



## What germs are on your hands?

'Today' host Matt Lauer takes a tour of New York City and finds out what his hands come into contact with every day

Today show

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*Germs are everywhere and impossible not to pick up. But without proper hand washing, you could be carrying around who-knows-what. "Today" host Matt Lauer and Dr. Philip Tierno, author of "The Secret Life of Germs: What They Are, Why We Need Them, and How We Can Protect Ourselves Against Them," trekked around Manhattan and analyzed what they found in everyday spots like the subway and the gym.*

**Matt Lauer:** In my line of work, you meet lots of people. You shake lots of hands. And those people have shaken lots of hands, wiped noses, and touched lots of different things, over and over. They could have, well, dirty hands. Any of them, even the celebrities.

Did you know that 80 percent of all infectious diseases are passed by human contact, either direct or indirect? That includes viruses like pneumonia, salmonella, and the common cold. But beyond the people I come in contact with everyday, I got to thinking, what about the *things* I come in contact with everyday?

I needed help. I needed an expert.

Dr. Philip Tierno is director of clinical microbiology at the New York University Hospital Center and the author of "The Secret Life of Germs."

For Tierno, the first line of defense is in the bathroom. It's estimated that fewer than 50 percent of people wash their hands after using the facilities. And of those who do, very few do it correctly. I was in for a lesson.

**Philip Tierno:** It takes 20 seconds to appropriately wash your hands, getting in between your fingers, getting on top of your knuckles, getting under your nail bed with at least one swoop each time with a lot of soap on and then rinsing. The Centers for Disease Control recommend singing "Happy Birthday" twice through for an effective wash.

**Lauer:** I open the door using the paper towel. I walk out. Germ free? Relatively speaking.

An experienced microbe hunter, Tierno's going to help me see what biological crime scenes I encounter everyday. He'll swab selected surfaces and then grow what he finds back at his lab.

We started at the ATM. Then a ride in a New York City cab. So many surfaces, so many riders, so many chances at contamination.

And how about the subway? It's more popular, used by almost 7 million riders every day.

**Lauer:** People get in the subway; they reach up and grab this all the time. What might be found here?

**Tierno:** You pick up the entire flora of humanity that has passed this way, including feces, fecal flora, skin flora, and respiratory secretions.

**Lauer:** The escalator is a haven for hands, and possibly germs and bacteria.

The samples went back to the lab, where they were cultured and allowed to grow for a few days.

**Lauer:** How did we do in the taxi cab?

**Tierno:** It had fecal organisms in the form of what we call a klebsiella, and an enterobacta. In addition it had enterococci, which are found in feces. It also had strep viridans, which is an oral bacterium, which can be there just simply by talking.

**Lauer:** What could all those things do to you?

**Tierno:** Generally, what we found does not cause harm in an average, normal individual. But what it means is that where you find feces, you can potentially find other organisms, other germs that are potentially dangerous, like the Norwalk virus, or some salmonella, or shigellae, or even hepatitis A.

**Lauer:** And what we're talking about is, you go to get into that taxi, you put your hand down on the seat, you slide across, you tell the cab driver where you want to go, and by accident you touch your mouth, or you touch your eyes, or something like that.

**Tierno:** Or you forget to wash your hands, and you eat your food, and you can ingest these pathogens.

**Lauer:** Which means, in layman's terms, you go to Funkytown, you have a chance of getting sick.

**Tierno:** Big time.

**Lauer:** Surprisingly, the subway was nearly spotless, thanks to a thorough cleaning and the cold weather, which isn't ideal for germs and bacteria.

The teller machine, the ATM. What'd you find there?

**Tierno:** Flora predominantly, mouth flora. The things in your spit.

**Lauer:** We took a ride on an escalator. The sign says always hold the handrail. What was on that handrail?

**Tierno:** Respiratory flora. People cough, and then touch the rail. It didn't have any fecal organisms, and I was surprised at that. This is Candida albicans, probably vaginal in origin. It's part of the normal flora.

**Lauer:** And that was on the handrail?

**Tierno:** That was on the handrail. And these are hardy organisms.

**Lauer:** So, just when I was feeling good that there was no fecal material there.

**Tierno:** Right.

**Lauer:** We went to the gym, and you said this is a place where you can find a whole host of nasty things. What did you find?

**Tierno:** On the bike, which is the only thing in the gym that we cultured, there was some staph aureus and some staph epidermis. You can find an aureus on the skin, or in the nose. It was relatively mild and not much there.

**Lauer:** So, at the end of our germ tour, you swabbed my hands to see what I had picked up and what might be growing on my hands. What'd you find?

**Tierno:** Actually, your hands had no growth, which was quite amazing, in and of itself.

**Lauer:** I didn't cheat, by the way. I did not wash my hands from the time I met you til when you swabbed them.

**Tierno:** Your hands were not moist. And they were not sweaty. And you're a very fastidious individual.

**Lauer:** My mom would be very proud.

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