

Appendix D

Alternative Time Distribution Systems

TIME SHEETS AND CONTINUOUS TIME DISTRIBUTION

A time distribution system is a formal methodology used to accumulate labor costs associated with specific programs. Time sheets are generally used to record the amount of time each employee spends working on the various cost objectives.

Time Distribution in a Seamless Service Delivery System

Some agencies may have difficulty managing a conventional time distribution system in a seamless service delivery system environment. Substitute systems are available for meeting time distribution record requirements.

Instead of time distribution records such as a time sheet, recipients and subrecipients may use a substitute system for allocating salaries and wages for a particular time period. The substitute system may be used only if, before charging or allocating the costs, the entity obtains from an independent public accounting firm or another qualified auditor that meets the standards of independence in the General Accounting Office Government Auditing Standards a certification that the system meets the following standards:

- The system is consistent with GAAP.
- The system distributes costs to various programs and cost objectives in a manner that is equitable to the government and to the programs or cost objectives in question in accordance with OMB Circular A-87 or A-122, and considers the benefit actually derived by each program or cost objective.
- The certification must describe the system employed and be available for inspection by DOL, together with its supporting documentation.
- The applicable record retention requirement applies to the certification and the supporting documentation upon which the certification was based.
- Substitute systems may include random sampling, client counts, transaction counts, or other quantifiable measures of employee effort for a specific time period. Sampling and

other measures should take into account relative effort and intensity of service provided to different categories of clients served.

- A substitute system that uses sampling methods may be certified to satisfy the requirements of this paragraph if it meets acceptable statistical sampling standards, including the following:
 - The universe from which a sample of employees is taken must include all of the employees whose salaries and wages are to be allocated by means of the sampling.
 - The entire time period for which salaries and wages are to be charged to a Federal grant involved must be covered.
 - The results must be statistically valid and applied only to the time period to which the sample may be validly extrapolated.
 - The results of the sampling system must be periodically updated to reflect changes in the measures used, such as case counts or client counts.
 - The recipient must use a valid and uniform system for converting the measure of employee effort (such as case counts, client counts) into time.

An auditing firm or qualified auditor that has provided a certification for a substitute system may not also audit the certification or the system in question in connection with an organization-wide or single audit under OMB Circular A-133.

WORK SAMPLING AND WORK MEASUREMENT

Work sampling and work measurement are essentially time management. There are variations in the techniques and methods for conducting a work sampling study. This guide identifies certain basic rules to simplify the time management process.

Random Time Sampling (RTS)

Random Time Sampling (RTS) is an objective method of estimating the amount of time spent during a given period by employees on their different work activities, programs, projects, or services. It is a technique of selecting random moments of time during the work period to observe and record the specific task or work activity being performed by each employee (or a sample of employees) at those random moments. It works like a camera that takes a snapshot of the situation at the instant of the snap. From these recordings made over a reasonable period of time, the percentage of all tallies that were recorded for each activity can be computed. When these percentages are multiplied by the total number of paid work hours (obtained from the payroll), estimates are derived of the number of hours spent on each activity.

Observer work sampling is by far the best known and most common of random work sampling techniques used. Using this technique, an observer makes rounds of the work area at random intervals and records what he or she sees. Each tally pertaining to each individual is an “observation.” The route for making the rounds through an office or work area, and the sequence of checking each employee, may also be randomized.

At random moments of time, throughout each day of the study period, a tally record is made of the activity each participating employee is working on at the moment. One person serves as a recorder to make the tally, often with the help of the person being observed. After a number of days, these tallies can cumulate to a sizable number, so that the percentage of the total cumulated tallies that is associated with each activity approaches the true proportion of the total organization’s time spent on each activity. By obtaining the total paid time of the organization from the payroll records, a simple basis is provided for estimating the amount of time devoted to each activity, namely, by multiplying the activity percentages derived from the sample by the known total paid time.

