



A REVIEW ON TIME MOTION STUDY IN OPD OF TERTIARY CARE EYE HOSPITAL IN INDIA

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Abstract:

Congestion 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.

Key point: Time motion, Work and patient flow, OPD, Tertiary Eye Care, India

1) Introduction:

In 21 century time is the most valuable thing for every person. The time-motion study is a business efficiency system that studies involve the collection of data regarding the amount of time necessary to perform a specific movement or task. It is a major portion of scientific management(Manna et al., 2014). The time-motion study is to know the time taken in different work stations and to have external observations capture data continuously on a system in order to identify bottlenecks and used for performance, evaluation, and planning of outpatients department(Sengupta et al., 2020).

For every hospital, patients are the main users; the main function of the hospital is the Outpatient department (OPD) (Olbahim et al., 2008). Outpatient department first point of contact of a patient with the hospital but Outpatient departments (OPD) congestion and long waiting times in OPD. Hospital administration or managements have an important challenge in planning, structure, equipment, material procurement, medical quality control, human resource management and so many aspects of OPD or hospital. That why time-motion study plays a vital role to improve the systems. Time motion study also variables in the patient satisfaction. Most of the patients want to less time in the Outpatient departments(Dabar & D.jayed, S.Tantra, 2015) .

Waiting time in outpatient departments has become a problem in the healthcare industry all over the world. The major cause of this problem is the assumption that the doctor's time is more valuable than the patient's waiting time. Waiting time is the total time from registration until consultation with doctor.

Waiting for healthcare refers to any waiting experienced by a patient before or during medical treatment. Waiting to get an appointment with a physician, staying in a waiting in a waiting room before an appointment, and being observed during a physician's watchful waiting are different concepts in waiting for healthcare. When a patient is waiting for their attendant, family and friends may also be waiting for the outcome (Algiriyage N., Sampath R., Pushpakumara C., 2014,Belayneh et al., 2017)).

2) Patient flow in OPD:

OPD is considered as a doorway to hospital services and the patient's impression of the hospital begins from the security guard. Different types of patients attend OPD that need to be properly managed from security guard for patient care in India, most of the patient's first point of contact with the security guard of the hospital. Security guard behavior plays a vital role in patient satisfaction, Good impression often influences the patient's sensitivity towards the hospital and therefore it is important to ensure that OPD services provide an excellent experience for patients. Other patients like appointment patients, walk-in patients, Follow-up patient and after surgery review patient come to direct in Enquiry desk or Registration counter (Daultani et al., 2016).

