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### A Bird View on Time and Motion Study in strengthening the Quality of Clinical Care

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#### ABSTRACT

Time and fiscal disturbances are incapability that at some indicates evident as inferior competence, protection consequences, care eminence concerns, and where time and resources are concerned, serviceability exertions. Getting to the origin reason often necessitates a detailed workflow research and analysis by Time and Motion study. The present inclination for increased competency in all kinds of skilled work has brought about a extensive curiosity in action and time research. The foremost destinations of this kind of research is to help out in ruling the most proficient system of doing employment and to aid in preparation of professionals to appreciate the meaning of time-motion significance, and when the training is carried out with satisfactory meticulousness, to enable them to become capable in enforcing time-motion principles in routine activities in providing and reinforcement the excellence of quantifiable care.

**Keywords:** Time and Motion Study, Strengthening Quality, Clinical Workflow

#### INTRODUCTION

Time and motion study (TMS) is also denoted to as motion and time study, the terms are used interchangeably) is the scientific study of the conservation of human wealth in the search for the most competent means of undertaking a assignment. This study can also be called as Work motion study, Time study, Work flow study and work measurement study.

#### Definition

Time study is defined as a work quantifying method for recording the times and rates of working for the rudiments of a particular job

carried out under precise conditions and for analysing the data to conclude the time essential for carrying out the job at a distinct level of presentation.

#### Background

A fascination with the word “efficiency” began in the late 19th and early 20th centuries when it was considered one of the most important concepts. Time study began in the 1880s as a means of wage-rate setting by Frederick W. Taylor, who is regarded as the “father of scientific management.” It consists of a wide variety of procedures for determining the amount of time

required, under certain standard conditions of measurement, for tasks involving some human activity.

### Levels of time motion study

Motion study was developed by Frank B. Gilbreth and Lillian M. Gilbreth and consists of a wide variety of procedures for the description, systematic analysis, and means of improving work methods.

It is difficult to separate these two aspects completely. Therefore, the combined term usually refers to all three phases of the activity.

- Method determination
- Time appraisal and
- Development of material for the application of these data.

### Scope of TMS

Motion and time analysis could be used to help find a preferential way of doing the work and could assist in effectively managing or controlling the activity. This approach has been successfully applied to factories, hospitals, department stores, housework, banks, cafeteria work, libraries, music, and too many other human activities. [1]

### Purposes

The goal of a time and motion study is not merely competence but

- To craft up the benchmark of the Workflow.
- To empower health professionals.
- To create a service line.
- To realize the skills requisite.
- To provide the correct schooling.
- To curtail the uneasiness practised.

- To sooner swiftness or further endurance
- To discover and cram the slit. [2]

### Limitations of TMS

- Risk of observers interfering with health care approach.
- Opportunity of human timing errors.
- Confront in turn out quality data.
- Demands an expertise.
- Added intricate resources. [3]

### Additional design and process elements of successful TMS

- Strategic evidence matters.
- Less is more.
- Keep it simple.
- Find the common ground.
- Invest in local leadership.
- Training is the key to success.
- Team play – know your collaborators.
- Don't let the data get cold.
- Chose the right data analytic technique.

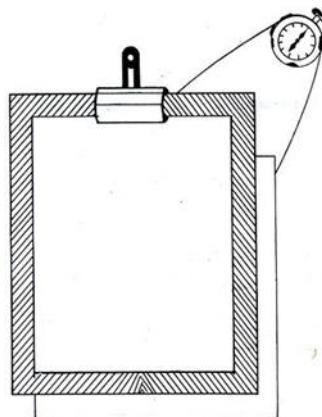
Time Recording Techniques in TMS

Time Recording Techniques in Time Study

1. Stop Watch Method
2. Time Recording Machine
3. Motion Picture Camera

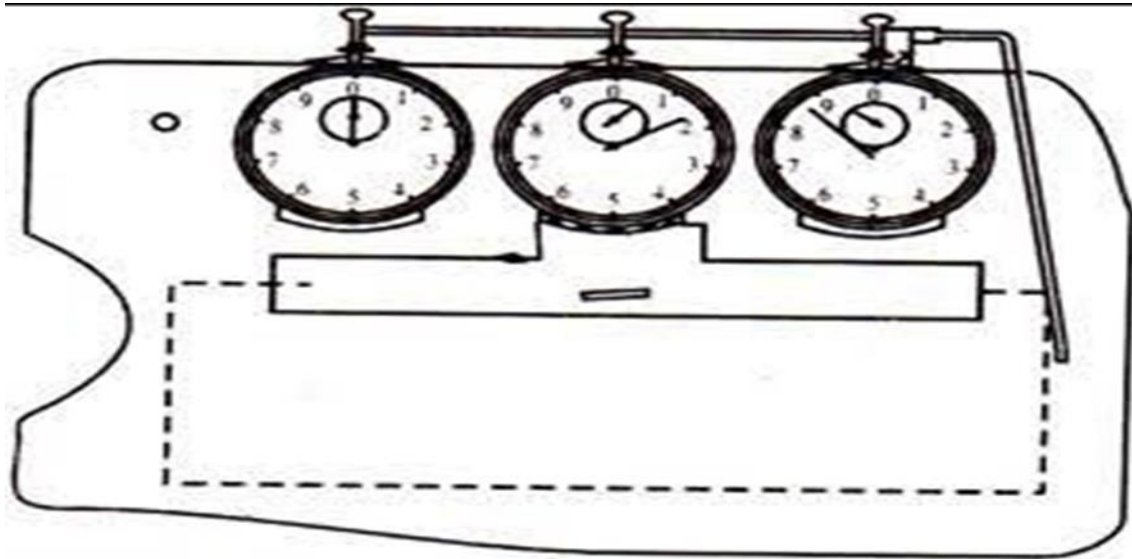
**Stop Watch Method Time study** equipment includes the following

