

MY WEIRD PROMPTS

Podcast Transcript

EPISODE #363

Is Your Inhaler Lying? The Science of Smart Asthma Tech

Published January 30, 2026 • Runtime: 20:54

<https://myweirdprompts.com/episode/smart-inhaler-asthma-tech/>

EPISODE SYNOPSIS

Ever wondered why your asthma inhaler still puffs when it's actually empty? In this episode, Herman and Corn explore the "tailing off" phenomenon and the dangerous physics behind modern propellants that can leave patients stranded without medicine. We break down the world of IoT smart sensors from Propeller Health and Teva, discuss why these life-saving gadgets aren't always available on pharmacy shelves, and offer clever DIY hacks—like using NFC tags—to ensure you never run out of breath when it matters most.

DANIEL'S PROMPT

Daniel

"Hi Herman and Corin. I have a question about asthma management. In Israel, the metered dose inhalers (MDIs) for Ventolin don't have dose counters. This is a significant problem because it's difficult to tell when the inhaler is empty; it often continues to spray air even after the medication is gone. I've seen IoT products that sit on top of the cartridge and track doses through an app, but I can't remember what they're called. What are those products called, and do you have any suggestions for DIYing a similar solution?"

TRANSCRIPT

Corn

You know, it is funny how the most important things in our lives are often the ones we take for granted until they fail us in a really specific, annoying way. I was sitting in the living room earlier and our housemate Daniel was talking about his asthma inhaler. He was saying how in Israel, the Ventolin canisters don't have those little dose counters on the back. It sounds like a minor detail, but when your ability to breathe depends on a little piece of plastic, not knowing if it is empty is a pretty massive oversight.

Herman

It is more than just an oversight, Corn. It is a genuine safety hazard. Herman Poppleberry here, and I have actually been looking into this because Daniel's question really piqued my interest. We are well into our three hundreds now with this podcast, and we have covered a lot of medical tech, but the humble metered dose inhaler, or MDI, is a masterclass in nineteenth-century physics meeting twenty-first-century frustration. In Israel, specifically with the Teva-manufactured Ventolin or the imported versions, that lack of a counter means you are essentially playing a guessing game with your lungs.

Corn

It is wild because I remember seeing them with counters in other countries. Why is it different here? And more importantly, Daniel was asking about these smart attachments, these internet of things devices that track your doses. I know they exist, but they are not exactly sitting on the shelf at the local pharmacy next to the aspirin.

Herman

Exactly. So, to answer the first part of what Daniel was asking, those products are generally referred to as smart inhalers or inhaler sensors. The big names in that space are companies like Propeller Health and a company called Adherium, which makes the Hailie sensor. There was also a lot of buzz a few years back about the Teva Digihaler, which actually had the sensor built right into the plastic housing. But the landscape has shifted a lot recently.

Corn

Before we get into the tech, can we talk about the physics of why an inhaler feels full when it is actually empty? Daniel mentioned it sprays air even after the medicine is gone. What is actually happening inside that canister?

Herman

This is the crucial part that most people do not realize. An MDI contains two main things: the medication, which is usually a micronized powder or a liquid solution, and a propellant. For decades, that propellant was a chlorofluorocarbon, or CFC, but those were phased out because they were eating the ozone layer. Now we use hydrofluoroalkanes, or HFAs. The thing about HFAs is that they are highly pressurized. When you press down on the canister, a metering valve releases a specific volume of that propellant-medicine mix.

Corn

Okay, so it is a fixed volume. But why does the propellant last longer than the medicine?

Herman

It is not necessarily that it lasts longer, but that the concentration of the medicine drops. As the canister nears the end of its life, you might still have enough HFA propellant to create that satisfying puff sound and that mist, but the actual dose of salbutamol, which is the active ingredient in Ventolin, becomes inconsistent or non-existent. You are basically inhaling a puff of gas with no therapeutic value. This is what doctors call tailing off. In a rescue situation, where you are having an actual asthma attack, thinking you are getting medicine when you are just getting propellant is incredibly dangerous.

Corn

That is terrifying. It is like having a fire extinguisher that sprays water for the first ten seconds and then just switches to blowing air, but the air still looks like water. So, Daniel saw these IoT products. Let us talk about Propeller Health. How do those actually work? Do they just click onto the top?

