Anesthesia Finances in the Age of COVID-19

PART 1 – Impact of Maintaining Existing Subsidy Structures

Robert Stiefel, MD, Principal, Enhance Healthcare Consulting

Remember the good old days? Remember when OR's were full and you needed to back up a Brinks truck to recruit an anesthesiologist, CRNA or AA? Remember when everyone was concerned with OR growth, market share and meeting quality and performance metrics? Ah, the good old days of February.

How things have changed in a few short weeks as a result of the 2019 Coronavirus (COVID-19) pandemic! Anesthesia providers are now being furloughed or laid off, some being asked to provide services in ICU's or Emergency Departments, while elective surgical procedures, a significant source of revenue, have effectively come to a halt in most US hospitals and Ambulatory Surgery Centers. While the impact may pale in comparison to industries such as airlines, cruise lines and hospitality, it has nonetheless been, and will continue to be, a cataclysmic operational and financial change for the anesthesia delivery model in the US.

Greater than 80% of US hospitals who contract with an independent anesthesia group support Fair Market Value compensation through subsidy payments or compensation for services to those groups. These subsidies are typically negotiated based on steady state or projected group expenses and professional fee revenue. In advance of the agreement the parties will carefully negotiate the number of anesthetizing locations, FTE providers, overhead and calculate expected revenue collection. In a typical 3-year contract, the subsidy arrangement works well for both parties if the revenue and expenses stay within a reasonable range (usually 5% or 10%) of projections.

Subsides may be structured in many ways, the most common being fixed stipends and revenue guarantees. Each structure has pros and cons, but in a sudden financial upheaval like we are experiencing, where surgical cases and corresponding anesthesia revenue grind to a halt, one party or the other will be significantly harmed depending on the structure chosen. We will use a simplified, theoretical anesthesia group to highlight the stark financial differences between each subsidy model and to show the dramatic impact of different anesthesia staffing models on partner physician compensation.

In Table 1, we model a group staffing 10 locations, with three distinct staffing models. One is all MD, one is a "mixed" care team model and the third is a "heavy" care team model with an anesthetist in each staffed location. The staffing for these models in Table 1 are 12 MD/0 CRNA/AA, 8 MD/7 CRNA/AA and 5 MD/12 CRNA/AA, respectively. In the BC-19 era (Before COVID-19), the projected and actual revenue are the same, thus the subsidy is the same for identical staffing models under a fixed or a revenue guarantee model. In this BC-19 era, the partner physicians would expect to make the same total compensation in each of the six scenarios. As would be expected, as the use of mid-level provider leverage increases, the overall subsidy diminishes slightly.

				BC-19 (Before COVID-19)				
	Scenario	MD's	CRNA/AA's	Monthly Revenue	Monthly Subsidy	Total Revenue	Implied Annualized MD Comp	Subsidy Structure
Fixed Subsidy	1	12	0	250,000	315,000	565,000	540,000	Fixed
Baseline	2	8	7	250,000	280,831	530,831	540,000	Fixed
Locations	3	5	12	250,000	249,996	499,996	540,000	Fixed
Rev Guarantee	4	12	0	250,000	315,000	565,000	540,000	Rev Guarantee
Baseline	5	8	7	250,000	280,831	530,831	540,000	Rev Guarantee
Locations	6	5	12	250,000	249,996	499,996	540,000	Rev Guarantee

TABLE 1: *Sample Staffing and Subsidy Model Before COVID-19*

For our DC-19 (During COVID-19) time period model shown in Table 2 we assume that the requirement to staff all 10 anesthetizing locations remains. Although the locations may not be open due to loss of elective procedures, the assumption is that the facility continues the same level of subsidy support which was in place prior to the virus. However, due to loss of significant elective surgical volume, we show a decrease in collections from payers and patients of 80%, or from $250,000 to $50,000 per month.

With the assumptions above, the DC-19 phase is characterized by substantial differences in physician compensation based upon the subsidy support and mid-level leverage in place. As seen in Table 2, assuming all group physicians are partners and share equally in profit/loss and assuming that mid-level provider compensation is paid in full, if a fixed subsidy model is in place, the All-MD, mixed and heavy models will result in annualized partner physician compensation of $344,167, $246,247 and $69,990 respectively. Conversely, in an open-ended revenue guarantee (no cap), all of the providers compensation will be protected, but the hospital subsidy will increase by $200,000 per month in each staffing model to make up for lost surgical volume and corresponding anesthesia revenue.

