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Regional Anesthesia "Block Rooms"
Should They Be Universal? Look to Goldilocks (and Her 3 Bears) for the Answer

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The term "block room" describes more of a system than an actual location: a regional anesthetic is administered either before or during operating room turnover, an arrangement often described as "parallel processing" as it allows 2 simultaneous activities. While this may occur in a dedicated "room,"[1] block administration may also occur in a preoperative holding area, the recovery room, or in the operating room while other functions are taking place (such as case setup). But what does Goldilocks have to do with block rooms? Please read on.

There are both demonstrated and theoretical benefits of a block room or parallel processing when used to place regional anesthetics. The potential benefit noted most often is a decrease in nonoperative time per case, often leading to increased throughput and caseload due to increased efficiency. For example, net savings of 9 to 50 minutes were found when a parallel-processing model was used for brachial plexus blocks,[2,3] femoral nerve blocks,[4,5] field blocks,[6] spinals,[3,7] and Bier blocks.[3] In most situations, the increased efficiency resulted in an increased caseload,[6,8,9] with increased revenue often exceeding increased expenses leading to a net financial gain.[3,7,8,10]

To our knowledge, the block room model has surprisingly not been previously described when applied during epidural catheter insertion (although practiced clinically at many institutions). In the current issue of the Regional Anesthesia and Pain Medicine, Dr Gleicher and colleagues[11] report a retrospective study involving two 6-month periods: one before and the other following the introduction of an area in which thoracic epidurals were inserted prior to entering the operating room. Not only did net operating room time decrease 19 minutes per case; but also the authors found a decrease in epidural failure from 16.0% to 5.6%—a critically important improvement hitherto undocumented in the block room–related literature.[1] While this investigation suffers from various weaknesses such as its retrospective design and somewhat simplistic analysis of economic value, it nonetheless provides new evidence of significant benefits using a parallel-processing model applied to regional anesthetics.

In the current economic-conscious and results-driven health care environment, is it time for all health care facilities to use a block room given the plethora of published evidence suggesting significant benefits? The simple answer is: No, not all. This is because there are costs associated with block rooms, and the value (quality divided by cost) for various parallel-processing models needs to be considered. Each institution has different priorities, culture, and existing systems that may not necessarily weigh in favor of a block room (hint: this is where Goldilocks enters the picture). The possible combinations of circumstances are as numerous as there are practices, and although it is outside the scope of this editorial to consider them all, we will outline several of the issues to consider.

SURGICAL PROCEDURE TYPE

Increased productivity from a block room is derived primarily from shortening non–operating room time. Therefore, locations with multiple cases of short duration will necessarily benefit to a greater degree from a decrease in non–operating room time.[12] A greater occipital nerve block administered in a block room for a single 10-hour craniotomy will fail to produce the time-savings benefits of interscalene catheters inserted for six 1-hour rotator cuff repair procedures.

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REGIONAL ANESTHESIA VOLUME

If the parallel-processing model requires an additional provider, then to remain at least revenue neutral, surgical volume and anesthesia revenue must increase to offset the additional costs. A community hospital with only 2 operating rooms will probably not benefit from an independent block room because it is improbable there will be enough volume to offset increased costs—there are simply too few potential applicable cases to adequately increase revenue.[12] In contrast, a parallel-processing model that utilizes a single block room for all cases at a large orthopedic hospital with 24 operating rooms will most likely create a bottleneck that will inevitably delay cases and increase non–operating room times—there are simply too many potential applicable cases. Just as for Goldilocks and her 3 bears' porridge temperature, chair size, and bed firmness: the optimal block room surgical volume is somewhere in between the extremes.

INSTITUTIONAL SUPPORT

The costs of adding a block room may fall heaviest upon the anesthesiology department,[1] while the potential benefits often favor departments of surgery and the hospital itself.[8] Just as in the case of a preoperative clinic that benefits all 3 of these entities and patients, a block room must be supported by all stakeholders.[13] Although some have opined that parallel-processing systems do not necessarily require additional resources and increased costs,[9,14] this has yet to be demonstrated successfully for a regional anesthesia–specific model.

LOGISTICS

A block room remote from the operating rooms it serves can hinder the timely delivery of care, yet finding a dedicated unused area close to the operating room can be challenging (and costly if it displaces another necessary service). Adding a circulating nurse and clerk greatly increases block room efficiency, but, of course, also dramatically increases costs unless these individuals can be transferred from another location. Furthermore, most practices include providers with unequal interest, training, and experience in regional anesthesia, and, in these cases, parallel processing allows the entire practice to provide regional anesthetics to all patients by staffing the block room with the "regionalists."

EDUCATION

For academic institutions charged with educating upcoming generations of practitioners, the potential didactic benefits—decreased time pressure, centralized location for multiple trainees to learn, and fewer failed blocks—might outweigh a revenue-negative block room. With the recent advent of Accreditation Council for Graduate Medical Education–approved Regional Anesthesia and Acute Pain Medicine fellowships and revised Resident Review Committee residency requirements,[15] a block room may be advantageous to allow for a "regional anesthesia" rotation and increase trainees' regional block volume: up to 400% by some reports.[1,16,17] Conversely, because regional anesthesia is not synonymous with administering peripheral nerve blocks, a "block room rotation" may limit trainees from acquiring vital intraoperative experience in managing regional anesthetics. Finally, a central location to practice regional anesthesia may allow interested practitioners to more easily congregate to share ideas and techniques and learn new skills.

PRIORITIES

Block rooms and parallel processing may be a means to additional ends valued by various practices and institutions. For example, decreasing regional anesthetic–related delays might increase surgeon acceptance,[1] whereas moving introduction of the regional anesthetic to a less-pressured environment might increase patient acceptance (leading to a decrease in admitted patients following ambulatory surgery).[2,4] Having a "block team" which administers regional anesthetics can also create an organizational structure allowing this same team to follow patients postoperatively, adding continuity of care and possibly improving the quality of analgesic management and patient satisfaction. Having a specific location for regional anesthetic administration allows ultrasound machines to remain in a single location and avoid being continuously moved among operating rooms, possibly increasing the life span of this expensive equipment.[1]

The article by Dr Gleicher and colleagues[11] is an important reminder of the potential benefits block rooms may bring to the practice of regional anesthesia, from decreasing non–operating room time and increasing potential daily caseload to reducing inaccurately inserted epidural catheters. We encourage future prospective studies examining the value—both quality enhancements and costs—of various parallel-processing models. Whether parallel processing is a good fit for any particular practice is dependent on a myriad of variables and circumstances, and interested individuals may seek initial guidance by asking themselves, "Could Goldilocks make it work?"

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