



American Society of
Anesthesiologists™

Central Line

Episode Number 52

Episode Title: Inside the Monitor – Anesthesia in Low and Middle-Income Countries

Recorded: September 2021

(SOUNDBITE OF MUSIC)

VOICEOVER:

Welcome to ASA's Central Line, the official podcast series of the American Society of Anesthesiologists, edited by Dr. Adam Striker.

DR. ADAM STRIKER (HOST):

Welcome to Central Line. I'm Dr. Adam Striker, your host and editor. Today I'm joined by Dr. Muhammed Rafique, Associate Professor, Anesthesiology, Stritch School of Medicine, Loyola University in Chicago, and Dr. Lalitha Sundararaman, Clinical Instructor, Brigham and Women's Hospital, Harvard Medical School, Boston, and Madras Medical College in India.

We're going to discuss the anesthesia in low- and middle-income countries, a topic explored in a special section of the October issue of The Monitor. Welcome to the show.

DR. MUHAMMED RAFIQUE:

Thank you for having me.

DR. LALITHA SUNDARARAMAN:

Thank you, Dr. Striker. Thank you for having me.

DR. STRIKER:

Oh yeah, my pleasure. I'm, I'm excited to have the conversation. And Dr. Sundararaman, let's start with you. Do you mind giving us a, a little bit of an explanation of what you mean by low- and middle-income countries? Many of us, I think, think of the poorest countries when we hear this term. But, but there's actually a lot of countries that fall into this category. Is that not correct?

DR. SUNDARARAMAN:

Yeah, that's a really good question, Dr. Striker. Actually, when we think about low- and middle-income countries, we immediately think of really poor countries, you know, countries which are probably featured in advertisements, can you contribute to your dollar?

But it's not exactly like that. Many low- and middle-income countries are those countries, which are classified as having a GDP, a gross product, which is less than 50% of the income of the G7 countries. And the per capita income should be about 25% percent or less of the G7, that is the developed countries. And that would be the classification for the low- and middle-income countries. And we automatically tend to probably think of African and Asian countries. But that's not the case. Actually, there are countries which fall into this category in every continent, be it in Central America, South America, Africa and even in some Asian Pacific countries.

DR. STRIKER:

Well, Dr. Rafique, I know you've had some experience in performing anesthesia in lower middle-income countries. And do you mind giving us a little bit of a snapshot of what that looks like?

DR. RAFIQUE:

Yes, definitely. Thank you very much, Dr. Striker. Anesthesia in low- and middle-income countries is very bare bones, to be very frank. Usually, the anesthesia machines are very ancient, and they lack compulsory safety features, for example, oxygen sensors, disconnection alarms, etc., which are a necessity for safe anesthesia administration. And this was a situation about 30 years ago when I was a student there and that worked in anesthesia for a few months. And then even when I went back for a mission trip, I saw similar situations.

In recent years, I would say you'd see some improvement in bigger cities and in teaching institutions. And probably it has something to do with the, the ID and social media revolution, which we are into where people know now more and demand more from their providers. But still, if you go out of the bigger cities, it is basically the anesthesiologist is the only monitor they have were their finger on the pulse. I know my own classmates who are doing anesthesia in smaller cities, and they are the only monitor for anesthesia care. They have very long work hours, and physician burnout is very common. A lot of private sector hospitals do not have designated post-anesthesia care unit, to give you one example. So basically, there is no attention to the patient condition after the operation is finished.

DR. STRIKER:

Well, Dr. Sundararaman, you've also experienced training and practiced anesthesiology abroad. Do you mind sharing a little bit of your experience?

DR. SUNDARARAMAN:

Yes. Thank you for the question, Dr. Striker. Yes, I did do anesthesia residency completely in India, and I was practicing for a little bit, both in big urban hospitals as well as smaller, more suburban centers. So, the practice set up in India and even in Bangladesh, Nepal, Sri Lanka and nearby countries is a little different from what we see in the US. So, there is a, a public government-run hospital-based system wherein patients can be treated for free or at minimal cost to the patient. And there is a private sector which basically caters to those who can afford to pay for their care.

While the relative cost of health care is a little bit less in the private sector when compared to the U.S., still, it's probably beyond the reach of about at least 70% of the population, so the 70% of the population goes to the public sector. I did have the chance to train in a public sector hospital, and also work in the private sector. And while the public sector has a lot of patients, funding is not really excellent, and hence we make do with a lot of stuff.