				DC-19 (During COVID-19)				
	Scenario	MD's	CRNA/AA's	Monthly Revenue	Monthly Subsidy	Total Revenue	Implied Annualized MD Comp	Subsidy Structure
Fixed Subsidy Baseline Locations	1	12	0	50,000	315,000	365,000	**344,167**	Fixed
	2	8	7	50,000	280,831	330,831	**246,247**	Fixed
	3	5	12	50,000	249,996	299,996	**69,990**	Fixed
Rev Guarantee Baseline Locations	4	12	0	50,000	**515,000**	565,000	540,000	Rev Guarantee
	5	8	7	50,000	**480,831**	530,831	540,000	Rev Guarantee
	6	5	12	50,000	**449,996**	499,996	540,000	Rev Guarantee

TABLE 2: *Sample Staffing and Subsidy Model During COVID-19*

While each facility and anesthesia provider group must assess their own situation, simply maintaining the support mechanism in place prior to COVID-19 will be very expensive for one party or the other. In our most highly leveraged model with a fixed subsidy, and the assumptions as described, our hypothetical physician partners will see their total compensation reduced by 87% (from $540,000 to $69,990 per year). On the other hand, in a revenue guarantee with no cap, the highly leveraged model shows a $200,000 increase in required hospital subsidy per month, representing a 66.6% increase. All of this in an environment where hospital finances are under siege on all fronts trying to deal with the needs of their communities to battle the virus.

Bottom line, COVID-19 is a massive stress test for anesthesia group financials. Depending on the type of support model, that stress test may be on the group and its partners or on the hospital as a component of a much larger financial stress test. Unfortunately, many hospitals and groups are not equipped to absorb the respective financial hit for very long at all – often only for a matter of weeks. Clearly, maintaining the existing contractual support model will often have unsustainable financial implications for many anesthesia arrangements, which will worsen as the elective case shutdown continues.

If current models are unsustainable, what happens next? Already, we have seen groups threaten bankruptcy, furlough physicians and anesthetists, and ask to become hospital employees. Many hospitals and large health systems have proposed a dramatic reduction in subsidy support dollars.

In part 2 of this series, we will model several potential interim responses and discuss the financial and operational implications.

Anesthesia Finances in the Age of COVID-19

PART 2 – Impact of Common Early Responses

Robert Stiefel, MD, Principal, Enhance Healthcare Consulting

The good old days of February and early March are a distant memory. In Part 1 of Anesthesia Finances in the Age of COVID-19 we described the dramatic impact a projected (and increasingly realistic) 80% decrease in anesthesia group professional revenue would have on anesthesia financials with a fully supported staffing model. In a fixed subsidy the impact was up to an 87% decrease in partner physician compensation while in a revenue guarantee, using our assumptions, the hospital subsidy increased up to 66% from baseline.

Realistically, most anesthesia groups (regardless of their size) and hospitals are not going to be able to absorb such a significant financial hit for long. Most facilities have significantly reduced the number of anesthetizing locations as elective cases have disappeared, and many previous subsidy support levels have been dramatically reduced or eliminated. We are aware of one large hospital system that has already asked many of their anesthesia groups to take a 50% subsidy reduction for the next 90 days and one smaller anesthesia group that has agreed to reduce their subsidy by the same percentage (20%) the hospital reduces it's employed surgeon's compensation.

Our objective for this installment of our series is to model the impact of several examples of these changes on anesthesia group finances. As we did previously, in order to demonstrate the impact in various scenarios, our example will use a group staffing 10 locations, with three distinct staffing models.

One is all MD, one is a “mixed” care team model and the third is a “heavy” care team model with an anesthetist in each staffed location. The staffing for these models in Table 1 are 12 MD/0 CRNA/AA, 8 MD/7 CRNA/AA and 5 MD/12 CRNA/AA, respectively.

To highlight the impact of changes, we will use a revenue guarantee model showing the impact of reducing subsidy supported anesthetizing locations by 50% from 10 to 5 (although many of our clients report a 60-80% reduction in rooms in use), and then adding a reduction in supported compensation for all anesthesia providers by 50%.

Summarized in Table 1 below, the BC-19 (Before COVID-19) section shows the arrangement at steady state, all 10 operating rooms are running, anesthesia revenue is at the projected steady state ($250,000/mo) and compensation is at Fair Market Value levels for all providers.

