



# SORTING WHEAT FROM CHAFF MEASURING REAL ROI IN OR OPTIMIZATION

## Introduction

With the financial pressures most hospitals have recently experienced, you've likely considered different approaches to increase case volume. In that consideration, you've probably encountered a variety of claims related to either cost savings or increased revenue from internal project teams, consultants, and software vendors. This paper will analyze success claims of optimization strategies to separate genuine gains from *vanity metrics*, pointing you in the direction of real ROI.

## Measuring Gains

There are a variety of proposed *leading indicators* of case growth, including improvement of on-time starts and turnover time, earlier block releases, and increases in utilization. Let's take a look at each.

## On-Time Starts and Turnover Time

Working to improve first-case on-time starts or turnover time to promote growth is often on the list of potential OR optimizations. Gains can be made. However, growth is marginal and limited to a small set of provider<sup>1,2</sup>. The claims of economic benefit related to cost savings are questionable as well, as mentioned in JAMA<sup>3</sup>:

*"It is difficult to calculate real cost savings. Most OR costs are fixed. Real hospital savings would involve using less staff, whether nursing staff, support staff, or physician staff. We calculated savings based on time saved. This, of course, is somewhat artificial."*

Efforts to improve on-time starts and turnover time are not, however, mutually exclusive of other more impactful interventions. There is no reason to avoid them other than resource or attentional constraints.



## Earlier Block Releases

It makes intuitive sense that releasing block time earlier than mandatory release is helpful. A longer runway to fill the released time should mean that more OR time gets filled. The earlier, the better, right? We agree. The difficulty is in measuring the gains associated with getting time released earlier. The data sets are filled with so much variability from vacation and other out-of-office releases of block time, some with notification a week in advance and others a year or more. Associated confidence intervals are too large for any before/after comparison to be reliable or helpful. Pursue earlier block releases based on common sense but take any vendor-claimed gains in this area with a grain of salt.

## Increases in Utilization

What about OR utilization? Isn't that the metric I should focus on? OR utilization certainly has a role to play in optimization, but possibly not the role you'd expect. It's not strongly correlated with *contribution margin* and is often difficult to predict.

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As a leading indicator of OR profitability, utilization alone does a poor job. The primary reason is that contribution margins can vary widely among surgeons, often greater than 1000%<sup>4</sup>. An OR block with 50% utilization from high contribution margin cases is preferred over a block with 90% utilization from low or negative contribution margin cases, all else being equal.

Utilization also falls short as the sole criterion for block allocation decisions. The utilization of blocks allocated to individual surgeons varies widely from week to week due to the relatively small number of cases typically booked into a block compared to scheduling clinic visits<sup>5</sup>. The difference between booking two versus three cases into a block often results in a significant variation in utilization. Making block allocations based on an average utilization may be short-sighted because the confidence interval for that mean value is likely large. Service line blocks don't suffer the same degree of variability, but often they represent a super category where sub-blocks for surgeons are either implicitly or explicitly identified. These sub-blocks have the same variability as individual surgeon blocks.

Having solidly criticized utilization as a metric, I'll now acknowledge that it is still a helpful measurement. The large majority of surgical cases have a positive contribution margin. The hospital, on average, benefits from each additional hour an OR is filled. As such, efforts to identify time likely to go unfilled and to fill it are worthwhile and can make a meaningful impact, even with cases characterized by a modest contribution margin.

## A Hospital's Own Efforts

Most hospitals have some ongoing effort to release unfilled block time and get it refilled. This may include a mandatory release process, a weekly email of available time, or simply the actions of a scheduler picking up the phone and making calls. When considering an OR optimization software solution, it's fair to ask the vendor how much of their reported gain would have been realized simply through the hospital's ongoing efforts.

To that end, we've already identified some of the limitations of block utilization as a metric. Be wary of increased total utilization claims. While an intervention may increase utilization, it's difficult to measure accurately. It's challenging to separate gains related to the intervention from gains related to staff efforts, market effects, or other externalities.

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## Success Metrics: Recommendation

Recaptured contribution margin is the appropriate metric, but it's not that simple. Gains need to be directly attributable to the intervention. There are a few different ways to get at that. If you have reliable data on the amount of block time released and subsequently refilled before beginning the intervention, you can do a before and after comparison of released and subsequently refilled hours. The comparison should yield results directly attributable to the intervention. If you don't have access to release/refill data for the before period, you can look at the total increase in case hours or case count. However, you'll need to consider any externalities that could have impacted the comparison. If you've recruited a high-volume surgeon, lost a payer contract, if you're in a growing market, or if you're an ASC benefiting from the movement of cases to ambulatory environments, you'll likely see growth effects separate from the intervention, possibly even larger than the intervention itself.

ROI as a success metric shows the gain captured in contribution margin as a function of how much you had to spend for that gain. It is quite simply the ratio of the gain divided by the cost of the intervention. In an environment where vendors are achieving similar results finding and filling OR time likely to go unused, the denominator in the ROI equation becomes enormously important.

## We Can Help

Making the most of your OR hours can have an enormous financial impact. [Copient Health](#) works with you to provide a faster, easier ROI-guaranteed solution. To continue the conversation, drop us a line at [talk@copienthealth.com](mailto:talk@copienthealth.com) or [schedule some time](#) to speak with us.

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