Herman

Most of them are what we call sleeve sensors or cap sensors. You take your standard Ventolin MDI and you slide it into a plastic housing or snap a sensor onto the top of the metal canister. These devices use a few different methods to track usage. The simplest ones use a pressure sensor or a mechanical switch that registers every time the canister is depressed. More advanced ones actually have acoustic sensors. They listen for the specific sound of the aerosol being released to ensure that it wasn't just an accidental press in your pocket.

Corn

And then it syncs to an app via Bluetooth, right?

Herman

Right. Bluetooth Low Energy, or BLE. The app tracks when you took the dose, and because it is on your phone, it also tracks where you were. This is the real power of the smart inhaler. It is not just a counter; it is a mapping tool. If the app sees that you are using your rescue inhaler every time you walk through a specific park or when the humidity in Jerusalem spikes, it can give you a heads-up. It turns a reactive tool into a predictive one.

Corn

That sounds incredibly useful, but Daniel mentioned he couldn't find one that ships to Israel easily. Is that a regulatory thing? I know the Ministry of Health here can be quite strict with medical devices.

Herman

It is a mix of regulation and market scale. To sell a medical device in Israel, you need approval from the Ministry of Health, and for a company like Propeller Health, which is based in the United States, the cost of getting that certification and setting up distribution for a relatively small market might not have been a priority. Also, many of these companies shifted their business model. They stopped selling directly to consumers and started partnering with insurance companies or large healthcare providers.

Corn

Like our health funds here, the kupa cholim.

Herman

Exactly. In the United States, for example, a doctor might prescribe a Propeller sensor, and the insurance covers it because it is cheaper to pay for a sensor than for an emergency room visit. In Israel, we have a very different system with the Health Basket, or Sal HaBriut. Every year, a committee decides which new technologies and drugs get funded by the state. While there has been talk about digital health tools, the focus is often on high-cost cancer drugs or chronic disease treatments rather than preventative IoT add-ons for asthma.

Corn

It feels like a missed opportunity. If you can prevent one hospital stay by giving someone a fifty-dollar sensor, the math seems pretty obvious. But while we are on the subject of big tech, what happened to the built-in ones? You mentioned Teva had one. Teva is an Israeli company, so you would think we would be the first to have it.

Herman

You would think so, right? The ProAir Digihaler was the big one. It had the sensors integrated into the inhaler itself. No add-ons needed. It would automatically send data to your phone. However, Teva actually discontinued the ProAir Digihaler line recently, around early two thousand twenty-four in many markets. It was a bit of a shock to the digital health community.

Corn

Why would they kill it if it worked?

Herman

It mostly came down to the complexities of the healthcare system. Because it was a drug-device combination, it was expensive. Insurance companies in the United States were hesitant to cover the higher cost compared to a generic inhaler without the chip. It is a classic case where the technology is ready, but the economic infrastructure isn't. People liked the device, but if it costs a hundred dollars and the generic version costs ten, the math is hard for a lot of families and insurers to swallow.

Corn

So we are back to square one. No built-in counters in Israel, and the smart sensors are hard to get. That brings us to Daniel's second question: DIY solutions. Now, knowing you, Herman, I am sure you have some thoughts on how to hack together a tracking system that doesn't involve a spreadsheet.

Herman

I love a good DIY challenge. If you can't buy the high-end sensor, you have to look at what those sensors are actually doing and replicate the core function. The core function is simply incrementing a counter and timestamping it.

Corn

The most low-tech version I have seen is people just marking the plastic with a permanent marker. One line for every puff. But that is messy and you forget to do it.

Herman

Right, and it rubs off. A slightly better low-tech version is using a small rubber band system. You put ten small rubber bands on the inhaler, and every time you use it, you move one band from the top to the bottom. Once they are all at the bottom, you know you have used ten doses. But even that is tedious. If we want to get a bit more tech-heavy, I think the best DIY route for someone like Daniel is using NFC tags.

Corn

Oh, that is clever. Like those little stickers you can program with your phone?

Herman

Exactly. You can buy a pack of fifty Near Field Communication, or NFC, tags for a few shekels. You stick one on the side of the inhaler's plastic cap. Then, you use an app like Shortcuts on an iPhone or Tasker on Android. You set up an automation so that every time your phone taps that sticker, it runs a script.