For example, in many cases, in one room we actually gave three spinal anesthetics at the peak of C-section deliveries, and there used to be one supervising attending anesthesiologist who used to jump from each case to the other, and they used to be three residents who were performing the individual anesthetics. And this was a way to like, probably manage the population of India, where in, in the hospital, there used to be 40 deliveries a day, and sometimes about 3/4 of those are C-sections.

And well, coming out of that training, I felt really secure in my training, and I felt like I was ready to face the world and I went out into the private sector. In the private sector, you have big corporate hospitals wherein you can work for a salary and you are asked to do different types of cases and do them. But more, number of people were actually taking to the individual set up wherein you link up with specific surgeons and you go to the, their respective places of surgery, be it minor surgical centers or bigger hospitals, and you give anesthesia for those cases. So it wasn't exactly like I have privileges in this hospital or I have privileges in that hospital. You have to sign in as an anesthesiologist, quickly make an overview of whatever facilities are available, and often we used to carry our own setups we used to carry, like a portable Magill's Laryngoscope. We used to like carry, you know, our own sort of modification of a C-MAC with us everywhere where we go.

And once when I was young, we have to set up all these relationships, so you tend to kind of take up all the cases that you can. And I was asked to give anesthesia to like a, a budding surgeon, and I went to the place and was like a modified bedroom. And there was like an old (sic) machine with two oxygen cylinders, and I was asked to give anesthesia for a hysterectomy. And I was like, uh, I don't think this is possible. And he said, like doctor, if you don't think it's possible, I believe that would be the end of our relationship. I don't think I can call you again. And you know, like many times, there are people who are willing to give spinal anesthesia and do these cases, you know, hoping that they don't need extra oxygen, you know, like you're just going to give oxygen to support the patient and you don't really need it for general anesthesia.

So there were many cases like this wherein you had to like, skimp and save and use whatever minimal resources you had to give anesthesia, whereas there are certain big corporate setups where you have all of the facilities available, including the latest ventilators. I think the biggest curse in India and neighboring countries is the disparity of health care. You will find that at one hospital you have all the facilities available and 10 miles from that hospital you have barely anything. And that was the biggest problem that I suffered during my years of practice there.

DR. STRIKER:

Well, let me ask you guys just a quick follow up on the experiences in other parts of the world. Is it difficult to make the decision to compromise on your standards to give way to actually delivering care? Is that an easy decision to make when you're presented with perhaps a greater volume of patients that don't have access to normal care? Or are there a lot of times you're like, you know, I, I would love to be able to do this, but this is just unsafe in my eyes.

DR. RAFIQUE:

I think there are two parts of it. One is the patients who are in the government hospitals, which are without any fee for service and where people come expecting that they will get some care. And these are the patients who are poor of the poorest who have no other choice. And if they don't get any kind of treatment there, they would probably go out on the road and die. And in those situations, it is just everybody practices with a heavy heart and they do whatever they can do, necessity to help those patients. There, it becomes more of a dilemma that if we do not provide anesthesia care with whatever we have at hand, I'll give you an example. I worked in, worked only like nine months of anesthesia there, and it was a OB

hospital, tertiary care OB. And we gave, everybody had general anesthesia for C-section there. And the reason why was that was the only thing with the hospital provided us to do, like spinal kit was not available for anybody. So, in the government setup, you are doing whatever you have to try to help the patients because if we don't do it, then they are going to go out on the street and probably die. Nobody's going to help them.

But on the other hand, in the private sector, because of several different reasons, a lot of people sometimes make those decisions because, they are, I would say, pushed by the economic conditions that they want to please the surgeons and be able to work with those surgeons again and sometimes make those decisions which are not the safest in the face of care they provide.

DR. STRIKER:

Gotcha. So I mean, it's a it's a mix, depending on the situation.

DR. RAFIQUE:

Yes.

DR. STRIKER:

Dr. Sundararaman, do you feel the same way?

DR. SUNDARARAMAN:

Yes. I think there's a lot of truth in what Dr. Rafique says, but also in addition, in these countries, resources are limited and the amount of money which the patient can spend is also limited. We are spoiled, or rather not spoiled, whichever way you look at it, by an extensive insurance system, which pays for most services in this country. But in many of the Asian countries, actually, the patients pay out of pocket, right? So they come with the limited resources and they say, like, please do the best you can. So you got to make a decision as to what you feel are the essential investigations that you want to do before taking up the patient for surgery. There are compromises which happen because you feel like, I don't think this investigation is really necessary before we proceed for this type of surgery. Are we actually following ASA guidelines at every point or the practice guidelines? Maybe not, but that is partially how it works over there.

