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An interview with Dr. Coifman about:

1. **The history of Allergy & Asthma of South Jersey as a business.**
2. **What Dr. Coifman is doing to develop innovative new technologies.**

What is Allergy & Asthma of South Jersey and what does it do?

Allergy and Asthma of South Jersey is a medical practice offering individualized, state-of-the-art innovative care for problems involving allergies, asthma, nasal allergy & sinusitis, eczema, urticaria (hives) and related diseases.

Treating patients consists of collecting information, identifying problems, and trying to find practical ways to manage them. The process of doing this for 25 years has given me ideas for better solutions to a number of problems that are common in my specialty. We are working to develop several of these solutions into proven technologies that others can use, as well.

When did you start the practice? How did it grow and how did the business climate of the time affect its ability to grow?

I opened the practice in Vineland in 1986 and it grew by providing services that patients value. That was before managed care, before pre-authorizations, and before insurance companies would tell you that you're welcome to do more to make your patients better but they won't pay any more for the extra work it takes to deliver better outcomes.

At that time, how many people were employed?

We started with two nurses, two people behind the desk and my wife managing the practice's finances.

How many employees today?

It's still a solo practice, but with four nurses, two full and one part time clerical staff, a full time associate administrator and my wife still managing our finances.

What other milestones have you achieved?

I've had the honor or being recognized in my specialty at a national level. I've chaired national scientific committees of both national allergy scientific societies. I serve as a reviewer of manuscripts submitted for publication in one society's monthly journal, and I've been a faculty member for national scientific meeting continuing medical education for my fellow allergists on almost a dozen different occasions and for both national allergy societies.

I have been awarded five U.S. patents for new medical technologies and applications for five more are pending.

You seem to approach your work like the Energizer Bunny.

I started my business as a solo medical practice and it remains so today. A time will probably come when the torch has to be passed on, but I'm not ready to give up the excitement of finding innovative solutions to a new set of problems every day, and of being able to take ideas inspired by those problems and develop them into better technologies for the world.

How has your business stayed the same? How has it changed/evolved and what are you doing that can have wider benefits than your own patients and those of the other physicians you teach?

What has stayed the same is that I continue to concentrate on solving patients' problems while giving value for their health care dollar. I'm an engineer by pre-medical training, and about the time I got my degree I also got my mother's subliminal message that she wanted her son to become a doctor. My experience suggests that an allergist who thinks like a good engineer can solve problems like a good engineer, with better results at lower long-term cost. In a 1983 article titled "Dynamic Approach to Asthma," I reported the outcomes of 32 consecutive patients who entered my practice with two or more hospital or ER admissions for asthma in the previous 12 months. I reduced their rate of hospital and ER admission by 99%. Ninety-seven percent of the patients reported complete clinical control, and I reduced the ongoing cost of asthma care for the group by 50%. No one ever reported better asthma outcomes in the English language medical literature, either before or since.

Other areas of technology interest are electronic medical records, measurement of pulmonary function, and more effective ways to deliver allergy vaccines beginning with poison ivy.

Electronic Medical Records:

The major problem with present day electronic medical records is the lack of an efficient way to describe detailed findings in chronic disease. Two-thirds of US health care dollars are spent for care of chronic disease and effective management of chronic disease requires accurately comparing a patient's condition today with that at an earlier examination. Computer speech recognition could solve the problem except that today's technology isn't accurate enough unless the user keeps interrupting the doctor-patient encounter to correct the computer's transcription. I have three patents issued and two more applications pending for ways to reduce errors by a factor of 10 to 100 in dictation by familiar users (such as doctors using the same system every day) into fields of records in a database (like electronic medical records). My partners in this project are a former local school computer technician who now owns a technology company serving businesses throughout the greater Philadelphia area, and a young man who started doing computer work for me as a high school sophomore and now directs technology for a hedge fund in Hong Kong. We continue to make progress but slowly, as it's a spare time project for each of us. If we perfect it and it makes really big money, one beneficiary will be gifted and talented education for high school students across New Jersey.

Measuring Pulmonary Function:

If you have asthma and are examined by a specialist, you blow into a machine that measures pulmonary function. Present technology requires a maximum breath effort, which means it loses accuracy when the patient is tired out and the test can't be done at all by the sickest patients who are receiving assisted ventilation or by infants or young children. I partnered with a retired industrial chemist to design a novel respiratory airflow sensor that can measure pulmonary function without patient effort, allowing testing with greater accuracy and in patients who for any reason can't breathe in and out on command. Our sensor is already in use in a complicated medical analytic device manufactured in Japan and we are discussing its use for effort-independent measurement of pulmonary function with biomedical engineers at a major university. I recently received a patent on technology to use statistical process control on a personal version of this

device. If the patient takes a reading at home twice per day and also any time he or she experiences symptoms, the device will automatically generate a warning message whenever pulmonary function begins to slip out of control. Pulmonary function usually begins to fall about two days before the first symptoms of an asthma exacerbation. If it's recognized and treated in time, severity can be limited and the episode controlled in less time, with less medication and less need for physician and hospital care.T

Poison Ivy Vaccine:

The next innovation, inspired by patients in my practice, was an allergy vaccine for poison ivy, made from fresh leaves harvested on a farm belonging to one of my employees. Old poison ivy vaccines were delicensed by the FDA in the 1980's because they only worked well for a small number of highly sensitive patients and there wasn't a good test to identify those for whom they would work.

I adapted a test developed by a friend who's a dermatology professor at Penn State to measure exactly how sensitive a person is to poison ivy both before and after treatment. With our early vaccines, prepared in 2008 and 2009, we learned to predict which patients would respond and determine how much vaccine it would take for effective treatment. We also discovered that the method we chose for vaccine delivery for other reasons happens to be more than 200 times as effective at turning off allergies as standard vaccine delivery technology. Colleagues in the Department of Chemistry and Biochemistry at Rowan University, where I have an appointment as a visiting scientist, have developed a poison ivy vaccine 50 times as strong as the original, and with this vaccine we expect to be able to successfully desensitize just about anyone with a significant poison ivy allergy problem. We are presently looking for funding to apply our vaccine delivery method to peanut allergy, in collaboration with my chemistry colleagues at Rowan and immunology partners at Penn.

I don't know of any medical innovation that doesn't take a lot of investment before it ever generates a financial return. None of these innovations would be possible without the support of what is now two generations of satisfied patients who don't come to see me because they want to support the advancement of science, but because they find a good value in effective care.

What adaptations have you had to make in your business, technologically or otherwise?

A strict answer to this question would be that we had to adapt to the advancement of medical knowledge. For me, this process hasn't felt like "having to" but of being excited to encounter new knowledge and be able to do things better. Keeping up with new technology is exciting and frustrating at the same time, because new technology doesn't always work and by the time you finally get it to work as well as what you had before, there's often something even newer to take its place.

And then there's the increasing burden of government and insurance company regulation. We appreciate the public need to assure that health care dollars are wisely spent and that the products and services are safe, effective and used appropriately. That doesn't make the regulatory process fun. I find particularly frustrating some regulatory actions by the FDA that have added so much to the cost of limited market allergy products that their manufacturers have just stopped making them. The Food Drug and Cosmetic Act requires that drugs and other licensed medical products be safe and effective. Occasionally the FDA's requirements to prove safety and effectiveness for small volume products are so expensive that compliance would make those products unaffordable. I would like to see the Act amended to mandate the Agency to make products safe, effective and affordable. Such a policy could mean less expensive regulatory requirements for limited volume allergy products that have never encountered safety issues, for example, and it could also include licensing generic products from multiple sources, to add price competition to the marketplace.