Should the TSA end the 3-ounce liquid restriction?

By Sheldon H. Jacobson

The plot to bring liquid explosives onto flights from London to the U.S. and Canada in 2006 prompted the Transportation Security Administration to institute a restriction of liquids on all liquid and gel containers placed in carry-on bags. This led to the new well-known and much-maligned 3-1-1 rule for carry-on bags: 3-ounce containers inserted into a 1-quart bag for each passenger. The 3-1-1 rule has endured for 17 years. Since that time, airport security has moved forward strategically and technologically. The most significant strategic change has been the introduction of PreCheck in 2013, the risk-based system that makes travelers better known to the TSA, giving them access to expedited screening lines at airport security checkpoints.

Currently, the TSA is deploying computed tomography (CT) screening devices for carry-on bags, which provide more precise 3D views of contents. Given such enhancements and improvements, is the 3-1-1 rule still needed?

The United Kingdom decided that it is not and is taking steps to gradually phase out the rule. London City Airport is the first in the UK to abandon the rule and in doing so is using CT screening devices to scan carry-on bags, which can screen liquid containers of up to 2 liters or around a half gallon with greater precision. Liquid explosives have a different density than water, which the CT scanning devices can detect.

To date, the U.K. government has said that by 2023, all UK airports participating in PreCheck will be allowing larger liquid containers in carry-on bags. A large-scale attack could be orchestrated with the hope of some liquid explosives getting through security, which would cause widespread chaos and damage. Progress in airport security is necessary, and what we need is 10 or 20 years ago may no longer be required to maintain the security of the air system. The good news is that almost all travelers pose no risk to the air system. Terrorist threats are akin to needles in haystacks. The likelihood of any security breach in the short term due to the policy change is extremely small.

The one-blender related to the UK’s decision is that not all passengers are the same from a security standpoint. Most are indeed benign, some would even argue, correctly that on any given day, all travelers are benign. Yet policies must be instituted to not only manage most days, but also outlier days. The CT screening devices provide an enhanced layer to lower risk and provide the necessary protection. However, CT screening devices are not without limitations. They are subject to false alarms, which can slow the flow at security checkpoints, and false negatives, which can lead to a security breach if it occurs with the wrong passenger. In the U.K., travelers going through screening lines have experienced slowdowns as TSA officers get acclimated to the new CT devices, even with the 3-1-1 policy still in place.

The U.K. is not proceeding blindly. It is also aggressively pushing for biometric facial recognition as a means to confirm travelers’ identities. Hence, if travelers are known to their security administration, then the restrictions, such as limitations on liquids and gels, could be relaxed.

Implementing a similar policy change at U.S. airports would require that more passengers be known to the TSA. This could be achieved in two ways. One is by offering PreCheck at no cost to any traveler willing to undergo the necessary background check. The other way is to expand the use of biometric identity verification such as facial recognition, which would achieve a similar risk reduction benefit.

Such passengers should be permitted to abandon 3-1-1 bags. The passengers who remain unknown to the TSA would still be required to abide by the rule. Some may argue that a known traveler to the TSA would still bring a liquid explosive through a security checkpoint unchallenged. This highlights why the rigor of the screening process is becoming a known traveler and using biometric information should be key to relaxing the 3-1-1 rule, since the risks associated with such people are extremely low. The additional layer of security that CT screening devices provide would decrease any remaining risk.

So will the TSA follow the U.K.’s lead?

In the short term, no. However, the lesson learned is that responses to past threats need to be periodically revisited. Getting past the 3-1-1 rule will require more passengers to become known to the TSA. The most significant hurdle to achieving this using facial recognition is privacy concerns, which at least five senators have highlighted, hoping to pause its expansion. If these senators are successful, the likelihood that the 3-1-1 rule will be abandoned for all passengers is small.

What the U.K. policy change is doing is pushing other countries to reexamine their liquid policies. The question is not whether a new policy is needed, but when and for whom a new policy should be instituted.

Sheldon H. Jacobson is a professor of computer science at the University of Illinois at Urbana-Champaign.