Staffing		BC -19 (Before COVID-19)				
MD's	CRNA/AA's	Monthly Revenue	Monthly Subsidy	Total Revenue	Implied Annual MD Comp	Implied Annual CRNA/AA Comp
12	0	250,000	315,000	565,000	540,000	250,000
8	7	250,000	280,831	530,831	540,000	250,000
5	12	250,000	249,996	499,996	540,000	250,000

TABLE 1 : *Financial Model Baseline - Before COVID-19*

In the DC-19 (During COVID-19) analysis shown in Table 2, all of which maintain the initial monthly group overhead ($25,000/mo. in all scenarios), we see the cumulative impact of the cost cutting measures as compared to the baseline modeled in Table 1.

In scenarios 1 through 3, in Table 2 below, the impact of the 50% reduction in anesthetizing locations results in a monthly subsidy which is minimally changed from that seen before the impact of the virus. This is because the savings resulting from reduced provider FTE's required for the reduced staffed locations comes close to offsetting the $200,000 reduction in monthly revenue. It is only when we superimpose a 50% reduction in provider compensation in scenarios 4 through 6 that the hospital can meaningfully reduce the overall subsidy spend. In these models, where both the staffed locations and provider compensation are reduced by 50%, we see the calculated facility support decrease approximately 50% from baseline.

		DC (During Corona)							
	Scenario	**MD's**	**CRNA/ AA's**	**Monthly Revenue**	**Monthly Subsidy**	**Total Revenue**	**Implied Annual MD Comp**	**Implied Annual CRNA/AA Comp**	**Subsidy Structure**
Rev Guarantee Reduce Locations 50%	1	7	0	50,000	**290,000**	340,000	540,000	250,000	Rev Guarantee
	2	5	4	50,000	**283,332**	333,332	540,000	250,000	Rev Guarantee
	3	4	6	50,000	**279,998**	329,998	540,000	250,000	Rev Guarantee
Rev Guarantee Reduced Locations and Comp 50%	4	7	0	50,000	**132,500**	182,500	**270,000**	**125,000**	Rev Guarantee
	5	5	4	50,000	**129,164**	179,164	**270,000**	**125,000**	Rev Guarantee
	6	4	6	50,000	**127,496**	177,496	**270,000**	**125,000**	Rev Guarantee

TABLE 2: *Financial Model of Interventions During COVID-19*

We want to be clear that the examples here are designed for demonstration purposes only and cannot be applied directly to any specific facility. Other options to reduce the overall spend certainly exist and our models are only designed to directionally show the impact of two common approaches we have seen. There are numerous anesthesia support models and certainly the details (coverage and call requirements, subspecialty coverage, leverage of mid-level providers etc.), and the financial impact of various maneuvers, will vary within each arrangement. However, the key point here is that in any stable, balanced anesthesia subsidy, a sudden, dramatic reduction in revenue will require drastic steps to mitigate. Given the sudden and devastating impact of Covid-19 on all aspects of healthcare, facilities and

groups will need to take some measures to “share the pain” because every aspect of the system is undergoing a massive stress test. It won’t be easy for any of us and will only worsen as the duration of the elective case moratorium continues.

In the current “During COVID-19 Phase”, the good old days appear a distant memory. Both personally and professionally our lives have been turned upside down. We suddenly live in a world of social distancing, stay at home orders and online schooling that was unimaginable just over a month ago. Professionally, elective surgical cases have gone away, providers are being terminated or furloughed, and revenue will begin to fall off a cliff in April making groups of all sizes possible bankruptcy candidates.

However, we will get through this and eventually create a new normal. In time, we will all emerge from our COVID-19 cocoons and elective cases will start up, likely with pent up demand. We believe that decisions made during this “During COVID-19” phase will have a huge impact on the ability to absorb the ramp up on the other side. Working together, we will navigate the short-term pain with an eye on intermediate and long-term gains in caseload, market share and ultimately profitability.

In Part 3 of this series, we will model the potential financial impact of our various scenarios on facilities as they scramble to meet surgical demand in an AC-19 (After COVID-19) world.

Anesthesia Finances in the Age of COVID-19

PART 3 – Impact of Responses on Post Virus Performance

Robert Stiefel, MD; Howard Greenfield, MD & Keandra Brown-Davis, MHA

In Part 1 and Part 2 of Anesthesia Finances in the Age of COVID-19, we described the impact a projected 80% decrease in anesthesia group professional revenue would have on anesthesia financials in three distinct scenarios. First with a fully supported anesthesia staffing model (impact of both a flat subsidy and revenue guarantee); second with a 50% reduction in staffed anesthetizing locations; and third, in addition to the reduced locations, a superimposed 50% reduction in provider compensation levels. While our focus in the previous models was on the immediate financial impact on both contracted entities, this installment will attempt to analyze the impact on facility finances in the first few months after the virus threat has stabilized to the point where elective surgical cases are able to resume.

