Service Block Time Allocation in the US Army Medical Command

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ABSTRACT

Service block time allocation is a critical requirement for the optimization of patient throughput and access to care in the Surgical Services Service Line of the US Army Medical Command. The procedure complexity, volume, and diversity across 25 facilities create significant variation in service block time. This variation requires the involvement of both the informatics and leadership teams for block time allocation to be effective. This article describes our use of the Army's Surgery Scheduling System, which includes service block time as an embedded function, to develop a standardized process that helps ensure service block time is optimized. We also present guidelines for block time allocation and offer case studies that demonstrate the application of these guidelines. *AORN J* 104 *(November 2016) 417-425. © AORN, Inc, 2016. http://dx.doi.org/10.1016/j.aorn.2016.09.003*

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The US Army Medical Command (MEDCOM) is under increased pressure to maximize value for its beneficiaries while maintaining a medically prepared and deployable force. *Value* in health care can be defined as patient health outcomes achieved per dollar spent.[1] Personnel who are able to achieve consistently superior patient health outcomes for their facilities through efficient, productive, and financially sustainable use of resources are creating value. The OR is usually a hospital's largest cost and revenue center and therefore has the largest effect on overall performance and value creation.[2] Increased focus on efficiency in the OR is required to maximize patient access to surgical care, the major driver of hospital revenue and profitability.[3,4]

Service block time (SBT) is the amount of OR time offered for a surgical service, and *service block time utilization* (SBTU) is a calculation that divides the actual in-room minutes by the number of minutes of offered SBT. We believe that MEDCOM's approach to SBT could be useful to perioperative personnel who are examining ways to optimize OR use and cost efficiency at their facilities. On average, OR-related costs comprise 8% to 10% of our facility's overall expenses. Thus, a focus on SBTU improves return on investment through reductions in unused OR time and wasted resources such as unnecessary staff overtime.[5,6] In the Army, optimized SBTU is also necessary because surgeons and perioperative personnel need to sustain a high volume of procedures to maintain proficiency in critical wartime surgical skills. Adherence to a rigorous process grounded in literature and empirical validation is required to achieve effective SBTU.

Critical portions of the process of determining appropriate SBT allocation should be standardized, but the OR leadership team must also be involved in making adjustments for facility-specific situations. This leadership team should consist of perioperative nursing team leaders, anesthesia care providers, surgeons, and administrative personnel. Improved surgical scheduling systems, although helpful, cannot replace critical

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decision making by the OR leadership team working in close collaboration.[7]

Every hospital should develop an OR schedule that will ensure smooth patient flow through all phases of surgical care. This schedule should comply with all surgical constraints, balance supply and demand, and generate maximum OR revenue.[8] Optimizing SBT is one method OR leaders can use to ensure time and space in the OR is value based. Allocation of effective SBT requires OR leaders to have the freedom to integrate site-specific information while maintaining standardized allocation processes. This requires the establishment of optimal block periods and informatics to support allocations. This article presents two case studies from two separate Army hospitals, referred to in military vernacular as medical treatment facilities (MTFs). These case studies outline the processes that OR leaders can use to inform and shape their decisions.

BACKGROUND

Several studies have yielded insights into best practices for SBT management. Using the historical relationship between each surgical category and its length-of-stay distribution, Calichman[9] determined that the key to engineering the best possible OR schedule for any hospital is to create a schedule that relates OR procedures to inpatient bed utilization and balance it throughout the week. Beliën et al[10] argued that only one surgical service should be allotted block time to any one OR per day when possible. Zenteno et al[11] demonstrated that active management of OR-scheduled block times and pooling of resources (ie, personnel, equipment) improved OR availability, reduced wait times by 25%, and promoted access to care for waitlisted patient procedures.

Peters and Dean[12] found that short blocks (eg, four hours) encouraged lower utilization because these blocks did not accommodate multiple procedures. In their case study of a 220-bed hospital in Arkansas faced with increased surgical volume, they found that half-day blocks tended to create a midday dip in utilization. They examined surgeon procedure volume and practice preferences and decided to try eight-hour blocks. Surgeons were initially assigned individual blocks based on historical procedure volume. When an individual surgeon did not have the volume to occupy eight hours, the time was shared with another surgeon. They set block utilization targets of 75% as the acceptable rate necessary to retain an assigned block time. Additionally, OR managers focused on optimizing or "smoothing" the daily OR schedule by spreading out caseloads throughout the week and assisting with inpatient census management of the postoperative population.[12] Significant results emerged after a one-year period; block time utilization increased from 61% (57,974 minutes) to 68% (65,627 minutes). Overtime costs decreased, and day-of-surgery cancellations were virtually eliminated (3.8% to 0.01%). Based on 600 average procedures during this time period, the average number of canceled procedures dropped from approximately 23 per month to one per month. Additional results included $2.5 million in annual cost savings and a 14% increase in OR procedure volume during a six-month period (565 to 642 procedures).[12]

Although extended block times and smoothing are important aspects of SBT, the role of the OR leadership team is essential to ensuring that time is appropriately allocated. Surgeons continually compete for SBT and are required to justify their requests for more time. Tarantino[13] suggested that hospital administrators and OR managers must make strategic decisions regarding these allocations on a daily and weekly basis. Calichman[9] argued that all hospitals should use a computer-based system to ensure efficient patient flow through the OR. This argument was supported by Agnoletti et al[14] in an Italian study that demonstrated how OR managers can use business software to directly improve OR utilization by 8% while reducing the number of unscheduled procedures by 14% and staff overtime events by 23%. The work by Agnoletti et al enabled the facility to maintain the clinical goal of safe patient care while improving efficiency.

Operating room leaders across all Army MTFs use an automated Surgery Scheduling System (S3)[15] for surgical scheduling. The S3 program tracks and manages OR schedules, personnel, equipment, and supply needs.[16] An SBT application is embedded in S3; however, S3 has limited capability to track and analyze data in a useful format, making it challenging for OR managers to effectively assess SBTU trends in a timely manner. Analysis requires multiple manual data pulls to determine SBTU performance trends, which is labor intensive and time consuming. Perioperative leaders are currently considering changes to make S3 more informative and accurate in its data capture. The Army is examining an external program that will pull data from S3 daily and provide an overview of performance at the surgeon and surgical service level. At this time, however, S3 remains the best system for OR informatics in the military health sector. Therefore, it is critical that OR leaders quickly and easily assess each situation and make effective decisions to create consistency in the OR schedule and SBTU.

GUIDELINES FOR SBT ALLOCATION

Based on MEDCOM's experience and the evidence presented in the literature on optimal block time determination and the