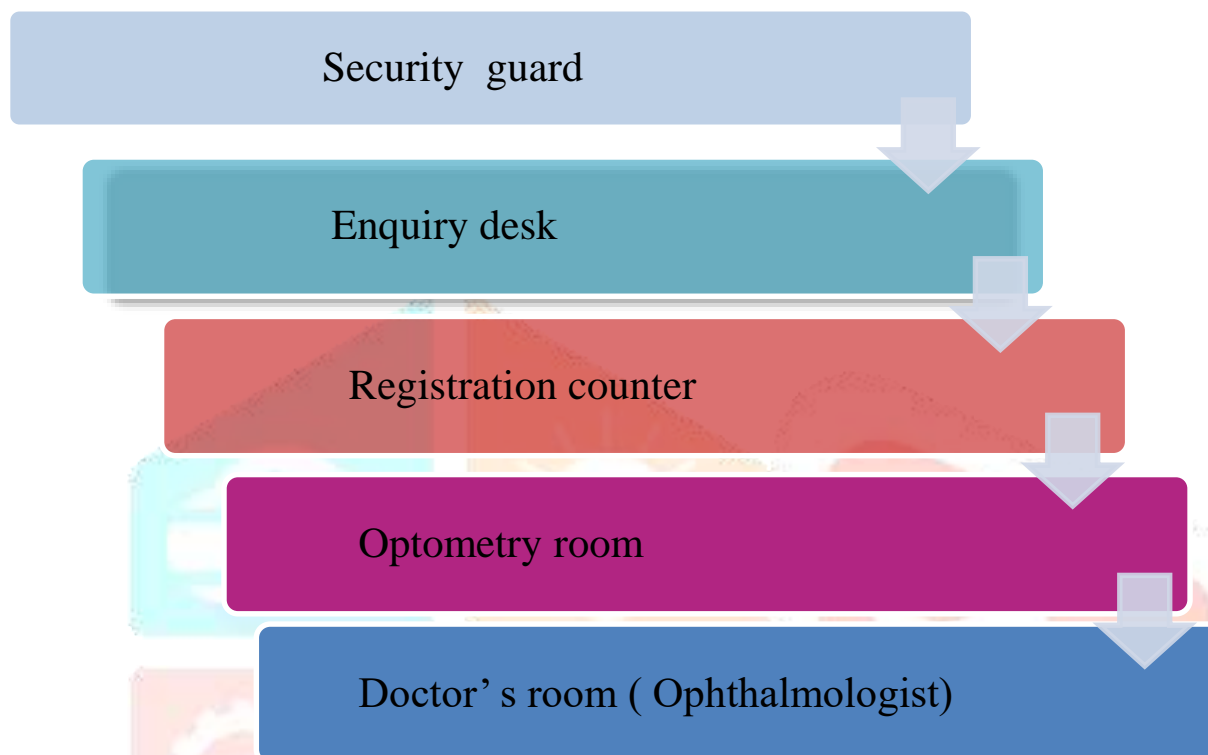


figure1: process of OPD

3) Types of patients in OPD:

a) New patients:

A new patient is defined as one who has not received any professional services or medical service from that hospital, the patient is interacting with the first time for medical facilities of that hospital. The bulk of the new patients, typically, arrive between 11:00hrs to 16:00hrs. Approximately 80 percent of new patients visit the OPD on any working day.

b) Fellow up patients:

The fellow-up patient is known as those patients who have already taken the medical facilities or patient is registered in the system (HMIS or EMR) of that hospital. Approximately 20 percent of the fellow-up patient visit in OPD, these patients usually visit the hospital for the follow-up on the treatment or the surgery performed during their previous visit to the hospital. Some patients come for new services also.

c) Appointments patients:

A patient can take an appointment by phone, mail, hospital website and physically visiting the OPD or registration counter. Depending upon the severity of the health problem and the availability of slots patient is provided an appointment. The appointment is managed and coordinated by the appointment member and receptionist. Most of the healthcare providers focus on an appointment system. Appointment patients have given priority to walk-in patients.

d) Walk-in patients:

Walk-in patients know as those patients who come without an appointment. But all hospitals have walk-in slots for OPD. Walk-in patients are less number in tertiary hospitals than secondary hospitals, primary hospitals, and the vision center. However, the hospital tries to accommodate many walk-ins as possible.

4) Process of Outpatients Department (OPD) in Eye Healthcare:

a) Registration:

On arrival, all types of patients (new patients, walk-in patients, follow-up patients, and appointment patient) the receptionist confirms the appointment, walking patients and gives the available slots. The receptionist records the demographical data, arrival time and generates the unique number or serial number in HMIS or EMR. A consultation fee collected at the registration counter. The Patient's demographical data upload in system sent and the patients are usually called according to the registered timing or unique number or serial number at every stage. The Patient is waiting in OPD until called for examination by optometry and paramedical staff.

b) Initial assessment:

The initial assessment mostly is done in new patients including Vision, Refraction, Weight, and Height or Ophthalmic assessment by the Vision Technician or Optometry. It is performed within a specified time after admission to a health care organization.