- Time study watch
- Plain Decimal-Minute Stopwatch
- Decimal Hour Stopwatch
- Split-Hand Stopwatch
- Wink Stopwatch



## Time study board

- Electronic Time Study Board
- 3-Watch Board
- Simple Time Study Board



## Time study observation sheet

### Steel rule

- Time Recording Machine
- Functions on a paper tape
- Easy time recording
- Its use eliminates errors of stopwatch method
- Motion Picture Camera
- Spring Driven Camera(normal speed 16eps)
- Electric Motor Driven Camera.
- Slow Speed Camera(operates at 50/100fpm)
- Normal Speed Camera(operates at 960fpm)

## TECHNIQUES OF TMS

### Direct Time Study

It is the fortitude of quantum of total time required to perform a unit of work. It helps to compare the alternative methods, and determine the labor and staff required for the operations.

### Synthesis Method

Adding a few elemental values over the data already obtained in the form of a catalog reading. This gives allowable time for operation to complete.

## Analytical Estimating

It is used to findout the time values for jobs having long and repetitive nature or values. Such work can be recorded using the synthetic and standard data available.

## PMTS

Also called as predetermined motion time study. Computes the natural or basic time set up against motions at a defined level of performances.

## Time and motion study and clinical work flow

Time and motion research are premeditated to assemble observational data to quantify the impact of medical interventions on dynamics of patient and staff movement through the healthcare facility as well as the resources inspired along the way. Data prevailed may notify activity-based costing and healthcare institute by facility administrators,1 but also put in the picture health economic analyses, including frameworks to enumerate capability, efficiency, patient outturn, financial collision, and so on. [4]

## Top 10 payoffs of TMS

- ✓ Imparts to consistency
- ✓ Effective cost control and proper planning
- ✓ Ideal Time determination.
- ✓ Performance assessment yardstick
- ✓ Derivation for incentive and wages.
- ✓ Revealing of employment requirements
- ✓ Proper utilization of resources.
- ✓ Determine the reason of unoccupied time.
- ✓ Fortitude of correct costs.
- ✓ Provides a paradigm to evaluate clinicians' efficiency.

The insist for hospital care services is based on the time spent by the caregivers on the one hand, and costs of diagnostic and therapeutic interventions on the other. To construct a solitary measure for the necessitate for care. [5]

In the forthcoming 10s the geriatric population is likely to augment the necessitate for healthcare avails, while more patients will acquire any chronic diseases. [6]

## REFERENCES

- [1]. Hollingworth W, Devine E, Hansen R, et al. The impact of e-prescribing on prescriber and staff time in ambulatory care clinics: a time-motion study. *J Am Med Inform Assoc* 14(6), 2007, 722-30.
- [2]. Steven Harper, Fariss-Terry Mousa. *Time and Motion Studies*. Oxford Bibliographies. DOI: 10.1093/OBO/9780199846740-0027.
- [3]. Backer LA. Strategies for better patient flow and cycle time. *Fam Pract Manag* 9(6), 2002, 45-50.
- [4]. Available on URL <https://pharmaphorum.com/views-and-analysis/time-and-motion-studies-opportunities-and-challenges> BMC.healthservres.biomedcentral.com/articles/10.1186/s12913-014-0674-2
- [5]. Christensen K, Doblhammer G, Rau R, Vaupel JW. Ageing populations: the challenges ahead. *Lancet*. 374 (9696), 2009, 1196–208.
- [6]. Canadian Health Services Research Foundation. The aging population will overwhelm the health care system. *J Health Serv Res Policy*. 8(3), 2003, 189–90.
- [7]. Unertl KM, Novak LL, Johnson KB, et al. Traversing the many paths of workflow research: developing a conceptual framework of workflow terminology through a systematic literature review. *J Am Med Inform Assoc* 17, 2010, 265e73.
- [8]. Flanagan ME, Saleem JJ, Millitello LG, Russ AL, Doebbeling BN. Paper- and computer-based workarounds to electronic health record use at three benchmark institutions. *J Am Med Inform Assoc*. 20(e1), 2013, e59-66.
- [9]. Friedman A, Crosson JC, Howard J, Clark EC, Pellerano M, Karsh BT, Crabtree B, Jaén CR, Cohen DJ. A typology of electronic health record workarounds in small-to-medium size primary care practices. *J Am Med Inform Assoc*. 21(e1), 2014, e78-83.

This, jointly with menacing budgetary restraints, will have its impact on hospital resources and may jeopardize the superiority, competence, and expediency of client care. It is consequently significant for hospitals to be able to predict the imminent reliable for hospital patient care services, in qualitative and quantitative terms. [7]

Methods for contemplating modifications to work procedures and workflow differ extensively computation on research circumstances and research targets. [8]

Workflow commotions are unskilfulnesses that at several end apparent as inferior efficiency, safety consequences, care quality concerns, and where software or equipment is alarmed, serviceability nuisance. [9]

## CONCLUSION

Time and motion research is a specialized research method which is mainly used to determine the work and time taken to complete the assigned or given task.

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