And secondly, also unlike big corporate setups, I completely agree with Dr Rafique that there are economic considerations which are also to be made. For example, there was once this surgeon who booked for cholecystectomies in one day. Right? So you've got to be fast with your technique and your emergence has to be fast, and there should be no turnover over time. This limited time available for a quick pre-op and assessment. And if you cancel any of those cases because some of the investigations are missing, then God forbid you will probably be a black mark in that OR for the rest of your career.

So there are many economic considerations. There are many cultural considerations as well. For example, there are certain places where then you have to tread carefully when you deal with patients because they feel like there might be a little bias when you're dealing with them, which I think is the case in many countries when you're considering socioeconomic and cultural considerations also. So many times, we try to minimize any possible, you know, further investigations or anything, and we kind of like do as safe an anesthetic as possible within limited circumstances.

DR. STRIKER:

Well, this is fascinating because I, I, I mean, I could spend a whole hour just talking about this subject because I, there are so many other facets I'd like to explore when, when it comes to the differences in specifically anesthesia practice in other parts of the world compared to the United States.

But I do want to get to the October issue of *The Monitor*, and the guest editorial that you both co-authored is titled *Why We Should Care About Anesthesia in Low- and Middle-Income Countries*. Do you mind telling our listeners why this topic is important and why should they care? Dr. Rafique?

DR. RAFIQUE:

Thank you very much, Dr. Striker. This pandemic has shown us that what is across the world today can become across the street tomorrow very quickly. With transportation means and so many people travelling across the globe, health care deficiencies in any part of the world can impact people all over the globe. So, if anesthesia is not safe in a faraway city in Pakistan, it can have implications for people in the bigger cities in Pakistan and perhaps other parts of the world. So, it's very important that we, who are in a leading position in the USA, we should try to do things which improve anesthesia safety in less resourceful parts of the world in the form of education, teaching, training and any other means at our discretion.

DR. STRIKER:

Well, and let's talk about some of the other articles we'll see in this special section, one article explores disparities in training circumstances, hardships and barriers in getting adequate anesthesia education and clinical experience and high-, low- and middle-income countries. Can you tell our listeners what the authors found and what they have to say about possible solutions?

DR. RAFIQUE:

Yes, that is a very well written feature article by Dr. Evans and her co-authors. They point that the number of trained physicians in anesthesia is, in low- and middle-income countries is very low compared to the modern world. They see anesthesia training is standardized in USA in terms of duration, competencies and quality control as overseen by ACGME. Trainees are paid a reasonable stipend here so they can focus on their training instead of worrying about how to put food on the table.

On the other hand, training programs lack structure, quality control or any overseeing authority and above all, all the trainees are either paid minimally, or not paid at all in low- and middle-income countries, which makes it very difficult for the learner to keep their focus. Most low- and middle-income countries lack consolidated facilities, and trainees have to sometimes travel long distances to learn or attend parts of their training.

A lot of subspecialties are not developed at all in these countries, and they suggest some solutions. They think that because a lot of care is funded by government in low- and middle-income countries. So maybe governments or ministries of health who control the training programs should add a structure to it and provide more funding so that training can be easy for the trainees.

Also, the non-governmental organizations like WFSA or ASA can help and provide support in the form of guidance, stipend for trainees and arrange training areas in the areas of need. Also, high income countries can support the faculty salaries and help them to be able to better run the training programs. Also, they suggest that we all have access to resources and abilities to communicate widely, so we can donate time and effort in the form of Zoom teaching, mission trips with the goal to teach and train and educate. Also, partnerships can be built between the departments here in the high-income countries and on the other side in the low-income countries, which will help to form exchange programs. And probably that all could have an impact on

the training in low- and middle-income countries. It is a very beautiful article. Everybody should definitely read it.

DR. STRIKER:

Speaking of partnerships, several articles touched on the value of partnerships. The authors of one of them suggest partnerships are key to the future. Dr. Sundararaman do you mind explaining that idea? What role can partnerships play in supporting anesthesiologists around the globe?

