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### Sitting Down with Dr. John Weg: Pulmonary Medicine Pioneer

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## **Sitting Down with Dr. John Weg: Pulmonary Medicine Pioneer**

In 1959, Dwight D. Eisenhower was president. Gas cost about 30 cents a gallon. To mail a letter, which people did in 1959, only cost four cents for a stamp! That same year, Dr. John Weg graduated from New York Medical College. After a five decade long career, he is still involved in research and teaching at the University of Michigan, where he is an emeritus professor in the Internal Medicine Department. A pioneer in the field of pulmonary medicine, Dr. Weg received a Medal of Honor award from NYMC in 1990. Recently, the Quill & Scope's Jenny Lam and Edward Hurley spoke with Dr. Weg about his career, medicine in general and his time at NYMC. An edited transcript follows:

### **Q&S: What motivated you to go into medicine?**

**Dr. W:** I've always been the type of person who wants to take care of people. Even in grammar school I would tell my friends that I wanted to be a doctor some day.

### **Q&S: How has pulmonary medicine specifically changed since you started medicine?**

**Dr. W:** When I started, tuberculosis was the major problem for pulmonary disease. It was really wide spread. Many people unfortunately were put inside the sanitarium for months if not years. We started to try and ventilate people who had other kinds of lung disease like chronic obstructive pulmonary disease (COPD) and the machines we had were not really adequate. We had an iron lung, which was great for polio because the person couldn't fight against the machine, but somebody with COPD or severe asthma would fight against that machine and you couldn't adjust it, so we had to use pressure control ventilators which made you almost literally had to sit there and adjust the machine as their compliance and resistance changed in order for them to get an adequate breath. It was an exciting time. You didn't have everything handed to you on a platter where the machine did everything automatically or almost automatically. I liked that. That was interesting.

### **Q&S: Could you give us an overview of your career in terms of the mix of patient care, research, teaching, and administration that you have done?**

**Dr. W:** How do I spend my time? Probably close to half of my time was spent taking care of patients and much more than half of that was spent in the intensive care unit (ICU), which was a respiratory care unit, which then became a critical care medicine unit. When people get very sick they almost always need a ventilator for whatever reason they get sick, whether it be a diabetic coma or something else. So the sicker you are, the more likely you are to require a ventilator. That was a subset of sick people.

I finished my training with the Air Force as head of the pulmonary and infectious disease unit. Then I worked at Jefferson Davis hospital in Houston, which is part of the Baylor Medical School and opened the intensive care unit there, which was the first in Houston. It was phenomenal. We went from scratch, to teaching nurses how to do things when they come in to see the patient on each of the trips.

And then when I came to the University of Michigan in 1971, it was the same study all over. We tried to open an ICU. I brought a nurse with a masters degree in pulmonary medicine from Houston, [she] provided a course for the nurses at the University of Michigan. And the same way, we had the nurses assigned and I would come in on different shifts to make sure they were doing what was correct, but more importantly to give them support so they would have it when they needed it.

Mixed into all of that would be the research on how to provide better care in the intensive care unit – what’s a better way to ventilate. Then another area that I spent a fair amount of time in was improving diagnosis of pulmonary embolism. We have been conducting studies in that area and I’m not the PI of it all, but I was the one in Michigan for over 25 years now. Looking at different ways of diagnosing, and looking at combinations of things that provide the most efficient diagnosis at the least cost and least invasiveness for the patient. I still am working on some of that.

**Q&S: You have done extensive research in venous thrombo-embolism. How would you describe the change in approach to this pathology since you started?**

**Dr. W:** You made the diagnosis on the physical exam, the chest X-ray, EKG, and blood gases, but as it turns out none of those was very helpful because they were not specific. Then in the late 1960’s we began using ventilation perfusion scans. Then one of the first multi-center studies I was involved in was trying to evaluate how good that was in making a diagnosis. It turns out it was not very good. It can only assure you that there was a pulmonary embolism or not in roughly a quarter of the patients. In the others it was not specific enough to say if it was a PE or not.

And then from that we moved on to do CT Pulmonary Arteriography and that is very accurate and very specific. However, what we realized there is a lot of radiation involved. Most recently we looked up Magnetic Resonance Angiography, which has no radiation. You don’t have to worry about the die causing problems with allergies but we found roughly a quarter of the studies were not good enough to be interpreted as to whether it was a PE or not. We went back to look at the ventilation perfusion scans. The test was actually much better than we had thought. Ventilation perfusion scans got a new life.

**Q&S: With all of these progressions and improvements in technology, do you think the quality of medicine has been hurt at all? For example, would people depend more on the ventilation perfusion scans and then miss something that could have been diagnosed in the physical diagnosis?**

**Dr. W:** I think that is always a concern. You really have to start with the basics. The most important thing is to get a very good history from the patient, in real detail and take the time to do it. If you end up using the wrong test for the wrong patient then that usually leads to a wrong answer. All these tests are good only after you get an adequate, accurate history of the patient in great detail. Select from that what’s most likely to be right and then move forward. If you go right to the test, as some people do, you generate lots of costs, considerable radiation, and you expose some people that really aren’t going to benefit from the test.

**Q&S: What do you think has been the greatest discovery or invention since you graduated from medical school, in the medical realm?**

**Dr. W:** I think there have been many contributions to a whole variety of areas. I think one large area is in visual images, whether it's a chest X-ray or a CT or magnetic resonance. They really improve, if they're selectively used, our ability to diagnose without first deciding to do something like a laparotomy to find out whether someone has an intra-abdominal problem. I think they've made a major improvement in the diagnostic area.

In other areas, just speaking of the things that I've been talking about, the need to adequately anti-coagulate patients with warfarin and then with heparin has improved greatly from when I first started. We really didn't understand how to monitor the use of warfarin and we weren't doing the right tests because we didn't know what to do. So we moved from just looking at a prothrombin time to looking at something called an international normalized ratio (INR). With heparin, we now have a short acting one. Now whether any of that would be the greatest, I don't know. You can make a great case for the antibiotics. And I don't think the ones I mentioned are at all inclusive.

**Q&S: Can you compare and contrast the difference between the campus here, and I assume you went to the Flower Hospital?**

**Dr. W:** Flower Hospital [was] right in Central Park, as well as part of the medical school. If you went more than a block east from there or less, you were in a very low socioeconomic area with considerable rates of crime. There was no campus, we just had two buildings: the hospital and the one building of the medical school that were hooked together as one. There were no amenities. The students would find housing in the neighborhood, some was nice, some was not so nice – more was not so nice – and then others like myself commuted because I was married and we had children at the end of the first year. So I commuted from the Bronx for a little while, then I commuted from Flushing. The [Valhalla] campus is gorgeous. It's really expanded.

**Q&S: What's your theory behind sarcoidosis? Do you think it's viral, bacterial, or purely autoimmune? Do you have a theory behind what causes sarcoidosis?**

**Dr. W:** The short answer is I have no idea. Years ago we looked at a group of patients with sarcoid. I started doing sarcoid when I actually went into the Air Force, to see whether they're reactive to the atypical mycobacterium differently and they did all react. We postulated whether there was over-reaction to one of these atypical bugs, but it didn't go anywhere. I was on the NIH committee that looked at extensive studies, at viral studies, and they didn't find anything. I didn't do any of those studies but we looked at multiple people that were going to do research. It seems to be an altered immunity, but an altered immunity to what – I don't think we know.