Corn

And the script could just add a line to a Google Sheet or a simple text file with the date and time.

Herman

Even simpler! You can have it update a number in a dedicated counter app. Some people even set it up so it sends a quick Telegram or WhatsApp message to themselves. The beauty of the NFC tag is that it requires almost zero friction. You are already holding the inhaler; you just tap it against the back of your phone before or after you take the puff. No typing, no opening apps manually.

Corn

I like that. It mimics the smart inhaler experience without needing a proprietary fifty-dollar sensor. But what about the mechanical side? Is there a way to actually measure if the canister is getting lighter? I remember people talking about the float test. Does that actually work, or is that one of those medical myths?

Herman

I am so glad you brought that up, because we need to debunk the float test right now. For those who don't know, the old advice was to drop your inhaler canister into a bowl of water. If it sank, it was full; if it floated vertically, it was half full; and if it floated horizontally on the surface, it was empty.

Corn

It sounds like Archimedes' principle in action. Why is it a myth?

Herman

Because it is dangerously inaccurate with modern HFA inhalers. The density of the propellants has changed, and the way the medicine settles can vary. More importantly, getting the metering valve wet can lead to clogs or even bacterial growth. Most major asthma foundations and the manufacturers themselves explicitly tell you not to do the float test. It can give you a false sense of security, making you think you have ten doses left when you actually have zero. Do not put your life-saving medication in a bowl of water.

Corn

Message received. No floating. So, if we are DIYing, NFC is the way to go for tracking. But what about actually knowing when the medicine is gone? Is there a way to weigh it?

Herman

You can, but you need a very precise scale, like a jeweler's scale that measures in milligrams. A full Ventolin canister usually weighs around twenty-three to twenty-five grams, and the empty weight, or tare weight, is often around fifteen or sixteen grams. But you would need to know the exact starting weight of that specific brand. If you are really dedicated, you could weigh it when new and weigh it when you think it is empty, but that is a lot of work for a Tuesday morning.

Corn

It seems like such a gap in the market. We have smart watches that can do an EKG and track your blood oxygen, but we can't get a simple, reliable way to count puffs on an inhaler in Israel. Is there anything on the horizon? Any new tech that might actually make it to our neck of the woods?

Herman

There is some interesting movement in the carbon-minimal inhaler space. As I mentioned, the HFAs we use now are potent greenhouse gases. One puff of a standard MDI has the same global warming potential as driving a car for about half a kilometer. Companies like Chiesi Group are working on new propellants, like HFA-one hundred fifty-two a, which reduce that footprint by ninety percent. As they retool their manufacturing for these new eco-friendly inhalers, there is a lot of pressure from medical boards to make dose counters a global standard, not just an optional feature for certain markets.

Corn

That would be a huge win. Better for the planet and better for the patient. But until then, it sounds like Daniel is stuck with either importing a sensor or going the DIY route. If he were to import one, which one would you actually recommend? If he's visiting the States or has a friend coming over?

Herman

If he can get his hands on it, the Hailie sensor by Adherium is very solid. It has a very slim profile and the app is quite mature. Another one to look for is the FindAir sensor. They are a European company, and their tech is quite sleek. They actually have a version that is more of a universal fit, which is helpful because the shape of the plastic actuators can vary between brands.

Corn

And what about the legal side? If he uses a DIY tracker or an imported sensor, does that change how he should talk to his doctor? I imagine a doctor would love to see that data.

Herman

Absolutely. Most pulmonologists are desperate for accurate adherence data. Patients almost always overestimate how often they use their preventative inhaler and underestimate how often they use their rescue one. If Daniel walks into his clinic in Jerusalem and shows his doctor a clear log of his usage over the last three months, it completely changes the conversation. They can see patterns. Maybe he's struggling more on days when the dust from the desert, the Sharav, is blowing in. That is data-driven medicine.

Corn

It turns the patient into a collaborator. I love that. It reminds me of what we discussed back in episode three hundred fifty-three about AI's medical revolution. We're moving from just treating symptoms to understanding the signatures of a disease. An asthma log is a perfect example of a personal health signature.

