

Science AMA Series: I'm Dr. Gerard A. Silvestri, an expert in lung cancer, interventional pulmonology, and President of the American College of Chest Physicians, and I would love to share the barriers and the diagnosis of treatments in lung cancer. AMA!

Gerard_{Silvestri}¹ and r/ScienceAMAs¹

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Abstract

My name is Dr. Gerard A. Silvestri. I'm an international expert in lung cancer and interventional pulmonology. I am the President of the American College of Chest Physicians, the George Sr. and Margaret Hillenbrand Professor of Thoracic Oncology, and Vice-Chair of Medicine for faculty development at the Medical University of South Carolina in Charleston. I am a writer and editor of the American College of Chest Physicians lung cancer guidelines; I've authored more than 200 scientific articles, book chapters, and editorials; and have had the opportunity to serve on multiple editorial boards of medical journals, including the journal CHEST®. My passion to find new treatments and create guidelines for lung cancer is truly to help inform the public on a disease that takes the lives of many annually and assist in any way I can. Lung cancer, the second most common cancer in both men and women, is responsible for nearly one in five cancer deaths annually. There are many factors we come across daily that can cause lung cancer, including: air pollution, exposure to radon, aging, history of cancer in other parts of the body, secondhand smoke, and air pollution, and lung cancer can even run in families. While smoking is the number one cause of lung cancer, as it accounts for 80% to 85% of all lung cancer cases, we need to change the viewpoint that lung cancer is something that patients bring onto themselves. There are several factors that play into lung cancer, and many patients who receive this diagnosis are, in fact, nonsmokers. There are two types of lung cancer: non-small cell lung cancer (NSCLC) and small cell lung cancer (SCLC). Non-small cell lung cancer (NSCLC) represents 80% to 90% of all lung cancer cases each year, while small cell lung cancer (SCLC) accounts for 10% to 20% of cases and tends to grow more quickly than NSCLC. Due to the various types of the disease, there is no one-size-fits-all method to treating lung cancer. Different types of lung cancer often behave differently in the body, and treatment decisions are normally based on the patient, the type of cancer they have, and what is known as the stage of cancer. I'd love to share information about the barriers and the diagnosis and treatments in lung cancer and hope I can leave you with some insight on the disease and future advancements to come. I will be back at 1 pm ET to answer your questions, ask me anything!

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GERARD_SILVESTRI [R/SCIENCE](#)

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1- will smoking marijuana infrequently cause lung cancer 2- will smoking marijuana on a frequent basis cause lung cancer

[Robert165](#)

Thus far there has been no association between infrequent or frequent use of marijuana and lung cancer but it has not been really well studied. Other respiratory diseases such as asthma have been associated with marijuana use.

"Smoking is the number one cause of lung cancer, as it accounts for 80-85%"

Gerard A. Silvestri, an expert in lung cancer, interventional pulmonology, and President of the American College of Chest Physicians, and I would love to share the barriers and the diagnosis of treatments in lung cancer. AMA! *The Winnower* 4:e150237.73070 , 2017 , DOI: [10.15200/winn.150237.73070](https://doi.org/10.15200/winn.150237.73070)

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I assume this regards to data derived from the developed countries within Europe and the Americas? I wonder what the leading cause of lung cancer is in other developing countries.

I moved out to Shanghai 5 years ago and have witnessed friends as well as my mother in law develop stage II lung cancer. I assume the the high AQI/ pollution is the culprit out here. With that being said, what is the best advice for people living in polluted cities to do to protect their lung health besides from wearing a mask and staying indoors?

PS> Thanks for doing this AMA!

[bchen270](#)

what a thoughtful question. You are correct. More than 50% of lung cancer in women in developing nations is in non-smokers. Much of that is attributable to indoor cooking fumes in poorly ventilated kitchens. It is likely also related to outdoor air pollution but the association is not nearly as strong. Wearing a mask may help for diseases like asthma but the key to avoiding lung cancer in developing nations is better ventilation of indoor smoke.

Is there any exciting developments that will help the long term survival rates of lung cancer sufferers in the future?

[Picticious](#)

Yes. In the past all of our therapies have focused on lung cancer as if it is a singular disease thus our treatment was aimed at killing rapidly dividing cells (which is why patients lose their hair or get sick to their stomachs). Recently we have come to understand that individual tumors or classes of tumors in the lung cancer family express specific markers on their surface. Testing each tumor for a specific marker allows doctors to "personalize" therapy by using medications that attack that specific tumor as opposed to just attacking rapidly dividing cells. This is the wave of the future.

