Using the Polygraph in the 21st Century

Part II: Understanding the Polygraph

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In the November/December column, we discussed the legal aspects of using the polygraph as part of the investigative process. Remember that the use of polygraph testing with an employee is restricted by the Employee Polygraph Protection Act. However, when used properly the polygraph can become an important part of an investigation.

A polygraph examination as seen on popular television has no basis in reality other than perhaps the subject is attached to an actual polygraph instrument in the show. Unlike television, a modern polygraph examination has a structured validated testing sequence and scoring method that can achieve highly accurate results when used by an experienced examiner.

The Instrument

The polygraph instrument is merely a recording device that monitors and preserves the physiological changes occurring in the subject's body while he or she is being asked questions. The polygraph itself comes in several different forms from the oldest mechanical device to an electronically enhanced instrument to the computerized polygraph of today.

At a minimum the polygraph will record the subject's respiratory pattern, galvanic skin response, heart rate, and changes in the relative blood pressure. There are a number of other parameters, but these are the ones most frequently used by examiners.

The subject's physiological responses are preserved using a pen and ink on chart paper in the older versions and digitally in the new computerized polygraphs. The computerized polygraphs then allow the examiner to print out a hard copy of the charts for the file or scoring evaluation.

The polygraph uses two hollow tubes, called pneumographs, that are connected around the abdomen and chest of the subject to measure the individual's respiratory pattern. As the subject breathes, the tubes constrict causing the polygraph tracing to deflect upward and then downward as the individual exhales. This results in a cyclical tracing showing the rate and amplitude of the breaths during each test. Attached to the fingers of the left hand are small metal electrodes that measure changes in the resistance or conductance of the skin. This is called the galvanic skin response (GSR), where an imperceptible electrical charge is passed through the skin and the skin's resistance, or conductance, to this passage is recorded. Finally, a blood pressure cuff is attached to the bicep of the right arm that allows the subject's heart rate and the relative changes in blood pressure to be captured in the tracing.

During the examination, the examiner notes on the tracing where he begins reading the question and where he finishes reading the question. This appears as the wide vertical grey bar in the photograph of a sample chart (page 17). The black vertical line identifies where the subject answered the question. The background grid under the tracings measures time in five-second increments so the examiner knows the amount of time that has passed between questions.

> Understanding the polygraph and the possible role it may play in an investigation can help the investigator establish the truth as well as focus resources.

The Questions

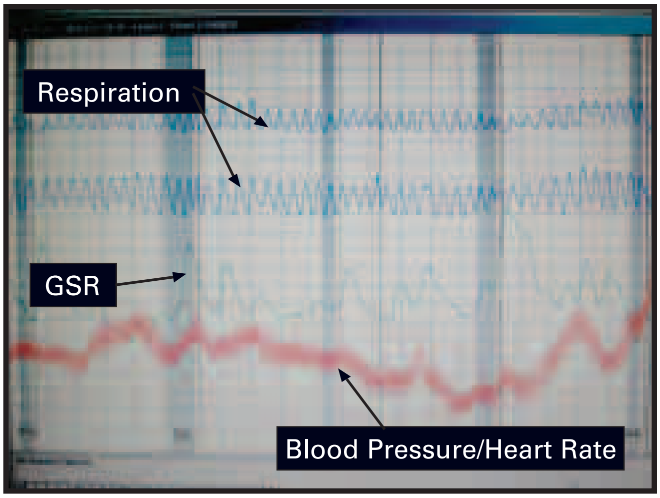
A polygraph examiner constructs three different types of questions to use during the examination. Each question is reviewed with the subject before it is used in the test. This is done so that the responses recorded during the examination are the result of the subject's emotional response to the question and not the surprise of being asked an unexpected question. Reviewing the questions with the subject also ensures that each question can be answered with a "yes" or "no" and that the subject understands what is being asked in the question.

The Irrelevant. The first type of question used in the examination is the *irrelevant*, which is a known truth and establishes the individual's normal responses under the given set of circumstances of the polygraph examination. For example, if the subject was a 32-year-old man named Mark, the following are examples of appropriate irrelevant questions: “Do some people call you Mark?” and “Are you older than 21 years of age.” In each case, the subject could answer “yes” and the response is a known truth.

These questions generally begin the test and are not stressful since they are being answered truthfully and are unrelated to the issue under investigation. There are a number of additional uses for these questions, but they are primarily used for beginning the examination and separating questions during the test.

The Relevant. The second type of question is the *relevant* question, which is directly related to the issue under investigation and is most often answered in the negative. These questions must be carefully constructed by the examiner and reviewed with the subject before their use during the examination.