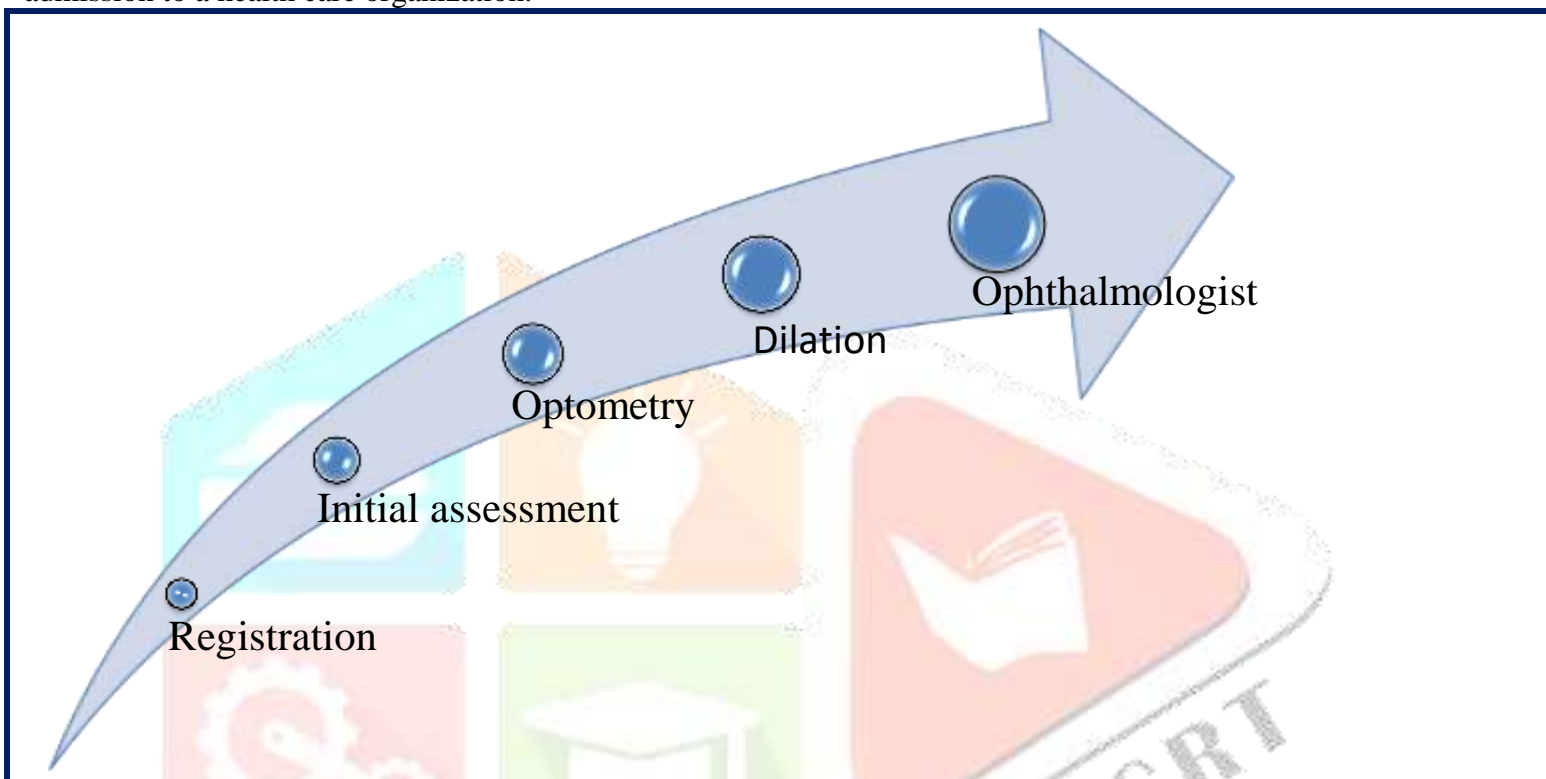


Figure2: process of outpatients department (OPD) in eye healthcare:

c) Optometry:

Optometry calls the patient's name from the waiting area to the optometric room for a preliminary eye examination. Optometry performed the test and record and uploads the data in the system. Once the examination carried out, the patient returns to the OPD waiting area for Doctor Consultation or dilation process.

d) Dilation:

Dilation is not necessary for all patients, it is depending upon the patient's condition and performed by doctor or optometry or nurse or paramedical staff in the OPD waiting area before the patient is sent to the doctor room. The Dilation takes approximately 30-45minetus. Once the dilation is complete the patient waits (in the OPD waiting area) for his/her turn to meet the doctor.

e) Ophthalmologist:

The ophthalmologist reads the patient's record and investigates, according to the severity case. The Ophthalmologist uploads the diagnosis, medicine and gives the proper consultation to the patient. Some severity case Ophthalmologists cross to the other specialist and check out the patient by Ophthalmologist or OPD staff from the system and provide a prescription to the patient (Lowalekar, 2012).