Thank you for doing an AMA.

Is it true that 10/15 years after quitting smoking the human body has recovered from smoking and the risks of developing diseases (CV, cancer...) are similar to those of non-smokers?

Thank you

[Choubix](#)

Not quite. If you quit smoking within 2 years your cardiovascular risk approaches normal. Within 7 or so years your lung cancer risks drops from nearly 40 times normal to twice normal. Of course the risks are also dependent on how long and how much you smoked. In general quitting at any time has terrific health benefits.

As an alternative to someone else's question. As someone who smoked for 3.5 years (quit on January 23), what sort of long term risks might I face? P.S I'm turning 20 in October if age is a factor

[ExpeditiousSanic](#)

3.5 years is not very long in terms of risk of developing disease particularly given your age. STAY OFF THE CIGS and you should be fine.

As a non smoker, what's the best thing I can do to avoid getting lung cancer?

[jonnyfairplay8](#)

You have already done it. The likelihood of a never smoker getting lung cancer is extremely low. If you don't smoke, don't start. If you smoke, quit. Smokers should know that they can reduce their risk to near a never smoker after quitting for 7 or so years.

Does having a chronic breathing problem such as asthma or emphysema increase your chance of getting lung cancer or are these unrelated?

[highhopes42](#)

Asthma does not increase your risk but smokers who develop emphysema or COPD have 3-6 times higher likelihood of developing lung cancer than smokers who do not develop emphysema/COPD

Where are we on early detection?

Both my parents were heavy smokers, and I grew up in a house with a high level of radon, where a kerosene heater burned indoors for 4 months out of the year with the windows closed. I lived there for 12 years. My mother died of a metastasized bronchioalveolar adenocarcinoma, which is a cancer that is associated with the radon/smoking risk pairing, as I understand it.

What can I do now, besides diet and exercise, to reduce my risk?

[Siberianwildfire](#)

first, I am sorry for your loss. Second, while radon is a risk, it is really not nearly as much of a risk as smoking. Secondhand smoke is problematic but again not nearly as problematic as smoking. You have done all the right things. Just stay on the good diet, exercise and avoid smoke train and you should be fine.

We are hearing more about CT scanning to screen for lung cancer. Who should be screened and what are the sensitivity and specificity of the results?

[getridofwires](#)

the criteria for screening for lung cancer are persons age 55-77 who are current or former smokers (if you are a former smoker you had to quit within the last 15 years) who have smoked at least 30 pack years (1 pack per day for 30 years or 2 packs per day for 15, etc). Yearly screening in this group reduced lung cancer mortality by 20%

Hi Dr. Gerard, thank you for taking the time to do this AMA. I was wondering if there are any solid conclusions about e-cigarettes and whether or not they do any damage. Can they cause cancer? Are there any adverse side effects at all, especially when compared to cigarettes? Thank you!

[Outsourcedtouranus](#)

Thank you for your question. I've responded to a similar question from @SirT6 above. See here: https://www.reddit.com/r/science/comments/6st7yh/science_ama_series_im_dr_gerard_a_silvestri_an/dlfnwd/

Hi Dr. Silvestri,

Thank you for your time. How does socioeconomic status contribute to the incidence/prevalence/prognosis of lung cancer? What impact does healthcare access and cost have on the detection of lung cancer and the survival of those diagnosed with lung cancer?

[tiggerhut](#)

great question. First, people in lower socioeconomic classes are more likely to smoke raising the incidence of cancer in this group. Second, health care access is reduced so that they are less likely to receive treatment with curative intent worsening their survival. This is true of all cancer and sadly many other diseases.

Hello Dr Gerard. Thanks for doing this AMA. For me, the timing is perfect, as this is something I'm going through right now with a member of my family. 1) Have the survival rates changed over the years? Is stage 4 still considered terminal? 2) what are your thoughts on Cryoablation and Nanoknife procedures?

[Erwintwooes](#)

I am sorry that your family member has cancer. Survival rates have generally been poor for lung cancer but recent data show significant improvements and there is much excitement regarding newer targeted therapies. Stage 4 disease is generally considered incurable but with newer treatments we are seeing subsets of patients living 3 and 4 years or longer. As for cryoablation and nanoknife procedures they have very specific indications but can be helpful in the right circumstances.

