

Benchmarking 101

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Check Points

How effective are your scheduled maintenance procedures?

- ✓ Do you review the list of scheduled services due each month?
- ✓ Are you able to accurately focus your workforce to achieve the desired completion rate?

As we start a new month of planned, scheduled services, we see the entire workload as some formidable foe that must be defeated by the end of the month. At least, it is our desire to accomplish this Herculean feat. But as the month drags on, we sometimes forget just where we stand as far as completing those services. Around midmonth, the panic starts to settle in.

How close are we to finishing? How much more needs to be done? These are the two main questions. They lead to other questions, such as: Will we complete 95% or more on time? How are we handling the normal daily repairs and the emergencies? When and where should I apply my workforce? With some simple planning and a daily status check, we can answer these questions and help stave off these panic attacks.

The first thing to do is “divide and conquer.” Take an overall look at your hospital and divide it into separate service areas. For example, the Operating Suite would be one service area, whereas Radiology and Central Material Supply would be two other service areas. You should separate the clinics by their own specialties as well. Don’t worry if you come up with 40 or more service areas. This will help you in balancing your workload.

Now take a look at each service area. Each area contains the equipment that you will be maintaining. Knowing the types and number of items in an area will give you a start at determining the human resources required. Coupled with the knowledge of the frequency of maintenance

and the length of time to perform services on each item, you can estimate more accurately your staffing and time requirements for that service area. Do this for each of your service areas.

After you have completed your estimates, separate the service areas into six main groups that are approximately equal to each other in staffing needs and time. Do not split a service area between two or more groups, because it will be too confusing to track whether or not the items have been completed. The groups will be tracked in order, one group per month (*i.e.* group one in January, group two in February, and so on). At the end of six months, start again with the first group. This will keep you on target with your semiannual inspections.

Items requiring monthly inspections are placed in their respective groups, maintaining the equality between each of the six groups. Items due for quarterly inspections also should be distributed evenly to maintain group equality.

There are a number of ways to incorporate annual inspections into your maintenance plan. Items of a short time duration that require minimum staffing should stay in their respective service areas, whereas items of a long time duration or requiring intensive human resources should be dealt with separately. For example, you wouldn’t want to do all your rad/fluoro rooms in one month, but you can do one per month until all are completed. With 12 rooms, you can do one per month, six rooms at one every two months, etc. Keep in mind that your goal is to keep the main groups as equal to each other as possible.

Working the Plan

The first thing that you want to do is to review the list of scheduled services due that month. Send a copy of the items due for scheduled services to the supervisors of each service area in the group. Do this a week ahead of time to give the area supervisor the opportunity to ensure that the equipment is available for inspection. It is also suggested that you contact any vendors so that they also may schedule their work in that service area. Begin performing the scheduled services on the first of

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the month and check the results at the end of each day. The suggested completion rates are as follows:

- 50% complete by the eighth working day
- 60% completed by the 10th working day
- 65% completed by the 12th working day
- 75% completed by the 14th working day
- 85% by the 16th working day
- 90% by the 18th working day
- 95% and above completed by the 19th working day

To arrive at the completion rate, you simply divide the total number of items with services completed by the total number of items scheduled for that group. For example, if there were 1,370 total services scheduled and 685 of them had been completed, you would have a completion rate of 50% (685 divided by 1,370 equals 0.5 or 50%). With 1,028 completed items, you would be at the 75% completion rate level.

We're Off and Running

Scheduled services must be emphasized in the beginning of the month. These services must take priority over routine repairs. Only repairs that are truly emergencies should be done before scheduled services. The bulk of your human resources should be utilized at this time to accomplish these services. Retain about 5% of your workforce for any true emergencies or problem areas that arise.

Coordinate with the vendors and the area supervisors for scheduled services performed on all equipment done by the vendors. Make sure that you receive their service reports when the vendors have completed their services, and provide copies to the service area supervisors for their records. To get the vendors to conform to your schedule, put the "Date/s Services Required" into the contract.

As the service areas are being completed, you should start focusing your workforce on the repairs. What you will see is a diminishing need for techs performing scheduled services. This usually manifests itself by too many techs in one area, causing confusion and duplication of efforts, which decreases efficiency. Begin shifting some of your techs to the repairs that have been building up. As a side note, if there just happens to be a repair work order for an item due for scheduled services, complete the work order with the scheduled service and kill two birds with one stone. Figure 1 is an example of when to shift focus from scheduled services to repairs. You can modify this to fit your particular needs.