Depending on a wide variety of factors including the percentage of elective cases prior to the shutdown, service line mix, payer mix, and baseline subsidy structure, each hospital will have unique implications and responses "During the COVID-19 ("DC-19")" crisis. Clearly the path taken during the crisis will impact the position of a healthcare system to accommodate a return of surgical volume, which may include an overshoot due to pent up demand. We cannot hope to analyze each situation but endeavor to model directionally the impact of DC-19 actions on the ability of anesthesia provider groups to respond operationally after the elective case moratorium is lifted and the financial impact on the associated facility. To best illustrate, we will use the most heavily leveraged revenue guarantee model from Parts 1 and 2 and assume significant pent up surgical demand.

The DC-19 modeled staffing, supported locations, and implied monthly subsidies (see Parts 1 and 2 for details) are seen in the "During COVID-19" shaded section of Table 1. For the current analysis key assumptions are as follows:

- The After COVID-19 ("AC-19") section shows the impact for the 2 months after elective surgical cases resume
- The During COVID-19 period lasts 3 months
- In scenarios 1 and 2 where full compensation was supported for all anesthesia providers, the facility has anesthesia staff available to run the number of supported locations (10 and 5 respectively) for the AC-19 period
- In scenario 3 where 5 locations were supported at 50% compensation, enough providers for only 3 locations remain in the AC-19 period
- It is assumed that average demand for surgical cases is elevated in the AC-19 period, thus cases per staffed location increase (from 66/month baseline to 100/month)
- Surgical contribution margin is calculated at $2,000 per case
- "Net Facility Impact" for the 2-month AC period is calculated as the total contribution margin reduced by the total subsidy paid in the 3-month DC period

Scenario		DURING COVID-19			AFTER COVID-19			
		MD's	CRNA/AA's	Monthly Subsidy During COVID-19	Max Locations for 2 months AC	Max Cases for 2 Months AC	Surgical Contribution Margin (for 2 months)	Net Facility Impact (for 2 months)
1	**Maintain 10 Locations and Full Comp**	5	12	**$ 449,996**	10	2000	$ 4,000,000	**$ 2,650,012**
2	**Reduce to 5 Locations**	4	6	**$ 279,998**	5	1000	$ 2,000,000	**$ 1,160,006**
3	**Reduce to 5 Locations and Reduce Comp 50%**	4	6	**$ 127,496**	3	600	$ 1,200,000	**$ 817,512**

TABLE 1: *Financial Performance After COVID-19*

Results highlight the potential impact of reduced support for anesthesia services in the short term (DC-19 period) leaving the facility unable to accommodate the surgical demand after the crisis resolves. In our hypothetical examples, the subsidy paid over a 3-month period in scenarios 1, 2 and 3 are approximately $1,350,000; $850,000 and $400,000 respectively. Clearly, a meaningful reduction in immediate spending, however using our assumptions, these short-term savings come at a steep cost when elective surgical volume returns. As financial support diminishes in the DC-19 period, fewer anesthesia providers are in place and able to hit the ground running when case volume returns. This results in an inability to accommodate lucrative OR and NORA volume in the AC-19 period. The net contribution over the 2-month AC-19 period, accounting for the total subsidy paid, shows over a 3-fold increase from scenario 3 to 1 and over a 2-fold increase from scenario 2 to 1.

We want to be clear that the examples here are designed for demonstration purposes only and cannot be applied directly to every facility. We have made assumptions on several points which will surely deviate from the actual outcome as we recover from the current crisis. The duration of the COVID-19 shutdown, modeled as a 3-month period in our example, is unknown at this time. A shorter shutdown would actually result in a larger benefit for scenario 1 as compared to other scenarios (less total subsidy spend with the same calculated contribution margin). It is also possible that surgical demand will ramp up slower than expected, and that a sustained 50% increase above baseline caseload per anesthetizing location may not be realized. The availability for recruitment of “disenfranchised anesthesia providers” whose baseline compensation was not supported during the elective case moratorium is a true unknown. There will certainly be providers who perceive they were not supported adequately by their group or hospital system, but will they be willing to move to new situations in large numbers, or will they eventually settle back into their previous practices? If providers can be rapidly recruited (or perhaps re-recruited to their previous practice) for the AC-19 period, the number of anesthetizing locations available to support surgical cases may be reached quickly and mitigate the loss of case capacity assumed in our model.

