Discussion to: Delays to surgery and worse outcomes: The compounding effects of social determinants of health in non–small cell lung cancer

Presenter: Arman Ashrafi, BA
Invited Discussant: Thomas Varghese, MD, MS, MBA
Corresponding Author: Anthony W. Kim, MD, MS

Dr Thomas Varghese (Salt Lake City, Utah). Good morning, everybody. I wish to thank the AATS for the privilege of discussing this important study. A special thanks to the authors for sending the manuscript and a copy of your slides ahead of the meeting. So, when you look out there on the Internet, depending on which organization you check, you find that there are around 60 formal definitions of quality. And it all boils down to one core component: are we doing a good job in a way that can be measured? Historically, most of the focus has been on 3 domains. Is the treatment effective? Is it safe? Is it patient-centered? But there are really 3 other domains that we have neglected: is it timely? Is it equitable? Is it efficient? Access to quality care is a critical component of comprehensive surgical lung cancer management. We sadly have decades worth of literature demonstrating that inadequate access to quality care has been the norm for minorities, the uninsured or underinsured, and those at low socioeconomic status. In this large retrospective cohort study of 110,000 patients using the National Cancer Database, fourth-year medical student extraordinaire Arman Ashrafi, senior author Dr Anthony Kim, and team demonstrate that there is a 3-way interaction between race, insurance, and facility type that contributes to a delay in time to surgery. And even more importantly, that a 15-day surgical delay led to a 4% decreased 5-year survival, 5% odds of increased 30-day mortality, and 6% odds of increased 90-day mortality.

I have 4 questions, 2 of which are quick technical ones. The first is that in your control group, you have a 44-day average time to surgery. Some would say that this itself is too high. So, in the modern era, what is your opinion on the statement that “we’re doing a crappy job for everybody, and that the additional crappiness we’re doing for minorities, the under- or uninsured, and academic medical centers is really making things worse”? Dr Varghese. Perfect. Thank you. Two quick technical questions. So, you analyzed average time to surgery rather than median time to surgery. What was your rationale for this?

For your answer to that question, the additional crappiness we’re doing for minorities, the under- or uninsured, and academic medical centers is really making things worse. Dr Varghese. Thank you for that great question. I would agree with that statement. As you alluded to, it is challenging to develop a set of uniform guidelines regarding appropriate time to surgery in the absence of standardized diagnostic templates, varying patient demographics and financial needs across institutions nationwide. As an example, the British Thoracic Society identifies an ideal time to surgery as 8 weeks, or 56 days. The RAND Corporation lists 6 weeks, or 42 days. Based on those metrics, our study’s 44 days may not seem too long. And so, the notion that we need to do a better job providing timely care to patients I think is a very profound one. Attempts to establish clear goals - such as using new or different quality metrics - will be crucial for us as surgeons to most effectively treat our patients.

Dr Varghese. In our statistical analysis, we ended up using a negative binomial regression given the larger sample size. And with that analysis, median time to surgery was the ideal outcome, opposed to a quantile regression where median was an option.

Dr Varghese. Good. And another quick technical question is why did you only look at lobectomy and pneumonectomy? What about stratifying across all the different types
of resections—lobectomies, bilobectomy, or pneumonectomies versus sublobar resections?

Ashrafi. Sure, that’s a great question. When we first decided to study this topic, we were curious about that same question. And ultimately, given the clinical database we used - the NCDB - the clinical rationale as to why patients may undergo a sublobar resection, for example, was not easily identifiable. Whether patients were deemed medically less fit or whether it was a noncurative anatomic resection are unclear. In an attempt to create a more homogenous pure surgical cohort, we opted to exclude the sublobar resections.

Dr Varghese. Fair enough. And then the final question, which is more of a speculative one: considering the findings from your paper, the obvious question is, what do we do next? So, there are 2 different approaches cited in the literature. One approach is outlined in a January 2023 JAMA surgery paper in which Brendan Heiden, Varun Puri, and colleagues at the Washington University in St. Louis advocated for a treatment center–specific approach that is done for all patients. This approach posits that there needs to be a focus on 5 surgical quality metrics: performing surgery in a timely manner, determining the appropriate amount of lung tissue to be resected, sampling multiple lymph nodes, confirming that the cancer is staged correctly, and using a minimally invasive approach to minimize pain and ensuring an R0 resection. That’s one approach.