Is it true that lung cancer can become brain cancer?

[scoodly](#)

It is not that it becomes brain cancer, it is that it can spread from the lung to the brain (metastasize). Lung cancer when advanced commonly spreads to 4 places: the brain, the bones, the liver, and the adrenal glands. When it does it is considered stage 4.

Hello Dr. Silvestri, thanks for taking the time to come talk with us about your work. I had a few questions I was hoping you could tell me about

- What is the most important thing you think the average person should know about lung cancer?
- When you talk about barriers what do you mean? Are the biggest barriers to detection, treatment or some other category that I'm not aware of.
- Are there any new treatment techniques on the horizon that you're particularly excited for?

[PapaNachos](#)

The most important thing the average person should know is that it is nearly completely avoidable. Lung cancer kills more Americans than breast, colon and prostate cancer combined. Another important thing to know is that it is not a death sentence and with appropriate care many more patients than ever are being cured. When I think about barriers I think about access to care as the main one. As for new treatment please see my response on targeted therapies.

Which of the treatments that are currently in trials or at an experimental stage (immunotherapy, oncolytic viruses, personalized treatments etc) do you expect to replace existing treatments and potentially cure cancer.

[l1ner](#)

I've answered a similar question. See here:

https://www.reddit.com/r/science/comments/6st7yh/science_ama_series_im_dr_gerard_a_silvestri_an/dlfq4l7/

Hi Dr. Silvestri, I just learned of radon and it's potential to cause lung cancer. I did a short exposure (3 day) radon test and found that I have a level of 1.3 pCi/L in our ground level guest bedroom. I know this level is considered relatively safe, but I was previously thinking to maybe turn this room into a nursery. My question is, would it put a child at a disadvantage later in life to grow up in a bedroom with a 1.3 pCi/L level of radon? Could we realistically expect to find a house with a zero radon reading?

[Chibeebee](#)

Honestly, the data on radon is not nearly as developed as the data on smoking and lung cancer. The levels of radon in unventilated basements are of some concern but I would not worry too much about a level of 1.3 pCi/l.

Does Cuba have a vaccine for lung cancer? If they do, is the United States ever getting access to it?

[SunWaterFairy](#)

While Cuba does have a highly developed medical system and there have been rumors of a vaccine, there are no published data suggesting efficacy. There are multiple investigators in the U.S. working on lung cancer vaccine therapies currently though none that I am aware of are available outside clinical trials.

What do you feel about people like Deepak Chopra (alternative medicine)?

[Skyhigh1111](#)

I have absolutely no issue with alternative medicine with the caveats that the patient informs their physician if they are taking alternative medicines or diets and that they understand that many of the therapies are unproven and that traditional treatments for lung cancer have much more evidence behind them. It may not be an either/or decision as I have had patients who utilize traditional methods coupled with alternative diets, vitamins, etc. The important point is not to hide those things from your doctor.

What is the future role of radiation therapy as a treatment for lung cancer?

[Dempsey64](#)

Radiation therapy is used as curative intent in combination with chemotherapy for certain stages of lung cancer. Additionally it is used for palliation (symptom relief) in cases where the cancer is causing pain. One newer role for radiation therapy in lung cancer for early stage patients who cant undergo surgery is called stereotactic body radiotherapy (SBRT) which gets highly focused radiation on the tumor but does not destroy surrounding tissue.

Good Morning Dr. Silvestri, Where do you see the role of surgical management of lung cancer in the future? Do you have any thought on how surgical therapies will evolve, especially in light of the advancement of MIS/robotics? Would better screening programs help to find earlier stage tumors which are more amenable to surgical resection? Thank you!

[Sir_Kay](#)

Surgery remains the mainstay of therapy for early lung cancer. Video assisted thorascopic surgery (VATS) is the preferred approach as it is less invasive and has better recovery times than open procedures. Robotics is gaining ground but not widely adopted as of yet. Screening should find more early stage disease which is generally amenable to surgery. The most important aspect to all of this it to seek a surgeon who does ONLY chest surgery (that is a thoracic surgeon) and who does high

volume or practices in a center that does high volumes as patient outcomes are better.