Nonetheless, our key point here is that support of anesthesia providers during the current crisis will likely have important implications as surgical volume recovers. If our examples and assumptions are directionally correct, the return on investment of supporting anesthesia provider groups will have a positive net financial impact by the time elective case volume stabilizes. As we have acknowledged previously in this series, in light of the sudden and devastating impact of COVID-19, all healthcare organizations will need to take some measures to "share the pain" because every aspect of the system is undergoing a massive stress test. However, those facilities and health systems who are willing (and financially able given the tsunami of short-term issues they face) to significantly support their anesthesia service, will likely be better positioned when the elective case moratorium is lifted.

An important assumption which supports our "AC-19 analysis" is a pent-up demand of surgical cases and the ability to achieve volumes 50% higher than baseline for several months. This assumption will be impacted by a number of variables which we believe warrant a more detailed discussion. In Part 4 of this series, we will discuss these variables and attempt to assess the impact on facilities and decision making as we emerge into an After COVID-19 world.

Anesthesia Finances in the Age of COVID-19

PART 4 – The Journey After COVID-19

Howard Greenfield, MD; Robert Stiefel, MD & Keandra Brown-Davis, MHA

Parts 1, 2 and 3 of Anesthesia Finances in the Age of COVID-19 dealt specifically with the immediate financial implications of various levels of anesthesia support during the COVID-19 pandemic and the impact on facility surgical revenue during the recovery from this crisis. In our past examples, surgical case volume and anesthesia professional fee revenues were down 80% due to cancelation of elective operative and diagnostic procedures. In many instances, anesthesia groups have been asked to reduce their subsidy, or change the current support arrangement, while maintaining enough healthy staff to cover all service lines within the hospital. That has left many groups unable to afford to keep their full "pre COVID-19" staffing levels. This is a potential concern for healthcare leaders who believe that once the COVID-19 crisis begins to abate, patients will be flocking back to the facilities for surgery resulting in an almost immediate return of volume and revenue.

In Part 4 of our series, we will now consider the likely New Normal in the immediate aftermath of COVID-19 and explore a number of reasons why that sudden surge in volume and revenue may not materialize in the manner anticipated.

Will the patient scheduled for a total knee arthroplasty in early March still have health insurance in June?

According to a recent article from CBS News, the historic surge in unemployment claims in the past three weeks paired with job losses for almost 10% of the U.S. workforce has caused an unprecedented increase in the number of uninsured Americans. Almost half of U.S. workers get health insurance coverage through their employers and as many as 1.5 million people have lost their coverage in the last two weeks of March alone. That number could swell to 7.3 million Americans by June 30 based on Federal Reserve estimates of the number of workers who are expected to lose their jobs in the upcoming months. These numbers do not include family members who may be covered under an employer-sponsored plan. The effects of this loss of insurance and uncertainty as to when employees may regain health insurance will certainly impact our healthcare systems, and the timing of any planned or elective surgery.

Patients need to commit time to restart businesses

Many patients who had planned to take time off for elective procedures and recovery may now choose to delay their surgery and devote time to restarting shuttered businesses. Employers' back-to-work plans will depend on geography, and employers in rural areas and suburbs that saw fewer confirmed cases of coronavirus and resulting deaths will have an easier time convincing employee that it's safe to return to work. "The close quarters of city offices may add another barrier to urban employers whose workspaces are not built for social distancing. How we will go from nearly country-wide quarantine to some semblance of normal without widespread testing for COVID-19 is still unknown. But returning to work will almost certainly happen in waves, driven by consumer demand and employer desperation" said Erik Gordon, a professor at the University of Michigan's Ross School of Business. Common sense dictates that elective surgical schedules will ramp up in areas less impacted by COVID-19, yet it is exactly these areas where a meaningful number of potential patients will return to their workplace.

Will elective surgery outpatients be fearful of going into hospitals?

Patients will want every assurance that a hospital which cared for COVID-19 patients has been cleaned and sterilized before going in for their elective procedure. In a recent Anesthesiology News article, Franklin Dexter, MD recommended that *"only one case should be performed in each OR daily, which will afford institutions the opportunity to clean each room thoroughly including terminal cleaning with the addition of ultraviolet-C light. That's why we recommend multimodal terminal or deep cleaning after each case."* What exactly deep cleaning is and how it should be applied to facilities in the AC-19 era is the subject of many discussions.