DR. SUNDARARAMAN:

Well, sure. Partnerships as very cleanly put by Dr. Drum and Dr. Workneh are *The Key to our Future*. When I say that, it seems kind of weird because anesthesiology is a pretty lonely occupation. We are most often by ourselves giving anesthesia, and nowadays, even in COVID times when we're doing COVID cases, even breaks are minimized, so as to minimize exposure of other personnel to COVID conditions. So increasingly our job as cleanly elucidated by Dr. Drum, has become more and more isolated and sometimes even lonely. And it is often tempting to focus on US based healthcare issues and our own isolation. But we have to realize that the world is becoming an increasingly smaller place, and what happens here might happen somewhere else tomorrow and vice versa.

And hence, we have to partner up. I mean that we need partnerships in education, CME, even advocacy training, research, safety and quality safety standards establishment, and even just general comradery. And it's really important to even build up both interstate and international mentorships so that we can foster all of these.

And this was very clearly elucidated by Dr. Drum, who said that when we do this, we can actually advance our own scientific research and our own treatment very fast. For example, FabiFlu is a new drug which has largely replaced Remdesivir and the treatment of COVID in Japan and India. And in India, Glenmark is a company which is actually finished the phase three trial on FabiFlu and found that it has really improved outcomes. You know, India has a population wherein it's easy to get the numbers to achieve statistical significance, and we haven't started extensive trials on the same drug. But if, with that information, we could be furthering our own research and our own treatment initiatives as well. So that's just an example. And similarly, our technology and our scientific expertise, were used to actually further treatment, especially in the treatment of invasive mucormycosis when it spread like an epidemic in India.

So hence, you know, exchange of ideas, exchange of scientific expertise, research would be crucial in making the world a safer place. And Dr. Drum also elucidates many ASA organizations, which have really helped in bringing this about, including the ASA Committee on Global Humanitarian Outreach, which has focused on partnerships and also helped with signature programs like the ASA Charitable Foundation and also ASA Charitable Foundation, has a long standing partnership with Lightbox, and we all know how much Lightbox has helped to supply not only pulse oximeters, but lifesaving medical equipment and technologies in various parts of the globe. And ASA has also sponsored The Global Scholars Program, which has helped to foster education across the world, as well. The ASA Patient Safety Foundation and the Foundation for Anesthesia Education and Research.

All of these have actually now international outreach, and they've helped really foster better care and general patient safety standards and established them in various parts of the world. And I think this is where we should be heading even greater in the future. And this was very beautifully elucidated in Dr. Drum and Dr. Workneh's article, and let's not forget the Wood Library Museum of Anesthesiology because from history, we can learn a lot of lessons for the future.

DR. STRIKER:

Certainly. And, Dr. Rafique, would you agree that, you know, financial commitment to research in one country fosters research in, in other countries?

DR. RAFIQUE:

Yes, definitely. Actually, it is highlighted in one of the featured articles by Dr. Mpoki Ulisubisya and his co-authors. It is a very interesting and thoughtful article. They explore why, despite asking the right questions of physicians and anesthesia scientists in Africa are unable to conduct research and find the right solutions for their people. And they tell us that the Africa and other underdeveloped countries have 90% of the disease burden in the world, but are able to get or secure only 10% of the global research dollars. They call it 10/90 gap, and each country has its unique reason for this gap in research funding. But some of the common challenges include lack of infrastructure, technology, gap no, or very slow internet, etc., to name a few. Also, they tell us that when researchers from developed world go to Africa for a study, still they may not include their collaborators from Africa as authors or first authors for unknown reasons.

We live in an interconnected world, and it is obvious more today than ever with this epidemic. So authors emphasize that Africa, Africa-centric programs are very much needed, and it is only possible by building relationships and working with an intention to increase capacity for both clinical care and research and medical research done right in anywhere can have results which can be useful for communities in other regions of the world. So, they conclude with emphasis on the need for building on bidirectional relationships, and they admire the efforts by ASA in this regard.

DR. STRIKER:

The upcoming monitor issue also touches on the difference between global health education and global health equity. Dr. Sundararaman, do you mind explaining the difference and, and telling our listeners why the authors believe a commitment to increased education around global health could, could be helpful?

DR. SUNDARARAMAN:

Certainly, Dr. Striker, thank you for the question. When we speak about global health equity, health equity means that everyone has a fair and just opportunity to be as healthy as possible. It means reducing and ultimately eliminating disparities in health and its determinants that adversely affect excluded or marginalized groups. All the socio-economic and cultural factors which can affect access to health care.

