INTRODUCTION

To guard against potential terrorist attacks and protect the public and infrastructure, the U.S. Department of Homeland Security (DHS) and related authorities usually issue threat warning advisories to the public when there is a potential threat (CRS, 2004; DHS, 2001; PPW, 2004). The warning advisory relies on a five-color system (see Figure 2.1) that represents levels of risk related to a potential terror attack. Each threat level has a corresponding list of recommended actions that the public should take to reduce the likelihood or impact of a potential attack. Therefore, when a warning advisory is issued, authorities hope the public will follow the advisories, which are listed on the DHS’s Citizen Guidance on the Homeland Security Advisory System Web page, and take the recommended actions (Citizen, 2001; Federal, 2001). For example, as of December 31, 2007, the country remained at an elevated risk (i.e., code yellow) for a terrorist attack. At this threat level, the public should take the following 12 actions:

2. Create an “Emergency Supply Kit” for your household.
4. Know how to shelter-in-place and how to turn off utilities (power, gas, and water) to your home.
5. Examine volunteer opportunities in your community, such as Citizen Corps, Volunteers in Police service, Neighborhood Watch or others, and donate your time.
6. Consider completing an American Red Cross first aid or CPR course, or Community Emergency Response Team (CERT) course.
7. Review stored disaster supplies and replace items that are outdated.
8. Be alert to suspicious activity and report it to proper authorities.
9. Ensure disaster supply kit is stocked and ready.
10. Check telephone numbers in family emergency plan and update as necessary.
11. Develop alternate routes to/from work or school and practice them.
12. Continue to be alert for suspicious activity and report it to authorities.
If the code yellow alert appears every day, it implies the warning advisory is issued every day, so the public needs to perform these 12 actions every day until the warning is off. The question that arises is whether these 12 actions actually are being reviewed and repeated as necessary by the public and taken every day, given the continuation of the code yellow alert. We randomly interviewed 25 households living in the Chicagoland area and asked (1) whether they knew the current threat level of the warning advisory and (2) whether they performed all the recommended actions that corresponded to the current threat level. For question (1), 9 households answered no, and 16 said they believed the alert was code yellow, because they had not heard of any change in the alert level. Regarding question (2), none of them performed the 12 recommendations associated with code yellow every day. When asked why, they mentioned that they followed the recommendations the first time the warning was issued. However, after several months, they became accustomed to the warning and felt that there was no difference between completing all recommendations or only some of them. Gradually, they stopped following the 12 recommendations, even though the code yellow alert remained in effect.

If we were to measure the effect of a warning advisory by examining whether the public responds by taking the recommended actions, the data from our small survey seem to suggest continuous warnings may not generate the desired effect in terms of stimulating the public’s response. We know that antithreat warnings can help save lives and reduce the costs of potential disasters, but warning about terrorist threats differs from familiar warnings about severe weather. Warnings about severe weather do not change whether the weather event will occur. That is, the severe weather will come, regardless of whether a warning is issued. In contrast, warnings about terrorist threats may prompt terrorists to alter their targets, thereby escaping legal justice but still causing grave harm. Issuing an antithreat warning thus may result in a change in the occurrence of a potential threat. In addition, if the potential threat does not materialize each time the warning is issued, and no public notice indicates that the warning is over, the public may gradually lose attention and ignore warnings, which would mean they would fail to perform the required recommendations. If this failure occurs frequently, it may gradually erode the credibility of the warning advisory system and public confidence (McCarthy, 2005). In this chapter, we develop differential equations to model the relationship between warning frequencies and their associ-