It is unknown how long the air inside a room occupied by someone with confirmed COVID-19 remains potentially infectious. Facilities will need to consider factors such as the size of the room and the ventilation system design (including flowrate air changes per hour, and location of supply and exhaust vents) when deciding how long to close off rooms or areas used by ill persons before beginning disinfection. According to CDC recommendations, taking measures to improve ventilation in an area or room where someone was ill or suspected to be ill with COVID-19 will help shorten the time it takes respiratory droplets to be removed from the air.

Will these facts delay the re-opening of hospital OR's? Will there be a mandated change in hospital HVAC systems? Will patients, when possible, choose to have their cases done at ASC's that have been closed or not exposed to COVID-19 patients? Will surgeons elect to delay or move large numbers of cases to surgery centers to protect themselves and their patients from exposure? Only time will tell.

Should all patients and healthcare providers need to be tested for COVID-19 before elective surgery?

Because of the false-negative rates with COVID-19 testing, hospitals will need to proceed in the near term as though all patients are infected. However, if you are a patient having an elective knee arthroscopy, wouldn't you want to know that the highly skilled and dedicated individuals comprising your surgical team, who took care of many COVID-19 patients last month, were also tested before your surgery? With testing in such short supply, will that be possible before we expect to see a surge in elective surgery?

Delays in surgical patients obtaining preoperative clearance

Many surgical patients with co-morbidities will need to redo their preoperative clearance as they will have exceeded the 30-day window prior to surgery. Will CMS allow for 60-90-day windows? How many primary care, general internist and cardiology offices will have reopened and be able to schedule patients for re-assessment? Will the hospitals now need to provide this service to prevent further delays? We feel it is likely that getting preoperative preparation protocols back on track will take time, and will cause delays in smooth elective case restarts, especially for patients with significant coexisting disease.

Hospital shortage of surgical supplies and medications

Everyone is familiar by now with the severe shortage of ventilators and Personnel Protection Equipment (PPE) available to the physicians, nurses and healthcare workers on the frontline. Few are aware of the impending shortage of sedative hypnotic drugs such as dexmedetomidine and propofol, and neuromuscular blocking agents such as vecuronium and rocuronium, all of which are used to intubate and keep patients asleep in the OR or ICU. Last week the Drug Enforcement Administration loosened restrictions on controlled substances needed for the ICU treatment of COVID-19 patients, increasing by 15% the allowed production volumes of fentanyl, morphine, hydromorphone, codeine, ephedrine, pseudoephedrine, and certain intermediates for their production. The agency also boosted the amount of ketamine, diazepam, midazolam, lorazepam, and phenobarbital that can be imported from overseas.

Hospitals are among the most resource-dependent organizations in our economy, producing virtually nothing while consuming a steady stream of supplies from outside sources. In recent years, hospitals have tended to focus on supplies as a cost sink that should be managed as sparsely and efficiently as possible. This lean, just-in-time approach doesn't allow for stockpiles of ventilators and masks for unlikely events such as the current pandemic. As the

COVID-19 pandemic recedes, our healthcare system can't go back to business as usual. This crisis has revealed the dangers of viewing supply chains solely in terms of cutting costs and healthcare organizations may need to approach supplies from a public health perspective, building up reserves for low-probability, high-impact threats. Short-term stabilization and equilibration of medications and supplies in the aftermath of the crisis may leave facilities unable to meet pent up surgical demand for a period of time.

In short, each facility should develop its own formula or roadmap to determine how best to accommodate backlogged cases. Items to consider include the date elective surgery was halted, the number of cancelled cases as a percentage of total volume, the ability to run surgical suites longer and extend weekend hours and the reallocation and management of block scheduling. As discussed in previous installments of this series adequate anesthesia coverage may be an impediment to meeting pent up demand as we emerge from this crisis. In many cases the limiting factors may also include the COVID-19 testing of all healthcare providers, changes in patients' insurance status, access to PPE, surgical supplies and medications.

Our thought is that ramp up of surgical volume emerging from the crisis will need to be carefully considered based on the unique situation of each hospital and healthcare system. Relatively unaffected states will be able to restart elective procedures sooner rather than later. At a minimum, they should have an ample supply of ventilators, surgical instruments and medications, but must first assure healthcare providers and patients that PPE will be provided and that ongoing testing and monitoring of COVID-19 is in place. How rapidly, elective surgical volume will return will be up to each hospital and health system in conjunction with their physician partners. Together they must weigh their readiness based on the factors discussed here and determine their ability to justify the risk/benefit ratio to themselves and their patients.