Whereas global health education, and the name is as broad as the name implies, and it's an academic discipline which includes research, advocacy, practice and policy directed towards improving health and achieving that equity in health care across the world. And this was beautifully emphasized by a feature article by Drs. Richard Missett and Matthew Kynes, when they try to focus on the emphasis on equity and moving global health education forward and they have said that when we talk about global health education, we are not only talking about education for our residents through a global mirror, but also about what are the factors which impede it and what are the factors which have to be improved upon.

Meaning there's been a consistently high interest in pursuing global health experiences amongst many residents in the US, and sometimes even choosing the anesthesiology residency depends on whether that's available. But it's not just going and doing an experience of anesthesia in a different country. It also means mastering a biosocial understanding of health in different countries, managing anesthesia with an expanded formulary. For example, many times in many places in India, we still use halothane, pancuronium and so on, which probably most residents

now in the US would not be able to handle. It also means communicating effectively across cultural barriers. Learning what to speak, how to speak and still getting your point across. Something which is really important in multiple professions, but especially so in ours.

And that comes under the ACGME category of interpersonal and communication skills. So global health education now encompasses multiple ACGME core competencies, including professionalism, like how to allocate resources ethically in multiple socioeconomic strata and cultural strata. And all of these have been beautifully elucidated in their article, and it's extremely interesting the way they've handled what are the challenges in global health education and what we have to actually encourage to make it a, a truly two-way experience meaning our residents go there and get a good experience, but the people, they also have a lot to give us back. So, they've also thought about in-person visits and virtual visits from the physicians there about their experiences, how they are handling different crises, which can be useful to improve our own education in the United States.

DR. STRIKER:

Well, another article takes us inside a middle-income country hospital to shed light on public versus private fee for service models and the parallel systems of health care provisions. Dr. Rafique, do you mind sharing some takeaways from that article? And maybe even more specifically, what steps can middle-income hospitals take to improve anesthesia care?

DR. RAFIQUE:

That is a very interesting article, and the author actually is a US trained physician, pediatric anesthesiologist, who went there and worked through the ranks, and now she actually leads the department. She has her experience, what she saw and how she worked there. And, and she tells that despite initial difficulties and setbacks, she saw improvements once she focused on training program building and the trainees. The training program was crucial to improve documentation compliance and adherence to the protocol and checklists and overall anesthesia care.

Also, she was able to secure a lot of, uh, state of the art equipment through charitable donations, and that also made impact on overall anesthesia care, overall quality of training, and overall quality of perioperative care, which the department was providing. And that hospital has become a regional leader in the sense now, that the people who are training with her with state-of-the-art equipment are now going in other parts of the country and they are becoming leaders and influencers.

So in her opinion, it looks like that the, there are two solutions, which really can impact care. One is a good training program and motivated trainees, and the other is charitable donations and to secure needed equipment that way. Those two things you really would, in her experience, help improve the care.

DR. STRIKER:

That's fascinating that, you know, you just you don't even appreciate some of the advantages of getting training or experience in other, other, other realms and how, how easily some simple solutions can be translated back to, to where we are.

Before I let you both go, do you mind telling our listeners how they can learn more and importantly, what they can do as individuals and as anesthesiologists to contribute to the change you're advocating for? And let's, Dr. Sundararaman, let's start with you.

DR. SUNDARARAMAN:

Sure. Thank you. So, this is a very interesting question, because it's probably one of the most important questions for our listeners as to how they can contribute. And there's a very interesting feature article by Dr. Evans, which also elucidates some of the examples of ongoing efforts, which are collaborative initiatives that include both local and international partners at many levels which help improve anesthesia training opportunities and just generally anesthetic services all across the world, and we can contribute to.

So some of them, for example, the ASA Committee in Global Humanitarian Outreach, has an overseas teaching program. The Society for Education and Anesthesia also has health volunteers. Overseas Program has volunteers, and they provide volunteer teachers who can supplement the local faculty, as well as serve as mentors for the faculty and other trainees. And if you have any questions, if they have any ideas which they wish to share and, you know, basically an exchange of research initiatives, everything can be done, which can actually therefore help in anesthesia education and service provision at the ground level.

