STERILE PROCESSING BENCHMARKS

Utilizing the Productivity Analysis Module

Donna Swenson

A significant challenge when managing a sterile processing department (SPD) can be justifying the number of employees or full-time equivalents (FTEs) that are needed. Most hospitals try to benchmark their sterile processing department productivity against other hospitals—or whatever their healthcare facility may be. Such benchmarking efforts, however, are complicated by the fact that there are many things that influence productivity. Some hospitals try to compare the number of FTEs needed per surgical procedure or per surgery minute. Others try to allocate FTEs based on adjusted patient days or adjusted discharges.

Simply looking at raw numbers, such as number of minutes per surgical procedure or minutes per adjusted discharge, does not give a complete picture.

It is possible that two different hospitals perform about the same number of surgical procedures in a year, but have widely different requirements for FTEs. This can happen for several reasons: 1) the complexity of the cases performed at each facility can require more or fewer trays to be used per procedure and these trays may be more or less complex; 2) department layout may allow for greater or lesser efficiency; 3) work station layout may allow for greater or lesser efficiency; 4) the processing equipment used may be more or less efficient; and 5) department procedures may require more or less time to complete.

For example, hospital A and hospital B each perform about 600 surgical procedures per month. Hospital A, on average, uses three trays per procedure, each of which takes 30 minutes to process. Hospital B, on average, uses four trays per procedure, but takes about 20 minutes to process each tray. Hospital A needs about 90 minutes to process the trays from one procedure or about 5.625 FTEs per month. Hospital B needs 80 minutes to process the trays from one procedure or about five FTEs. For simplicity, four weeks are used to calculate FTEs. As can be seen in Table 1, although each hospital performs about the same number of surgical procedures per month, they have significantly different time needs for processing of those trays. Similar differences in FTE requirements may be seen when comparing any of the other benchmark data points. Hospital sterile processing departments truly are different from one another. It is with this thought in mind that AAMI added productivity analysis to the Sterile Processing Benchmarks (SPB) tool. The productivity analysis module gathers

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Columns and Departments

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<table>
<thead>
<tr>
<th>Description</th>
<th>Minutes/tray</th>
<th># of trays/ month</th>
<th>Total minutes to process trays/month</th>
<th># of hours to process trays/month</th>
<th># of FTEs to process trays/month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital A</td>
<td>30 minutes</td>
<td>3x600=1800</td>
<td>1800x30=54000</td>
<td>54000/60=900</td>
<td>900/160=5.625 FTEs</td>
</tr>
<tr>
<td>Hospital B</td>
<td>20 minutes</td>
<td>4x600=2400</td>
<td>2400x20=48000</td>
<td>48000/60=800</td>
<td>800/160=5 FTEs</td>
</tr>
</tbody>
</table>

Table 1. A Comparison of Two Hospitals

Information on specific SPD tasks, the time needed to complete them, and the complexity of those tasks. This module is divided into categories by intensity of the tasks being performed. Intensity refers to the length of time needed to perform each of the tasks in the category. If your facility has not been tracking productivity in a formal way, it is possible that you may not have all of the data available to complete all the information in the productivity analysis module. Data in the module is entered for the previous calendar year. The calendar year is the basis for benchmarking comparisons. The SPB tool can be used to develop tracking tools for ongoing comparisons. If you do not have complete information for the previous calendar year, you can estimate the missing data or you can gather data for a month and then use that information to extrapolate the results to 12 months. Currently, data for calendar years 2010 and 2011 can be entered in the program.

Productivity levels and the number of FTEs required depend on the complexity and number of each type of task. Complex orthopedic instrumentation requires more time to process than does a basic set of handheld instruments. The SPB tool organizes SPD tasks into four categories of complexity, designated as “intensity values.” Each category represents the number of minutes needed, on average, to complete a task. The time standards associated with each intensity value were developed by consulting sterile processing professionals during development of the SPB program. Unless otherwise noted, all processing steps—cleaning/decontamination, packaging, and sterilization—are included for each category. The program is adaptable: If a task is not applicable to a specific facility, zero is entered. After the data is submitted at the end of each category, the program will calculate the total number of processing tasks performed and total number of hours required for the year indicated for the specific intensity value. The calculated total number is the sum of all the specified intensity value tasks. The total number of hours required is the number of tasks multiplied by the number of minutes for the specified intensity value task divided by 60 minutes. After all information is entered in each of the intensity value categories, the program will provide calculations that compare your facility to others. This process is done in the “FTE results” section. The information in the productivity analysis module can then be used to make comparisons with other facilities.

Intensity Value 1
A task with intensity value 1 requires an estimated 15 minutes to complete. Items in this section include paper-plastic peel pouches, small-wrapped instrument sets, and basin sets. These items can be processed for the operating room (OR), labor and delivery (L&D), physician offices, or other ancillary departments. Reusable textile packs that are being sterilized only are included in this section. At some hospitals, linen packs are prepared by the linen department or an outside company. The packs then are only sterilized by SPD. Miscellaneous utensils include items such as glass bowls, glass or metal cups, and rectangular containers. The total number of each of these items processed in the last calendar year is entered in each box as appropriate.

