Radiation versus wedge resection treatment for lung cancer
Featured topic and speakers

In this episode of Making the Rounds, Arian Mansur, second year medical student at Harvard Medical School, covers his research on two different treatment types for lung cancer. The AMA Research Challenge is the largest national, multi-specialty research event for medical students, residents and fellows, and international medical graduates to showcase and present research.

Speakers

- **Arian Mansur**, medical student at Harvard Medical School
- **Brendan Murphy**, senior news writer, American Medical Association

Host

- **Marielisa Cabrera-Sánchez**, 2021 AMA Research Challenge winner

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Transcript

**Cabrera-Sánchez:** Welcome to Making the Rounds, a podcast by the American Medical Association. I’m Marielisa, last year’s winner of the AMA Research Challenge, which is the largest national, multi-specialty research event for medical students, residents and international medical graduates.
Today’s interview features one of this year’s five finalists for the 2022 AMA Research Challenge, interviewed by AMA Senior News Writer Brendan Murphy.

Murphy: Hello and welcome to Making the Rounds, a podcast by the American Medical Association. I’m Brendan Murphy, senior news writer at the AMA. I’m delighted to have another finalist for the 2022 Research Challenge here today, Arian Mansur. Thank you for being with us today, Arian, how are you?

Mansur: I'm doing well. Thank you very much for having me.

Murphy: Arian is a second year medical student at Harvard Medical School. His poster is entitled, and stay with me because it is a bit of a mouthful, "Stereotactic Body Radiation Therapy Versus Wedge Resection for Early-Stage Node-Negative Non-Small Cell Lung Cancer Tumors Less Than or Equal to Eight Millimeters: A National Analysis."

Arian, we're very excited to dissect this project with you and learn more about your path in medicine today. To start us off, why don't you tell us a bit about this topic, why it appealed to you and how you got involved with the AMA Research Challenge?

Mansur: Yes, so my research is focused on lung cancer, which is a leading cause of cancer death both in the U.S. and worldwide. In fact, every year more people die of lung cancer than they do of colon, breast and prostate cancers combined, which is often shocking to people given the stigma against lung cancer due to its tie with smoking. However, what surprises a lot of people is that about 20% of those who die of lung cancer have never smoked before. What's also interesting about lung cancer is that what makes it so deadly, it's not that it's the most common cancer, but rather it's that it's not caught early enough. And over half of lung cancer cases are actually diagnosed as stage three or four disease. And unlike other cancers that have received much more funding, greater advocacy and more targeted screening interventions, lung cancer can actually be treatable if it's caught early enough.

And this fact has been picked up by multiple experts and there is now a much greater push for efforts to increase lung cancer screening. Interestingly, very small lung tumors are now being discovered either incidentally or through lung cancer screening over the past decade. And given the rise now of detection of these small tumors, there has been a question of whether stereotactic body radiation therapy, which is a very precise form of radiation, or wedge resection, which is a surgery, is superior for the treatment of these small tumors with malignant potential. And given my interest in oncology, surgery and clinical research, I got involved in the Research Challenge in order to share my findings of a national analysis I conducted to improve the evidence available to answer this question. We actually found that patients with wedge resection experience improved survival when compared to those who received SBRT, or stereotactic body radiation therapy.

URL: https://www.ama-assn.org/about/research/radiation-versus-wedge-resection-treatment-lung-cancer
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Murphy: Well, that's certainly some important and meaningful work. What were some of the challenges you encountered in doing this research?

Mansur: As with any form of clinical research, there's always many challenges encountered throughout the process. In this specific project some of the challenges we faced were in designing the study as to provide the best quality evidence possible using the National Cancer Database, which is essentially a clinical oncology database that is jointly managed by the Commission on Cancer, the American College of Surgeons and the American Cancer Society. And with any study of this nature that uses SBRT versus wedge resection, it is very important for us to try and reduce selection bias. One of the biggest concerns with these studies is there is an unfair comparison with strong selection bias by which patients undergoing SBRT are deemed sicker. However, we tried every attempt possible to reduce selection bias by making sure that we excluded patients in the SBRT group whose physicians thought surgery was not recommended or contraindicated to patient risk factors like having comorbid conditions, being elderly age, et cetera.

We also performed a sensitivity analysis that limited the analysis to patients with no comorbidities. We also did our best by doing the analysis with two separate methods that each accounted for confounding variables. And both of those analyses were consistent with one another. And lastly, I would say some of the challenges I faced was leading the study while adjusting to the first year of medical school. At Harvard Medical School we have an accelerated curriculum where we learn all of the classroom learning, or what we say the preclinical, in the first year as opposed to the traditional two years. So juggling this project with my coursework was rather challenging.

Murphy: I am always impressed that we have so many medical students entering this event, doing it early in medical school and producing such astounding results. What advice would you offer to medical students who are conducting research on a project like yours?