Herman

It really is. And it's a reminder that even in a high-tech world, there are these weird little gaps. We can put a rover on Mars, but we can't tell Daniel exactly how many puffs are left in his Ventolin without him having to hack it. It's that friction between the physical world and the digital world that we're always talking about.

Corn

Well, I think we've given Daniel some solid options. From NFC tags to the reality of the smart inhaler market. It's a bit of a rabbit hole, but a necessary one.

Herman

Definitely. And it's a good reminder for everyone listening: if you're using an MDI without a counter, don't wait until you feel that "phantom puff" to get a refill. The last twenty doses are the most unreliable. If you can't track it precisely, the general rule of thumb is to replace it well before you think it's empty.

Corn

Better safe than breathless. That should be the slogan.

Herman

I'll stick to Poppleberry's Principles, thanks. But you're right. It's about taking control of the variables you can.

Corn

Absolutely. Well, this has been a fascinating deep dive into something I honestly hadn't thought about since I was a kid. It's amazing how much science is packed into that little blue plastic sleeve.

Herman

It really is. And hey, if you're listening and you've found a different way to track your medication or if you've managed to get one of these smart sensors working here in Israel, we'd love to hear about it. Our regular listeners know we love these kinds of practical tech workarounds.

Corn

For sure. And before we wrap up, if you've been enjoying these deep dives, please take a second to leave us a review on your podcast app or on Spotify. It genuinely helps other curious people find the show, and we love reading your feedback.

Herman

Yeah, it makes a huge difference for a show like ours. We're all about that community of curiosity.

Corn

You can find all our past episodes, including the ones we mentioned today, at our website, myweirdprompts.com. We've got an RSS feed there for subscribers and a contact form if you want to send us your own weird prompt, just like Daniel did.

Herman

And of course, we're on Spotify and all the usual places. Thanks to Daniel for the great question this week. It definitely gave me an excuse to spend too much time reading about aerosol physics.

Corn

Which is your favorite way to spend time, let's be honest.

Herman

Guilty as charged.

Corn

Alright, that's it for this episode of My Weird Prompts. I'm Corn.

Herman

And I'm Herman Poppleberry.

Corn

We'll see you next time. Stay curious.

Herman

And keep breathing easy. Bye!

Corn

So, Herman, I was thinking about the NFC idea again. Could you actually use that to trigger a reminder if you haven't used your preventative inhaler by a certain time?

Herman

Oh, absolutely. That is the next level. You set a daily alarm, and the only way to silence the notification for good is to tap the NFC tag. It is called a forced compliance loop. It is a bit aggressive, but for people who are forgetful with their maintenance meds, it is a literal lifesaver.

Corn

I might need to set that up just for my vitamins.

Herman

One step at a time, Corn. One step at a time.

Corn

Fair enough. Thanks for listening, everyone.

Herman

Talk to you soon.

Corn

I actually wanted to go back to something you said about the acoustic sensors in the high-end smart inhalers. How sensitive are they? Can they tell if you're inhaling correctly? Because technique is a huge part of asthma management, right?

Herman

That is actually one of the biggest selling points of the newer clinical-grade sensors. They don't just check if you pressed the button; they have a tiny microphone that analyzes the frequency and duration of the inhalation. If you inhale too fast, the medicine just hits the back of your throat instead of going into your lungs. The app can actually give you a grade on your technique. It's like having a tiny respiratory therapist in your pocket.

Corn

That is incredible. It's not just "did you take it," it's "did you take it right."

Herman

Exactly. Poor technique is one of the leading causes of "uncontrolled" asthma. People think the drug isn't working, but really, it just isn't getting where it needs to go. That's why these smart sensors are so much more than just counters. They are diagnostic tools.

Corn

It's a shame the cost is such a barrier. But I suppose as the tech matures and those carbon-minimal inhalers become the standard, we might see these features integrated more often.

Herman

That's the hope. The more we move toward "value-based care," where providers are paid for keeping people healthy rather than just treating them when they're sick, the more these sensors make sense.

Corn

It's a long road, but it feels like we're heading in the right direction. Anyway, we should probably let people get back to their day.

Herman

Right. Until next time.

Corn

This has been My Weird Prompts. Thanks for hanging out with us.

Herman

See ya.