The second approach was described in 2019, in a pragmatic quality improvement trial of 302 patients called AC-CURE, which is Accountability for Cancer Care Through Undoing Racism and Equity. This was led by Dr Marjory Charlot and investigators at the University of North Carolina. So, what they did is they approached one specific minority group, specifically black patients in their center, and focused on that specific group and tested the impact of a real-time notification in their electronic medical record triggered by missed clinic appointments, dashboard reporting of race-specific treatment rates to the clinical teams, and the use of a nurse navigator.

Thinking about what you’re doing, which approach do you think would be best? Do we need to do both? Should we do one size fits all, or should we be targeting specific demographic groups?

Ashrafi. Thank you so much for this very interesting question. My short answer: It is a combination of the two. The notion of creating a more tailored patient population-specific approach would definitely be one way to address the disparities we saw in our study. The care navigator, for example, to help address patient access. Educational materials shared in a culturally relevant manner for patients in clinic could help address issue of lower education or health literacy. The idea of a templated diagnostic work-up for patients prior to surgery could also be one approach to decrease time to surgery. On the other hand, the notion of having 5 quality metrics is also an important one that may be one way or at least a starting point as we move forward in identifying a guideline or best practice regarding time to surgery.

Dr Varghese. Great job.

Moderator. Dr. David T. Cooke. We have 2 minutes. I want to make sure we have some questions from the floor.

Dr Varghese. Thanks so much.

Ashrafi. Thank you.

Dr Michael Bousamra (Detroit, Mich). Hi, Michael Bousamra, Ascension Health Michigan. I practice in the metro Detroit area and experience the difficulties that people of lower socioeconomic ability have. One of the problems that I’ve recognized is a lack of prioritization of lung cancer patients. In this day and age, there’s so much undervolume of staff to do PET scans or to do PFTs, both which need to be prioritized for lung cancer patients. And that’s not routinely done, at least not in my community. The other thing that I’ve noticed is that the major blocks seem to be the logistic and transportation difficulties that people of lesser means have. Having a person of lower socioeconomic means successfully complete multiple tests within 45 days is a big achievement. So, we need to work on being able to do that better. And then lastly, I’ve noticed that patients with pulmonary nodules or suspicious lesions also have a very significant time difference between when they’re recognized and when they’re actually diagnosed. You’re looking at the time from diagnosis to treatment, but another big problem is the time from recognition of a problem or when it should be recognized to the time of diagnosis. Thanks.

Moderator. Dr Cooke. So, unfortunately, that’s the time for this presentation. I do want to make one point about your data that we must not gloss over. So sure, you have compounding effects of race, insurance status, and academic medical center. But from my understanding, for black patients who had private insurance and went to an academic medical center, they had a statistically longer time to surgery. In this day and age, there’s so much undervolume of staff to do PET scans or to do PFTs, both which need to be prioritized for lung cancer patients. And that’s not routinely done, at least not in my community. The other thing that I’ve noticed is that the major blocks seem to be the logistic and transportation difficulties that people of lesser means have. Having a person of lower socioeconomic means successfully complete multiple tests within 45 days is a big achievement. So, we need to work on being able to do that better. And then lastly, I’ve noticed that patients with pulmonary nodules or suspicious lesions also have a very significant time difference between when they’re recognized and when they’re actually diagnosed. You’re looking at the time from diagnosis to treatment, but another big problem is the time from recognition of a problem or when it should be recognized to the time of diagnosis. Thanks.

Unidentified Speaker 1. So basically, patients like me, who drives a Tesla and went to the Lakers-Warriors game last night have a statistically longer time to surgery. I think we need to let that sink in. It’s not always patients who lack means or are socioeconomically disadvantaged. The variable of race, regardless of economic status, led to a delay in surgery. Is that correct?

Ashrafi. Correct.

Unidentified Speaker 2. So basically, patients like me, who drives a Tesla and went to the Lakers-Warriors game last night have a statistically longer time to surgery. I think we need to let that sink in. It’s not always patients who lack means or are socioeconomically disadvantaged. The variable of race, regardless of economic status, led to a delay in surgery. Is that correct?

Ashrafi. That is correct, yes.

Moderator. Thank you very much. A wonderful presentation.

Ashrafi. Thank you.