Mansur: That's a great question. My advice would be to find passionate mentors who are really invested in you and willing to teach you the necessary skill sets needed to do clinical research. You want to find people who would advocate for your learning. I also recommend to most medical students to really learn statistics. It doesn't have to be extremely advanced, but having a great foundation helps conduct research tremendously. Once you have mastered the foundations, it's easier to add the complex statistics and the nuances used in a specific group and that you can learn over time with the group. Also, learning statistics will help you become a better doctor as you're able to better evaluate the evidence that is used in managing treatment options. I would also recommend to collaborate with others. It's almost impossible to do everything by yourself. And finding support not only from mentors but also from research assistants or any mentees involved in the project who can help you with different aspects of the research can be very beneficial.

Murphy: That's a really interesting observation. We so often hear that medicine is a team sport and that generally is referring to the clinical realm and the treatment of patients, but you're finding that it's a
Mansur: I believe that these findings really shed light on the course of treatment for non-small cell lung cancer tumors. To our knowledge, this is the first study to evaluate wedge resection versus stereotactic body radiation therapy for patients with N zero non-small cell lung cancer less than or equal to eight millimeters in size. Numerous other studies have compared outcomes of surgery to SBRT for early stage non-small cell lung cancer, but with tumors that are larger and with conflicting results. Additionally, there are currently four randomized trials comparing SBRT versus surgery, but these trials are still ongoing. And I think that as we wait for the results from these ongoing trials, these findings in our study may be the best we can do to help guide management.

Murphy: And what do you see as the next steps in your research and this work?

Mansur: So the next immediate step of this work is to publish our findings in a peer review journal. We have recently finished writing the manuscript and are now looking to publish our findings. With regards to the actual research itself, we’re actually looking to now compare stereotactic body radiation therapy to another intervention called thermal ablation, which uses heat to destroy tumors for oligometastatic lung cancer, so lung cancer that has spread to limited sites. And there has also been a question for oligometastatic lung cancer as to whether SBRT is better than thermal ablation. And we’re planning to actually use the same National Cancer Database to tackle that question.

Murphy: You’ve given us great insight about your project. We’d like to learn a little about you. How will this research impact your career trajectory, Arian?

Mansur: So this research has really informed a lot of my thinking regarding my future career as an aspiring physician. I’m very interested in oncology, given the impact that it has on human lives. And I’m also very interested in surgery given its ability to really cure someone’s cancer and to directly improve their lives by just an operation. I think this research has really inspired me to pursue these fields as I’m able to help clinicians make better informed decisions that has potential to improve survival. The decision to go with one treatment option versus another is not an easy one. And it has multiple downstream implications on a patient’s survival. And when decisions aren’t very clear, we often have to rely on the best available evidence. Being able to contribute to that body of literature has really motivated me.

Murphy: What else should our listeners know about you and your journey in medicine?

Mansur: My journey in medicine has not only been a very exciting one but also one that has been very challenging. For context, I am the first in my family to go to college, let alone medical school, and I’m also under represented in medicine as a Latino student. I hope that my journey in medicine, not only in becoming a doctor, but also a researcher interested in advancing the field, inspires the next
generation of future academic physicians. While medicine and the health care system still have a lot of disparities present, I hope that being a finalist in the AMA Research Challenge motivates others to get involved in research to achieve their dreams despite not having many with similar backgrounds present in their field.

Murphy: As you surely know, the AMA Research Challenge includes a $10,000 grand prize for the winner. This is a fun question we like to ask. What would you see yourself doing with that prize money?

Mansur: That’s a very great question that I’ve still given a lot of thought to. I think I would use the money in two ways. First, I would use a portion of the prize money to continue my research endeavors. One area of research that we have been working on a lot has been bringing artificial intelligence to improve the operations going on in thoracic surgery. A lot of these operations, like the one in my study, are starting to be performed robotically with the videos available afterwards. And using aspects of computer vision, we have actually been able to start early work on innovating the field. I would use a portion of the money to continue developing our infrastructure and invest in computers with fast processing speeds to do the analyses as well as continue performing the database research that uses strong statistical packages.

Second, I would use a portion of the prize money to help with expenses back at home, such as rent and bills. I owe a lot of my journey in higher education and medicine to my parents who are refugees to this country from Cuba. They sacrifice a lot for us. And while medicine is unfortunately a very long journey, I'm hoping to save a portion of the money to help my family back at home.

Murphy: Well, that is certainly heartfelt and we are wishing you the best of luck as you proceed to the AMA Research Challenge finals.

Mansur: Thank you very much. I really appreciate the opportunity.

Murphy: A quick reminder to our listeners, you can see Arian's research poster as well as those of our four other finalists on the Research Challenge website at ama-assn.org/research22. And of course, be sure to tune in to the finals of the AMA Research Challenge on December 7 to see Arian and the other finalists present their work to a panel of expert judges for the chance to win that grand prize. This has been Making the Rounds, a podcast by the American Medical Association. I'm AMA Senior News Writer Brendan Murphy. Thank you for listening.

Cabrera-Sánchez: Join us on December 7 at 7 p.m. Central time to see all five finalists present their research to an elite panel of judges. The overall winner will receive a $10,000 grand prize sponsored by Laurel Road. For full details, visit ama-assn.org/research22.
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