESCRIPTION

If the patient is free from ocular condition but have refractive error , then doctor prescribe spectacles then the patient is requested to buy frames and lens in the same hospital which depends on selecting time of patient about 20 to 30mins

SCANS

If the patient have any kind of ocular conditions such as Diabetic retinopathy, glaucoma or cataract they are advised to take some of the ocular scans based on their interest

DOCTOR CONSULTATION

After the scans the patient has to consult doctor with the report of the scans and the counselling given to the patient about the treatment and medication this takes again 10mins.

GLASS PRESCRIPTION

If the patient is comfortable with glasses then treatment they can buy or refuse to buy the glasses this is the rights of the patient to take or refuse treatment in any hospitals. again it takes 20 to 30mins

5. IMPLEMENTATION OF COLOR CODES IN ERP SOFTWARE

A sound ERP Software helps in analysing, scheduling and management of work flows in the organization. ERP in hospitals also monitors the clinical and non-clinical departments in the hospital and reports to each department and even to top management.

The implementation of COLOR CODES in ERP software in an Eye hospital using POKE YOKE PRINCIPLE to regulate and reduce the work flow in the clinical departments which automatically reduce the patient time

COLOR CODES

The colors are coded based on visiting of patient to each department inside the hospital and the colors are monitored by each staffs , managers and top management.

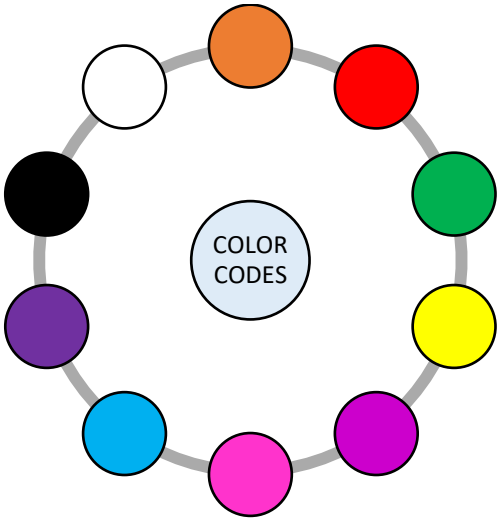


FIGURE 5.1 : COLOR CODES

POKE YOKE PRINCIPLE

POKE YOKE PRINCIPLE is a principle of mistake proofing or prevention of the happened mistake that should never be happen here this principle is used to prevent the patient time wastage in an eye hospital by implementing color codes in ERP software

This is helpful in monitoring the hospital workflows of the staffs, optometrist, technician and ophthalmologist if any of the department consumes more time than usual the color codes highlighted in the display of home page of ERP software, this can be viewed by the managers, floor managers and top management and the actual causes of the time consumed is investigated. the color codes will automatically changed as per the patient shift from one department to other department that automation should be necessarily coded by the IT professionals

POKE YOKE PRINCIPLE

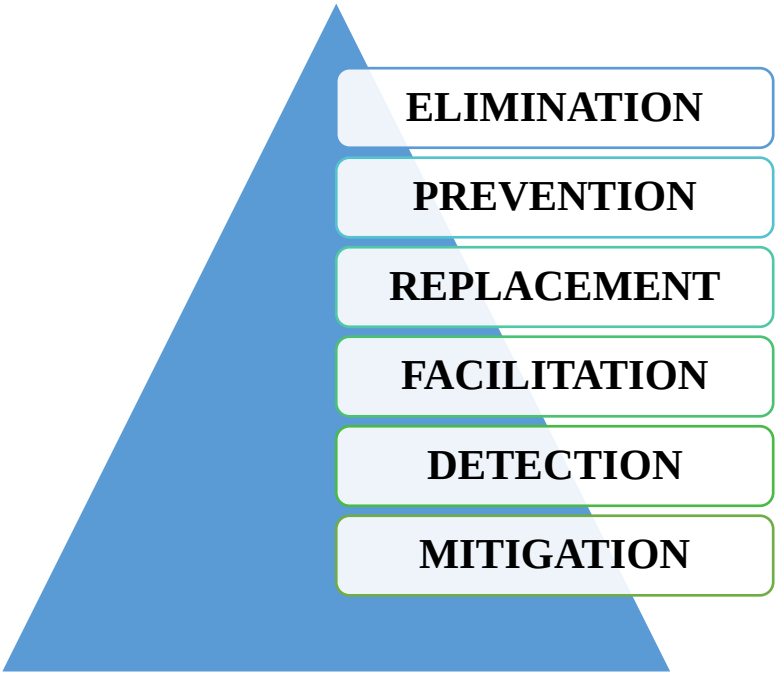


FIGURE 5.2: POKE YOKE PRINCIPLE

ELIMINATION

- Elimination of human work which tends to cause error naturally, this study helps in reduction of maintaining patient by staff time in the hospital.
- Elimination of documentation works in each departments of hospitals such as noting patient arrival time and departure time,
- Elimination of the struggle to identify the exact department which cause time delay or consumed more time than usual

PREVENTION

- Prevention of consumption of more time in each and every department
- prevention of human error
- Prevention of mistakes in documentation and noting wrong time
- Prevention of spreading bad reputation that caused due to consumption of more time
- prevention of wastage of time

REPLACEMENT

- Replacement of Human work with software such as ERP , which helps to prevent the errors which is caused by the human
- ERP software which already helps in automation of monitoring the work flow in the hospital
- Here we are going to replace the human work of recording patient time such as arrival and departure with the Color codes of the ERP software

FACILITATION

- Facilitating color codes in the ERP software display page which helps in continuous monitoring of patient time from Reception to Patient left
- The color codes should be automatically updated after shifting patient to each department.
- The coding of color should categorised before facilitating the color codes in the ERP software
- The proper training should be given to each and every staff about the color codes and facilitation and monitored continuously.

TABLE 5.1: COLOUR CODES UPDATION IN ERP SOFTWARE

NAME OF THE DEPARTMENT	COLOURS	CODES
APPOINTMENT	RED	
RECEPTION	ORANGE	
AR/NCT	YELLOW	
REFRACTION	GREEN	
DOCTOR CONSULTATION	BLUE	
DILATATION	BLACK	
SCANS	INDIGO	
GLASS PRESCRIPTION	ROSE	
SURGERY	VIOLET	
PATIENT LEFT	WHITE	

DETECTION

- Detection of actual time which is consumed than usual by the staffs is easily identified using the colour codes
- The updating and automation of colour codes leads to identify the error of time consuming in a fraction of second during working hours
- The mistake can be identified from the Receptionist to Top management which leads to easy access of identifying the cause and schedule the patient with appropriate time.
- The detected mistake is solved with in the day than documentation process which takes more than a week to take action.

MIGITATION

- Regular follow-up of training about the colour codes to staffs and also to the newbie's
- Regular monitoring about the workflow by the top management

6. CONCLUSION

This is study focused on the time management process in a eye hospital which consumes more time than regular or general consultation by implementing color codes in ERP software using POKE YOKE principle to reduce the wastage of patient time in an eye hospital. This can also be implemented in any of the departments of multi-specialty hospital

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