There are certain organizations also which she states very beautifully, such as the WFSA, which work at multiple levels, and it provides free online educational resources like the Anesthesia Tutorial of the Week. It organizes a fellowship program that includes 50 programs of various subspecialty areas and is partnered with institutions worldwide to bring short educational courses to many low- and

middle-income countries, some of which include Inspire, Safe Pediatrics, Safe Obstetrics and VASD. And many times we know that the Canadian Society Anesthesiologists Society International Education Foundation has also been instrumental by supporting the Rwandan Residency Training Program, as has a partner organization as well. And we have many institutions which have taken it upon themselves. And a short question to your own institution's office as to how you can help can sometimes be very easy for, to create a pathway for residents themselves during the residency training to help contribute through various mentorship projects and also core projects, as well as foster research papers. And many times, faculty have also found their full efforts through these various organizations in mentoring, simulation education and even data collection and just module development with anesthesiology leaders in other countries as well.

And these have been very well elucidated in her article, and also the simplest way would be also to go on a mission trip to kind of survey for yourself what you can see and how you can help. And also, to develop interpersonal relationships, which are often the pathway or the gateway to actually building something greater. You know, often, you can also volunteer for other committee activities through the ASA, for example, the Global Human Outreach. You can apply for it. And there are many also residency committees which also offer these options. And these are all ways by which you can volunteer and also become a sponsor of a global scholar. There are many ways that we can volunteer and make a difference.

DR. RAFIQUE:

I agree with Dr. Sundararaman, and she, all those things are very practical and doable, and there is, no small effect is minimal. I can share a personal anecdote which can show you how you can make an impact. In 2014, I visited a children's hospital in Pakistan who did not have blood pressure cuffs for smaller children, so they never measured blood pressure in the operating room. So I, I asked them why you don't do that? They said nobody has money to buy them, so I said, OK, let me see what can I do? So I came here to US. I looked around and wanted to find a donor who would give me money to buy those, but I couldn't find it. So I thought, OK, we have so many consumables and maybe we can save that. So I started collecting the blood pressure cuffs in the PACU after, before the patients were being discharged in a few months, I was able to collect enough that we sent them over there. And now all those operating rooms in the Children's Hospital have plenty of all-size cuffs, and now they may have blood pressure for every child who goes to those operating rooms. So it is a simple example that something which I took upon myself and tried and I was, I was able to help and change a paradigm in patient care in that hospital that had never measured blood pressure for smaller children. And

now they could measure blood pressure for every child, which makes me feel really good that there was something which I was able to achieve without much effort or money spent.

DR. STRIKER:

That's great. Certainly, one person can make a difference.

DR. RAFIQUE:

Yes, definitely. A small act by any one person definitely can impact some, something over in some place.

DR. SUNDARARAMAN:

You know, many times many physicians are like super busy and they're unable to engage in many of the activities which are listed like, you know, sponsoring a global scholar, or basically like helping forming a teaching module and so on. There's sometimes very simple ways in which they can help. So just a few months ago, when the COVID pandemic hit India, and you know, there are so many Indians in the US and we were all like, we are concerned, but we don't know how to help, and we really don't have the time to like, actually do much. So then what happened was that a friend of mine in the same institute, Dr. (sic) and I, and a bunch of really considerate, hardworking people, all in India from the city of Bangalore, we started a fund, a GoFundMe. That's it. We just, we just reached out to multiple people that we knew about funding for oxygen concentrators and other essential equipments like nasal cannulas, T-pieces, very simple stuff. And we managed to actually gather a quarter of a million dollars and we sent it. And this all went to like really underserved areas around the cities of Bangalore and Chennai, which are very big metropolitan areas. But as I said, the disparity is so high that when you go 10 miles out, there are people with, like, absolutely no facilities. We managed to supply like 200 oxygen concentrators and we managed to supply a whole bunch of facilities. And then finally, we got back two letters of thanks. One, which just said, thank you for saving my son. And that was actually, I think, one of the best gifts you can ever get as a person and as a physician.

DR. STRIKER:

No, absolutely. I couldn't agree more with that kind of reward. And what a wonderful way to end this episode. Well, thank you both for joining us on this edition of Central

Line. The upcoming October issue of The ASA Monitor has all these articles within it. It's an important and timely topic, and definitely looking forward to that.

So, thank you both again for joining us.

DR. RAFIQUE:

Thank you for having me.

DR. SUNDARARAMAN:

Thank you, Dr. Striker.

DR. STRIKER:

Thank you to all our listeners for joining us on this episode. Please tune in again next time.

(SOUNDBITE OF MUSIC)

VOICEOVER:

Cut through daily noise and dive into the ASA Monitor, your leading source for perioperative health care news. Read the latest source now at asamonitor.org.

Subscribe to Central Line today wherever you get your podcasts or visit asahq.org/podcasts for more.