

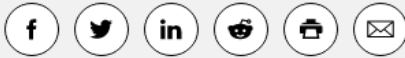
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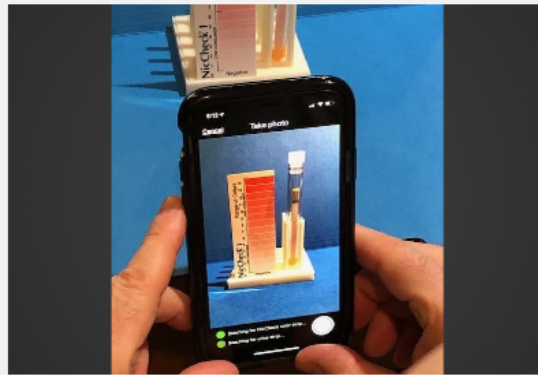
Expert Interview With CEO of IntelliQuit Mobile App, Matthew Bars



Britt Gambino



Matthew Bars, MS, CTTS, NCTTP, is the CEO of IntelliQuit, a mobile app that helps clinicians monitor their patients' nicotine consumption. The app measures the nicotine levels in a patient using FDA-cleared and Clinical Laboratory Improvement Amendments (CLIA)-waived technology via point-of-care assay biostrips. The biostrips measure total nicotine equivalents in urine based on color changes. The results are then uploaded to a HIPAA-compliant cloud and processed through neural network architecture and deep machine learning algorithms. The results are returned to the clinician's smartphone in 15 minutes.



Matthew Bars, MS, CTTS, NCTTP, is a psychologist by training, specializing in tobacco addiction and cessation.

Mr Bars also serves as the director of the Fire Department of New York (FDNY) Tobacco Treatment Program and the director of the Jersey City IQuit Smoking Centers of Excellence.

Previously, he served as the president of the [Association for the Treatment of Tobacco Use and Dependence](#), a nonprofit organization of healthcare providers dedicated to the promotion of and increased access to evidence-based tobacco treatment and is presently the ATTUD Chair of Policy and Government Affairs.

Mr Bars is a principal coauthor of the American College of Chest Physicians Tobacco Treatment Toolkit and serves on the editorial board of the *Journal of Smoking Cessation*.

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Editor's Note: This interview has been edited for length and clarity.

How did you first develop the idea for IntelliQuit?

I was a smoker when I was young, but I gave it up while playing football in college and couldn't breathe. I am a psychologist by training, specializing in tobacco addiction and cessation since 1980. I may have treated more people for smoking addiction than anyone else. Most people who specialize in tobacco addiction end up going into research or administration, but I decided to keep practicing *and* go into administration.

For example, I am currently the director of the FDNY Tobacco Treatment Program. A friend of mine who is a pulmonologist, David J. Prezant, MD, FCCP called me on 9/11 after the collapse of the World Trade Center knowing there were going to be significant respiratory-related issues for first responders, issues that could potentially be worse for smokers. When I started the program, 28% of the department smoked and now we are down to 4%. We enjoy an independent biochemically confirmed quit rate of approximately 70% at 10-year follow-up. We treat tobacco addiction like any other chronic condition which helps contribute to our success.

Most patients have tried to quit on their own cold turkey with very low quit rates. Others may have tried to quit with a clinician who is not as familiar with tobacco addictionology. Historically, patients tend to be underdosed with nicotine replacement. The IntelliQuit mobile app quantifies nicotine consumption and the clinician can use that data to titrate nicotine replacement therapy (NRT) medication or any of the 7 FDA-approved smoking cessation medications. Titration allows the clinician to treat the tobacco-dependent patient as they would for any chronic condition such as hyperlipidemia or hypertension. The app is able to confirm for the clinician what is happening biochemically and ensures quit success while minimizing tobacco withdrawal. During follow-up, the IntelliQuit nicotine bioassay is repeated just as a pulmonologist would repeat a pulmonary function test to assess the therapeutic benefit of bronchodilators or corticosteroids.

My first rule of thumb is to assess the patient's readiness to quit. Many, in fact most, are not ready to quit during their first office visit, and that's just fine. After measuring their Total Nicotine Equivalents (TNEs are the molar sum of nicotine and nicotine metabolites, TNEs are pronounced T-knees), we discuss medication options with the initial goal of becoming comfortable using the medications and only then do we discuss first "cutting down." Depending on the motivations to quit along with removing cessation anxiety, we probably will not even discuss a quit date. Fortunately, research demonstrates that the FDA-approved medications work very nicely with this "cut down then quit" protocol. At follow-up, we repeat the TNE assay, assess therapeutic progress, and modify the treatment protocol as needed with the eventual goal of complete abstinence with zero or minimal tobacco withdrawal symptoms.

Historically, one of the biggest problems is that patients discontinue these medications prematurely or take suboptimal doses (ie, not using enough as directed). Patients can be on tobacco treatment medications for a full year or more, but obviously we would like patients to discontinue sooner as long as tobacco freedom and abstinence are not jeopardized. Often the patient will reduce these medications organically, without clinician input.

Was vaping on your mind at the time of development?

