Transcripts for Time between Relapse to Poor Habits

SPEAKER 1: These slides were prepared by Farrokh Alemi, and show how to construct a control chart in context of deciding if relapse is occasional problem, or return to persistent drug use. A working definition of relapse is not available. It's hard to distinguish relapse from return to drug use. Part of the issue is how occasional drug use has to be, before we think it is regular use.

We use control charts to distinguish relapse from return to drug use. These slides walk you through the steps needed to analyze the data, using time between control charts. We are assuming that one of-- there are one observation for each patient in each time period. The patient has either relapsed, or not relapsed-- relapse is considered dichotomous, discrete, rare event.

Each time period is independent observation. In a sense, we are saying that the patient has a constant probability of recovery from relapse. Sometimes he relapses for a long time, and other times for a short time. But on average day, he has the same chance of relapse and recovery. Finally, we are assuming that relapse has a geometric distribution, meaning that longer relapses are increasingly rare.

Time to success should have a geometrically decaying shape. This means that most situations should have no relapse. Relapse of length one should be rare. Relapse of higher length should be even more rare. This assumption seems to have been met. In time between charts, you plot the number of consecutive rare events.

Plot consecutive days of drug use if relapse is rare. Plot consecutive drug free days, if drug free days are rare. Here are a set of rules on how to count consecutive days. We illustrate by going through the count of consecutive drug use days. The count of consecutive drug free days is similar, and you can deduce it from the pattern. If yesterday drug use is unknown, and today the patient used, then increase number of conservative drug days by one. If today was drug free, then set it the count to zero.

In fact, if we are counting consecutive drug use days, then we always set the count to zero if the patient was drug free today. If yesterday was drug free, and today the patient used, then increase the number of conservative drug days by one. As usual, if drug free, then set it to zero. If yesterday was a drug use day, and today the patient used again, then increase the number of consecutive drug use days by one. If the patient did not use, then set the number of consecutive days to zero.

If failures are rare, calculate R as the ratio of failure days to success days. If successes are rare, calculate R as the ratio of successful days to failure days. Then you can calculate the upper control limit as a function of the R. These data show a client who was tested for 20 weeks. There were failures on 6th, 10th, 15th through 17th week. Are these failures return to poor habits or merely temporary relapses? Here we see an “if” statement that scores consecutive relapses inside Excel.

If currently the patient is abstinent, then always set to zero. Otherwise, if the previous value indicates relapse, then increase it by one, and if not set it to 1. This slide shows how we use the count and count if functions within Excel to calculate number of weeks of relapse, or weeks of abstinence, and subsequently the R statistics. This shows the control chart. The upper control limit it is drawn in red. The consecutive weeks of relapse are drawn with markers.

Points below the control limits would be due to chance events. There were two lapses, but these were within limits, and could have been due to random chance. Series with one point above control limits have less than 1% chance of occurring due to chance alone. They represent changes in the underlying repetition of the habit. There is one, therefore, we conclude that there is a return to drug use for this patient. In distributing charts, include the assumption, the chart itself, and the interpretation. Time between charts distinguish between harm reduction-- that is occasional relapse-- versus return to drug use.