5) Based on time motion study in healthcare:

a) Value adding time (value time):

Value-adding time is also known as working time where the patient's workup in process, in value time patients is engaged with the hospital staff like receptionist, vision technician, optometry, ophthalmologist, etc. The value time varies to a patient to patient and depends upon the nature of the severity case. Patients value time increasing due to literacy level, age, sex, language, geographical area, culture, etc.

b) Non value adding time (non value time):

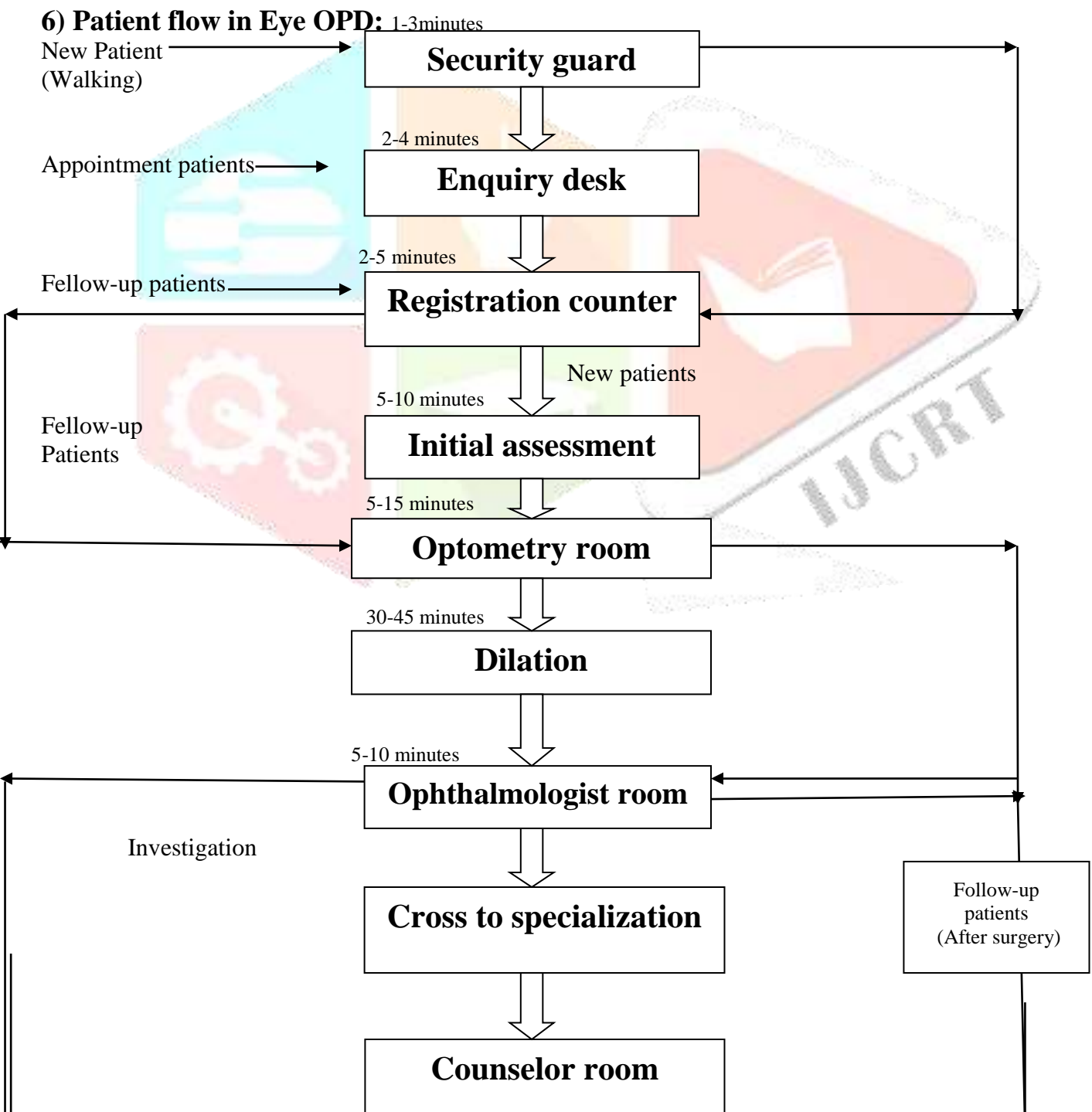
Non-value-adding time is called waiting time. Non-value time is the amount of time for patients seeking care at healthcare units before registration, initial assessment, optometry room and ophthalmologist room for consultation and treatment. If value time increased then definitely non-value time increase because Non-value time is directly proportional to the value time. Waiting time is a big challenge for hospital management.

