

# Is Using Your Smartphone or Tablet in the Kitchen a Food Safety Hazard?



## A Conversation with Amy Lando and Michael Bazaco

Do you use your smartphone, tablet, or laptop to look at recipes while you're cooking? Did it ever occur to you that you could be exposing your food – and yourself -- to the bacteria that those personal electronic devices may harbor?

In a recent analysis of findings from the 2016 Food Safety Survey and related focus groups, scientists at FDA who study consumer food safety behavior explored this idea by evaluating how frequently consumers use these devices in the kitchen and how exactly they are using them. The next step is to determine if there is any danger of contamination from using these devices while preparing food.

Amy Lando, MPP, and Michael Bazaco, Ph.D., in the Office of Analytics and Outreach at FDA's Center for Food Safety and Applied Nutrition (CFSAN), explain what they've learned, what they're trying to find out, and what consumers can do to protect themselves.

**Q: What gave you the idea to study consumers' use of personal devices in the kitchen?**

**Lando:** This issue surfaced when we were working with colleagues at the U.S. Department of

Agriculture (USDA) on the questions for the 2016 Food Safety Survey (FSS), which FDA conducts in collaboration with USDA. As you know, smartphones, tablets, and other devices have become ubiquitous in our daily lives. We take them everywhere—work, the store, the bathroom, the gym, and many other places. It makes perfect sense to use them in the kitchen, and people are increasingly doing that. Why have 50 cookbooks when you can just look at your phone?

But we also know from previous research that bacteria that cause disease can survive on cell phones. So, this was a logical issue to include in the survey, which is conducted every three to five years to assess consumer attitudes, behavior, and knowledge about food safety.

**Bazaco:** We used data from the FSS and from related focus groups to conduct what we believe was the first study to investigate how consumers use personal electronic devices in the kitchen. That study, co-authored by Amy and me, along with our colleague Yi Chen, Ph.D., was published in February 2018 in the Journal of Food Protection. Each of us brought a different perspective to this work. Amy is a social scientist on CFSAN's Consumer Studies Branch; Yi Chen is a microbiologist; and I'm an epidemiologist. Each of these disciplines is an important component in assessing how these popular devices may harbor and transmit potentially harmful bacteria.

I teach a class on emerging infectious diseases at the University of Maryland and like to ask the students how many use their cell phone in the bathroom. About 90 percent usually raise their hands. I then asked how many used their phones in the kitchen and a lot of the same people raise their hands. That was eye-opening to me so we decided that we wanted to look more into this.

**Q: Just to be clear, though: Is there hard evidence that such devices have caused foodborne illnesses?**

**Bazaco:** No, and that's what we're planning to study next. We know that cell phones can harbor microorganisms, including the bacterial pathogens that cause disease. However, research on pathogen contamination on smartphones in a consumer household, such as a kitchen, is limited. We need more research to better understand the actual risk to consumers from using their devices while preparing food. This can be done by a targeted microbiological surveillance sampling of devices, their owners, and the kitchen environment. Sampling of the household environment during foodborne outbreak investigations could also identify potential risks. An assessment of the survival of foodborne pathogens on actual phones could help us better understand this risk.





**Q: What did you learn in your initial study about how consumers use these devices in the kitchen?**

**Lando:** We found that about half of survey respondents have used some sort of device while cooking. The most frequently used devices are cell phones, including smartphones. Only about a third of the respondents reported washing their hands after touching the device and before continuing cooking.

**Bazaco:** Focus group participants, who were chosen based on their use of personal electronic devices in the kitchen, told us that they use their device for many different tasks while cooking, such as looking up and following recipes, texting and talking, listening to music, and more.

**Q: Did the survey respondents or focus group participants have any sense that the use of these devices while cooking could present a source of food contamination?**

**Lando:** Most people don't recognize this as a safety issue. People in both the focus groups and the survey were much more likely to report washing their hands after touching raw meat, chicken, or fish – foods that leave hands feeling sticky and are associated with bacteria such as Salmonella and E. coli – than after touching their devices. Among food handlers who engage in each behavior, thirty-seven percent reported washing their hands with soap after touching their personal electronic device, compared to 85% who washed their hands after handling raw meat, chicken or fish.

**Bazaco:** However, there were some consumers who reported having developed their own strategies for minimizing cross contamination, such as using pinkies, elbows, or knuckles to touch the phone; waiting until there is a good time in the cooking process (such as when they are only stirring things) to touch their device; and putting the device in a special location – such as away from the food and sink. Many also report cleaning their devices with wipes,

screen cleaners, or cloths. Some of these practices are more effective than others, of course, and that is another area where further research may be needed.

### **Q: What Should Consumers Do When Using Smartphones and Tablets While Preparing Food?**

FDA's Amy Lando and Michael Bazaco say the most important thing is that consumers recognize their device may be a potential source of contamination and treat it accordingly.

It is best to minimize contact with the phone or other device while cooking, and wash hands regularly during the cooking process.

And the researchers recommend that, in general, consumers always follow the core four steps for practicing food safety in the kitchen.

- Clean – Wash hands and surfaces often;
- Separate – Don't cross contaminate;
- Cook – Cook to the safe internal temperature; and
- Chill – Refrigerate promptly.

Consumers can find more information on [FDA's Safe Food Handling web page \(/food/buy-store-serve-safe-food/safe-food-handling-what-you-need-know\)](https://www.fda.gov/food/buy-store-serve-safe-food/safe-food-handling-what-you-need-know). Another resource is <https://www.foodsafety.gov/> (<https://www.foodsafety.gov/>).

### **Q: To backtrack a bit, how did you conduct your study?**

**Lando:** The FSS study was a telephone interview with more than 4,000 survey respondents who were asked a sequence of questions about the use of personal electronic devices while preparing food, along with other food safety questions. The interviews were conducted from October 2015 through January 2016. To broaden the findings, we convened eight focus groups, with a total of 73 participants, in four cities: Alexandria, Va.; Atlanta, Louisville, and Los Angeles. They met in September and October 2016, with their two-hour discussions facilitated by a trained, non-FDA moderator.

### **Q: What can FDA do to reduce the potential for cross-contamination of foods from personal electronic devices?**

**Lando:** As we begin to better understand the risk associated with cross contamination from device surfaces to food, we can develop more specific advice to help consumers minimize any risk of cross contamination between devices and food, and therefore create a safer food preparation environment. New voice activation functions on personal electronic devices have the potential to allow less manual contact with these devices and that might help consumers

minimize contact with their devices while cooking.

**Bazaco:** If we find a link between these devices and outbreaks of foodborne illness, the question becomes: How can consumers stay safe without entirely avoiding using their phones and other devices while preparing food? Can we recommend specific safety measures? We'll need to study the pathogens of concern in these cases to see how long they can survive and transfer to a food in the immediate environment.

**Q: Lastly, do you use your device in the kitchen?**

**Lando:** I do, but I am very careful in the kitchen and wash my hands frequently, especially after touching my phone or tablet.

**Bazaco:** I do too, but I'm much more careful about it now. I try my best to not touch the phone once I have started preparing food and wash my hands if I do have to touch it. You still have to live your life and these devices are everywhere. You just have to be aware of the safety aspect and think about that when you start preparing food.