Intensity Value 2
Each task in intensity value 2 is estimated to require 30 minutes of staff time. This category covers general instrument trays, which consist of basic instrument sets that contain mostly hand-held items. These include basic minor and major sets, dilation
and curettage (D&C) sets, basic orthopedic, basic plastic, L&D sets, trauma sets, and any other sets that do not include any complex specialty instrumentation that may require more time to inspect, disassemble, and reassemble. These sets may be used by OR, L&D, the emergency room, dental clinics, or other areas of the hospital. Small sets of a few instruments that are peel packed should be counted in intensity value 1. General patient care durable equipment includes infusion devices, sequential compression machines, hypothermia/hyperthermia machines, suction machines, continuous passive motion machines, and other equipment used to treat the patient at the bedside. Reusable textile packs in this section include complete processing of the linen pack: inspection, folding, assembly of the components, packaging, and sterilization. Specialty carts, such as latex-free carts and code carts, contain the supplies needed to perform a specific procedure. Other specialty items in this section include probes, transducers, and flexible laryngoscopes. Surgical case carts include the supplies and instrumentation in accordance with a preference card that is specific to the procedure and surgeon. Case carts may be used in surgery, L&D, or other hospital areas with standardized supply and instrument needs.

**Intensity Value 3**
An estimated 40 minutes are required for intensity value 3 tasks. Items in this category include laparoscopic and endoscopic instruments such as laparoscopic cholecystectomy and gynecological sets, rigid endoscopes, and cameras. General (nontotal joint) orthopedic instrumentation sets includes anterior cruciate ligament (ACL) and arthroscopic sets. Specialty sets includes complex orthopedic sets, total joint sets, and stereotactic instrument trays. Operative scopes include flexible cystoscopies, flexible urerteroscopes, and hysteroscopes. Flexible endoscopes processed in an automated endoscope reprocessor (AER) include the scopes used in a gastrointestinal lab, such as gastroscopes, colonoscopies, bronchoscopes, and sigmoidoscopes. Flexible endoscopes processed manually are included in intensity value 4.

**Intensity Value 4**
Staff needs an estimated 75 minutes to complete each task in intensity value 4. Items in this category include complex surgical instruments and scopes; and sets greater than 100 instruments, such as those used for orthopedic trauma, anterior cervical fusion, open heart surgery, and craniotomy. There are also complex and large loaner sets used during orthopedic, neurosurgical, and spine surgeries. Such sets are loaned to the hospital by the company which provides the implants used during surgery. Robotic instruments are complex cannulated instruments used with a machine that manipulates the instruments. Instruments requiring toxic anterior segment syndrome (TASS) precautions include ophthalmic instrument sets, cataracts and phaco handpieces. Instruments that require Creutzfeldt-Jakob disease (CJD) precautions include any instruments that were used on patients with known or suspected CJD. Of particular importance are instruments used for brain, spinal cord, or posterior eye procedures. Flexible endoscopes processed completely manually include all the gastrointestinal (GI) scopes mentioned under intensity value 3.

**FTE Results**
Most of the information in this section is calculated by the program, with the exception of the estimated average number of hours per year devoted to nonprocessing activities. This figure includes the number of staff hours devoted to administration, participation in committees, training, Joint Commission audits, nonprocessing technical work, rounds, procedure development, and managerial activities. Once this estimate is entered, the data is submitted and the program will calculated the remaining results. The number of hours per year required for all SPD processing tasks is calculated by adding up the number of hours for intensity values 1, 2, 3, and 4 tasks for the indicated year. The number of FTEs required for SPD processing and nonprocessing activities is calculated by dividing the total number of hours needed by 2000—a number based on 80 hours of work per pay period and 80 hours of vacation per FTE. The total number of FTEs allocated to SPD was
obtained from the current SPD staffing module. The number of FTEs required and allocated is then used to calculate actual department productivity. The percentage equals the total FTEs allocated divided by the total FTEs required multiplied by 100.

Adequate staffing should range between 95% and 105%. Staffing that is significantly above or below this range should be investigated to determine the cause. Staffing higher than 105% may indicate that the processes used can be improved and streamlined, or that other tasks are being performed that are not accounted for in the program. Staffing below 95% may indicate that additional employees are needed or that the hospital has made significant improvements that enable it to be a “best practice” department. The results from the SPB tool should not be the sole indicator for staffing needs. Other factors may influence a facility's ability to meet the SPB benchmark. For example, poor workflow design or antiquated equipment may result in more time being required for some tasks.

**Compare Facilities**

The productivity analysis module allows for a comparison of facilities, which can provide additional information on how a department is performing. A department can use the comparison to set improvement goals. For example, if a department’s percentage of productivity is currently at the 80th percentile, it may set a goal to improvement productivity and reach the 70th percentile. (The lower the percentage, the better the hospital is performing.) Comparisons can be made with all hospitals in the database or with specific types of hospitals by changing any or all of the filters. Comparing a department to departments in similar hospitals may give more meaningful results.

**Conclusion**

The SPB tool provides a comprehensive method for comparing a sterile processing department’s productivity to industry standards and other facilities. A productivity percentage significantly outside the range of 95% to 105% suggests that there are areas that need to be investigated. A high percentage might indicate that the department is overstaffed, needs to improve its processes, has poor workflow design, or has antiquated equipment. A low percentage might indicate a laudable “best practice” or, on the flip side, staffing shortages or nonadherence to national standards. In short, SPB is a data tool that can be used to discover potential areas for improvement.

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