How can we start screening for lung cancer the same way we do things like cervical cancer, breast cancer, and prostate cancer? This way we can catch people earlier and treat them.

[Busamn](#)

Screening programs for lung cancer are popping up across the U.S. as we speak. The large national lung screening trial was published in 2011 so it is early days and the penetration of screening for lung cancer will certainly lag behind the other commonly screened for cancers.

My uncle has SCLC, with mets to spine, liver, pelvis and lymph nodes. He has opted for chemo and radiation to lengthen his life from 3-6 mo WO treatment to up to 15 months with treatment. How effective is this route and what are the chances of it actually spreading to the brain at this point?

[alaskadavis](#)

While I am not meant to provide specific medical advice, chemotherapy for advanced lung cancer can both prolong life and improve quality of life. When we speak of survival statistics those are groups of patients and each patient has their own survival. I generally tell patients that if they are responding to treatment and tolerating it well they should continue. The more difficult issues are when they are either not responding to treatment or having side effects. In those cases the patients and their doctors should have frank discussions to decide whether to switch or stop therapy.

I understand there is a strong statistical correlation between smoking and lung cancer.

But is there a strong enough clinical correlation as well?

[earthling105](#)

yes. I see between 5 and 7 new lung cancers per week in my clinic and 90% or so of them are smokers. Every smoker does not get lung cancer (some get heart disease, stroke, emphysema, or one of the other 11 cancers associated with smoking) but it is safe to say that the clinical correlation is quite strong.

How does second hand smoke result in lung cancer? The smoke isn't as heavily absorbed as it is by the actual act of smoking, is it?

[itstoronnohun](#)

You are partially correct. Direct inhalation of a cigarette gets more smoke and carcinogens into the lung than does second hand smoke. However, long exposure in closed spaces over time will result in the recipient of secondhand smoke having been exposed, though the risk of lung cancer is lower in this group.

Thank you for doing this AMA, Dr. Silvestri. I am wondering what your opinions are on e cigs/vapes and if they are likely to be a factor in the cause of some lung cancer, just as cigarettes are. Also, do you think that smoking marijuana is just as harmful to the lungs as cigarette smoking is? My grandmother had her whole left lung removed 10yrs ago due to lung cancer. She is still doing well today!

[DiscoCat024](#)

See my response above:

https://www.reddit.com/r/science/comments/6st7yh/science_ama_series_im_dr_gerard_a_silvestri_an/dlfnwd/

What about immunotherapy for the treatment of lung cancer? Has it seen much success?

[onfire512](#)

For generations lung cancer treatment has focused on killing rapidly dividing cells. Cancer cells also have a way of avoiding being killed by our immune system. Immunotherapy works on that side of the equation such that it inhibits the cancer cells from blocking the effects of the immune system. We have seen some incredible responses to this therapy in the right clinical settings.

As a student going into my first year of Respiratory Care, I was surprised by the number of classmates that Vaped daily as a way to curb their prior cigarette use. Have there been any developments in research into the prevalence of lung cancer development from the use of these new-age smoking devices?

edit: More specifically, any abnormal lung development from the use of various "flavor cartridges".

[Alexgamebro](#)

Thus far the data on Vaping is sparse. There is no clear association with development of lung cancer but much more study is needed which characterizes the various ingredients and their effects on the lung.

What is lung tissue mostly made from? I follow 'you are what you eat' concept. I recently quite smoking and want to repair the damage done to my lungs. My guess was is lung tissue is similar to the components of skin tissue. So complete proteins, vitamin C, and some omega 3 and 6 oil from hemp seed would give my body the building blocks to rebuild the cellular tissue?

Thanks

[KainX](#)

Wow, you have given this a lot of thought. I am sorry to tell you that if there is damage done to lung tissue it will not regenerate no matter what you feed it. A good diet of fruits and veges will be fine. You have already done the right thing by quitting smoking. Stay vigilant there as the relapse rate is high.

Hi Dr. Silvestri, thanks for taking questions.

What, if anything, can I do to help prevent lung cancer? I don't smoke but like many people I live in a city near a busy road. Does being fit and exercising regularly help?

[Wobblycogs](#)

again, not smoking is the biggest thing as 85-90% of lung cancer in the U.S. is caused by smoking. Exercise will always help for reducing disease risk for many diseases.