c) Total time of patients in OPD:

The total time of patients is that time the patient spends time in OPD or patient’s registration check-in time to patients check out time (patients exit). Non-value time and value time of patients is called the total time of patients.

$$\text{Non Value Time} + \text{VALUE TIME} = \text{Total Time Patients Spend In OPD}$$

6) Patient flow in Eye OPD:



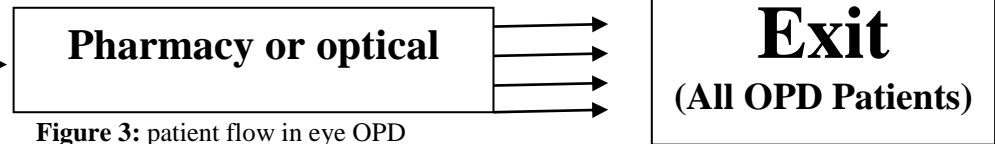


Figure 3: patient flow in eye OPD

Source: Harsal et al. (2012)

7) Applying some tool reducing patients waiting time in OPD:

Lean Six Sigma is the latest generation of improvement and continuous quality improvement in healthcare. Using lean six sigma to improve throughput efficiency in OPD and reduces the patient's waiting time. It is a business improvement methodology that can have an immediate and sustained impact on the patient's waiting time in OPD. Lean methodology is all about the needs of the patients, speed, and efficiency where Six Sigma is about increasing precision, and increasing accuracy. In the time-motion study, it maps every step of the process (every work station) as non-value time and value time activities in OPD. Therefore lean six sigma deploys define, measure, analyze, improve the processes by removing non-value time activities or decrease the patient waiting time in OPD and increase patients satisfaction (S.Dubey, L.chauhan, N.Gupta., A.Singh, 2016,Gijo & Antony, 2014)

8) Conclusion:

Congestion and long waiting time show that patients are not satisfied in OPD because the waiting time of patients is quite a critical parameter of patient satisfaction (Time is precious, and we understand this). Therefore time-motion study support and analysis the patient flow in OPD, resource utilization, the mismatch between the demand and supply, identify the overall work station in OPD (process mapping) and non-value time in each station and feedback from patients or staff, provided an insight on the possible roots of the delays experienced by our OPD patients. Thus efficient workflow, effective functioning and smooth running any OPDs (Eye OPD) require very good time management and Management (Administration) should deal with highlight the hospital as one in which "high-quality care with low waiting time". Non-value time (patients waiting time) variables like sex, age, education, occupation, medical visit and staff punctuality, equipment availability and failure, etc. Lean Six Sigma is making OPD accessible, affordable, and cost-effective by reducing patients waiting and increase patients satisfaction.

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Conflict of interest:

The authors declare that there are no conflicts of interest.

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