RTS operates under the principles of probability and random sampling. Under these principles, a relatively small number of observations, provided they are made at random moments of time, will tend to reproduce the actual frequency distribution of the entire work time. The larger the number of random observations, the more closely will the results reflect the true percentage of time spent on each activity. Statistical formulas provide a basis for measuring the reliability of the time estimates using the total number of observations made. Conversely, formulas exist for determining the number of observations that should be made to achieve a desired level of reliability for the resulting estimates.

Systematic Work Sampling

This technique obtains observations at evenly spaced or “systematic” intervals, rather than random intervals. This is, of course, contrary to the usual insistence that accuracy depends heavily on randomness. Some researchers maintain that, under certain conditions, sampling at regularly spaced intervals will give results that are statistically equal to or better than those obtained by sampling on a random basis. However, the exact nature of these “certain conditions” may be quite complex to analyze, and such analysis is best left to a skilled statistician.

Stratified Work Sampling

Stratified work sampling is a fairly common and useful variant, and, when used properly by a skilled technician, may be more accurate than simple random sampling. Stratified sampling consists of drawing a sample from two or more homogeneous groups or subgroups out of the total universe under study. It is a process of subdividing to get representativeness, particularly when it is suspected that the conditions or categories to be sampled are not constant, or in some manner are appreciably different in the various subgroups or strata under study. By separately random sampling subgroups with fairly similar characteristics, we get a truer picture of the whole than by random sampling from all groups combined.

Worker Self-Recorded Work Sampling

The self-recording technique allows each employee to record observations at a given signal, such as a bell or flicking lights. Since the intervals are relatively few in number, say 10 a day, and the recordings are made instantaneously, a comparatively high degree of objectivity is preserved, with minor irritation from interruption to work. Each worker merely makes a simple tally on a preprinted slip or form the instant the signal is given. Tally slips for each random interval should be supplied immediately after each interval to ensure that marking tallies is not postponed, and to enhance objectivity.

Work Measurement—Time Log Systems

This measurement technique requires the use of a tool known as a time ladder. The purpose of the time ladder is to determine, in detail, the amount of time involved with performing various types of functions/services. Time ladders normally consist of three columns. One column has preprinted time information in increments of minutes. The second column is reserved to record the total units of time (minutes) worked on a specific function. The third column is used to record the code of the function. Time codes are developed that relate to the product or activity employees work on (such as intake, assessment, job search). All possible activities are assigned a code, including breaks. In general, employees participating in the study are expected to record the amount of time devoted to a particular product or activity by recording the code within the particular time period they worked on that product or activity. For example, if the code for intake was IN and an individual worked on intake from 8:00 a.m. until 9:45 a.m., he or she would impose a line across the Code column on the time ladder at 8:00 a.m. and impose another line at the time he or she stopped working on IN, which was at 9:45 a.m. The person responsible for tabulating the results could easily determine that one hour and 45 minutes were spent working on intake.

When developing a matrix to record the result of the work measurement exercise, care should be taken to ensure that the matrix is representative of activities. Subsequent to the development of the matrix, if there is an activity or position that cannot be identified with a particular cost objective or program (receptionist, intake worker), consideration should be given to excluding the position from the work measurement exercise and treating the activity as an “indirect” or shared work activity. The cumulative results at the end of the study period that are used to allocate time to specific programs are also used to allocate the “shared” time. The costs associated with the receptionist position would therefore be allocated utilizing the data base resulting from the review of all other work activity. The allocation of the shared or indirect time would be dependent on the time-based percentages resulting from the cumulative time measurement study.

Initial steps in implementing work measurement include the following:

- Analyze functions performed at the service delivery site and identify all activities.
- Identify programs served by the activities.

- Develop a “Master Matrix” and user instructions to incorporate the data identified in Steps 1 and 2.
- Develop codes to be used to record time usage. Where practical, time codes should be program-specific. Where program delineations cannot be made, time codes will be activity-specific only.
- Identify specific counts (volume of work) that will be needed to calculate time distribution.
- Develop/prepare instructions specific to the needs of the work measurement study.
- Select proper time period to ensure statistical validity.
- Determine staffing levels required to conduct the study and make assignments. This includes training.
- Train all staff involved in the study, including managers.