The uncompleted scheduled services are at a maximum at the beginning of the month and the repairs are at a minimum. As the month progresses, you will have fewer scheduled services to perform each day; however, the unscheduled repairs will increase. Where the two lines intersect is called the *crossover point*. At this crossover point, you can start shifting focus from scheduled services to normal repairs.

Assignment of Work

Work assignments should be based on factors such as familiarity with equipment, density of equipment in the service area, complexity of the equipment in the service area, and the number of qualified technicians available to perform scheduled services. Divide the workload as equally as possible (*i.e.* one X-ray calibration can be equal to 20 electrical safety tests). It's not just the numbers of equipment that are important, but also the complexity of the tasks and the length of time it takes to perform the service. You also should consider if it takes one or more techs to service the area.

Evaluate each service area in terms of hours necessary to complete all scheduled services. Divide the estimated time by eight and you will arrive at the number of technicians required to complete the scheduled services. Remember to round up any fractions to the nearest whole technician, because any technician less than a whole is of no use.

If a task takes more than one technician, you will need to assign the area to one of them as Lead Tech. The timely completion of the area's tasks, including all necessary documentation, now becomes the Lead Tech's responsibility. Because this Lead Tech, or Team Leader, has control of that service area, you only need to communicate with him and not with the whole team.

Regroup

By the end of the month, you will not need all of your technicians performing scheduled services. You should see a need to shift your workforce at the crossover point. This is where you begin to reassign the workforce to unscheduled repairs. By workday 21, you should have 90% of your workforce performing repairs and 10% finishing the scheduled services.

The service area supervisor should be briefed on services rendered and on any equipment missing during this inspection period. This will allow the supervisors to search their areas for lost equipment. Keep a list of this equipment

and update it as you find and perform the scheduled services on the equipment that was reported as missing.

Review the work orders for completion of services and file them accordingly. Have all the calibration labels been updated and/or replaced as required? Do a periodic walk-through with your technician in charge of that area, checking the area for any forgotten items. Make sure that any equipment failing scheduled services has a repair work order and is removed from service until the appropriate repairs can be performed.

Plans With Multiple Categories of Scheduled Services

Some plans track more than just items requiring services. The U.S. Army Medical Command tracks the types of services required by each individual piece of equipment, not just by the number of pieces of equipment. These services are broken down into three categories: *Inspection* (INSP), *Preventive Maintenance* (PM), and *Calibration* (CAL). All together it is referred to as Plans with Multiple Categories of Scheduled Services. Each piece of equipment has from one to three categories of services required. Each category has a specific purpose.

The INSP is the first and simplest of the three categories. The maintenance tech checks the overall appearance of the unit for any damage or signs of wear. A functional check is then performed to check for correct equipment operation and an electrical safety check is performed, as applicable, to ensure safe operation. The INSP is for all items that do not require any specific services such as belt adjustments, lubrication, or component replacement such as filters/batteries.

The PM category covers required services such as filter/battery replacements, alignments, adjustments, and any other activity required on a repetitive basis for correct equipment operation. These services usually are outlined in the manufacturers' literature. The PM service is more intense and time-consuming than the INSP service, and therefore should carry greater weight when considering staffing requirements.

The CAL category is the most intense and time-consuming of the three. It requires the maintenance tech to measure the output of a device and to adjust it within set standards, as per manufacturer specifications. Documentation of the calibration is an important requirement in completing this service. This category should carry the greatest weight of the three when considering staffing requirements.

When analyzing staffing requirements, the degree of difficulty becomes important. This degree of difficulty, or weight, will determine the amount of time needed and the staffing required to perform the scheduled services. As a rule of thumb, one CAL equals three PMs or nine INSPs. You will have to determine any changes based upon your particular facility and the equipment therein.

Tracking the completion rate of any one category is done by dividing the number of total services required in that category by the number of completed services in that category, then multiplying by 100. This will give you the percentage of completion for that category. For the overall completion rate, add total services required for all three categories, divide that by the sum of services completed for all three categories, and multiply by 100. Knowing where you stand regarding the percentages of each category, compared with the overall percentage, will help you shift staffing as needed.

Results

By being able to more accurately focus your workforce, you should achieve at least a 95% completion rate. By concentrating the majority of staffing on scheduled services at the beginning of the month, you will be able to shift your workforce from scheduled services to repairs toward the end of the month. You also will find that you have a little more time at the end of the month to search for and to find equipment that has not been located. Not only will you be able to better schedule your workload, but your customers will be better prepared, knowing when they are scheduled for services. ■