When we first started, we were working on Remote Patient Monitoring carbon monoxide expired breath assessment. We switched to the IntelliQuit mobile app to measure nicotine consumption via urine to enable point-of-care assessment of all sources of nicotine including e-cigarettes like JUUL, which is a huge advantage in this vaping era.

For example, the nicotine delivery from 1 JUUL pod can deliver the equivalent of more than 1 or 2 packs of combustible cigarettes per day. We are able to biochemically quantify nicotine delivery specifically and establish treatment protocols. Say the patient reports that they smoke 30 combustible cigarettes and 1 JUUL pod per day. We can measure their nicotine consumption and if their levels are extremely high (eg, 250 nmol/mL) that means odds are a single 21 mg nicotine patch will not be enough for that patient.

Years ago, before the app, I was treating a patient who smoked ≥ 2 packs per day. Prior to seeing me he

went to his primary care physician and was instructed to try only a 14-mg patch to quit, clearly underdosing him. He was able to reduce his combustible cigarette intake to 7 per day, but then his primary care physician advised him to discontinue the nicotine patches. This patient was moving in the right direction but the 14 mg patch was not delivering anywhere near enough nicotine to help him become completely abstinent.

The IntelliQuit mobile app gives the clinician the comfort of knowing that the patient is not experiencing nicotine toxicity from the patch, nicotine nasal spray, or whatever treatment they are using. There is evidence that suggests the use of more nicotine replacement strategies can achieve high therapeutic smoking cessation rates.

Think about tobacco treatment like another chronic condition, such as hyperlipidemia. Imagine a patient presenting with a total cholesterol of 450 mg/dL. The clinician starts the patient on a statin and the lipid panel is reassessed on follow-up. If the effect is suboptimal but shows clinical improvement perhaps you increase the statin dose, add or change medications, recommend an exercise program or discuss more strenuous dietary modifications. The IntelliQuit nicotine bioassay enables the clinician to do the same thing. IntelliQuit also offers consultations to our clinical partners to help them with their patients and establish tobacco treatment programs.

There are perhaps 10,000 tobacco treatment researchers and specialists in the world, maybe half are in the United States and United Kingdom. There are not enough specialists to treat everyone with tobacco addiction. My own personal belief and desire is that tobacco dependency should be addressed in every clinical encounter or intervention. As a practical matter, anyone who is seeing a pulmonologist or cardiologist and is still smoking has a King Kong-sized tobacco addiction.

If clinicians were to aggressively address their smoking patients' addiction, it would change the arc of pulmonary disease, total tobacco-caused morbidity as well as the healthcare costs. Seriously addressing tobacco dependence would save tens of billions of dollars.

How do e-cigarettes/vaping factor into using IntelliQuit, particularly now in light of the EVALI (e-cigarette or vaping product use-associated lung injury) outbreak?

If you look at the statistics from the Centers for Disease Control and Prevention (CDC), there has been a reduction in hospitalizations due to EVALI. We have also seen a corresponding drop in sales from JUUL and other e-cigarette companies IntelliQuit helps us understand vaping behaviors and design effective treatment plans.

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My recommendation regarding vaping depends entirely on the individual. If the patient is exclusively vaping, that is one thing but about 50% of my patients also smoke traditional combustible cigarettes. This is consistent with what we are finding nationwide and in the United Kingdom as well. I do not want any of my patients to go back to combustible tobacco, but at the same time if I take a hardline stance of "no e-cigarettes" I could lose the patient. We want these patients to remain engaged.

Although the app cannot measure vitamin E acetate, I do an intensive interview to learn about the patient. I never want to say, "I am going to take away your e-cigarettes!" I do not want the patient to go through withdrawal but combining combustible tobacco and e-cigarettes is not helpful. I am perfectly comfortable focusing first on combustible cigarettes, and then addressing e-cigarettes.

I believe one day there is going to be a safe and effective e-cigarette or an e-cigarette-like device, with safety and efficacy determined by FDA-approved clinical trials. If you can deliver clean nicotine to the

lung, that is the closest to the delivery a smoker gets from a cigarette.

What are the future plans for IntelliQuit?

I am pleased that a major cancer center and another academic institution specializing in tobacco research and intervention are both using the app. The cancer center is engaged in a state-wide program using the IntelliQuit mobile app.

Our future plans are substantial. My dream is that any clinician who is seeing a tobacco-dependent patient measure that patient and aggressively treat their tobacco dependence for what it is: a life threatening, chronic, relapsing disease. I want to see IntelliQuit become as popular as the methods that clinicians use to measure and treat hyperlipidemia, hypertension, or any other chronic disease.

Currently, the average national insurance reimbursement for the IntelliQuit assay is about \$114 per test. Clinicians can also use newly created telehealth and related Current Procedural Terminology and Healthcare Common Procedure Coding System codes for the app (eg, Remote Patient Monitoring). For example, a pulmonologist may have a patient who is not ambulatory or is geographically remote. The clinician can send the patient the bio strips through the mail and the patient can run the test at home. The results are uploaded to the clinician's smartphone and progress can be measured remotely, and treatment continued or changed as needed. IntelliQuit consultation services include insurance reimbursement and telehealth protocols.

To learn more about the IntelliQuit mobile app, please visit intelliquit.org or call 1-800-45-SMOKE.

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