The relevant question should be confined to a single incident and should not inquire into a series of unrelated events. The question must also be unambiguous and address a single action of the individual. For example, asking, “Did you hurt him or steal his money?” does not address a single action and is ambiguous as to how “hurt” is defined and to whom “him” might refer to in the question. A better relevant question would be “Did you steal that missing $1000 from the safe at Mike’s house on December 1, 2003?” or “Did you strike Mike in the head with a wrench on December 1, 2003?”



Polygraph chart from a deceptive suspect showing the respiration, GSR, and blood pressure/heart rate tracings.

Generally, these questions should be stated as clearly and simply as possible having only one unambiguous meaning for the subject. Questions relating to intent are usually unacceptable since one’s intent can be easily rationalized and may change over time. The construction of the relevant question is one of the most important parts of the examiner’s job. An incorrect relevant question could cause an innocent

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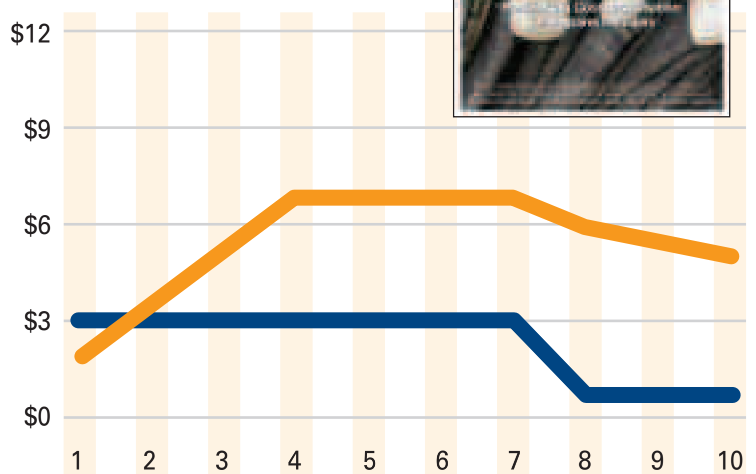
CORRECTION

The Economics of EAS

The article in the November/December issue entitled “The Economics of EAS” contained an incorrect chart on page 24. The appropriate diagram is shown here.

This chart compares the total cost (acquisition plus usage) of EAS over a ten-year period between piecemeal installation with in-store tagging to wholesale installation using source tagging. The diagram illustrates the point of the article that while piecemeal installation is less expense in the beginning, the cumulative cost over the ten-year period is much higher.

The author regrets the error. Robert DiLonardo may be contacted at rdilonar@tampabay.rr.com for any amplifications or explanations.



	1	2	3	4	5	6	7	8	9	10
Source Tag	$3	$3	$3	$3	$3	$3	$3	$1	$1	$1
Store Tag	$2	$4	$5	$7	$7	$7	$7	$6	$6	$5

person to fail the examination or a guilty person to pass when he was actually involved in the incident.

The Control. The final type of question is the *control* question, which is a question of the same general nature as the issue, but one to which the subject will lie or at least question the truthfulness of his answer.

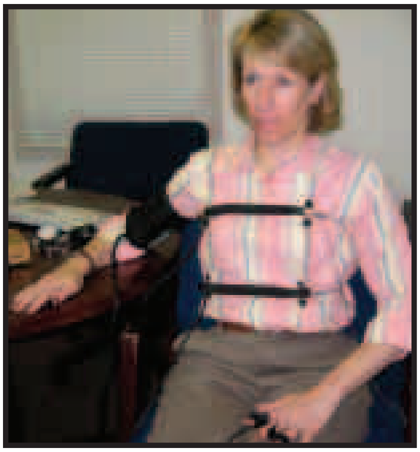
For example, in a theft case the control question might be, “Prior to this year, did you ever steal anything in your life?” The broad nature of the question may cause the subject to identify an instance of stealing so the examiner would alter the question to reflect the admission. Because of the broad timeframe, the subject will doubt the truthfulness of his answer and react deceptively to this question during the examination. The control question then becomes a comparison question to the relevant question. If the subject responds more strongly to the control than the relevant question, he is telling the truth. But if he responds more strongly to the relevant than the control, he is lying. This is obviously an oversimplification of the theory, but it gives the reader an idea how the examination is evaluated.

The Setting

The setting for a polygraph examination should be a private, quiet room with minimal distractions. The subject should sit in a comfortable straight-backed chair that does not swivel or have wheels and be positioned next to a desk or table where the polygraph rests. Most polygraph offices are minimally decorated to avoid distraction and are adequately lighted for easy observation of the subject. In many of these rooms, there are cameras or observation mirrors to provide security for the examiner and a teaching environment for new examiners.

The Pretest Interview

Prior to actually meeting the subject, the examiner discusses the case with the fact giver or investigator to fully understand the purpose of the test and discuss the types of relevant questions that may help to successfully resolve the investigation. It is often helpful for the examiner to brief the investigator on the polygraph technique, the types of questions that are appropriate for the examination, and typical results obtained if the investigator is not experienced in its use.



Subject attached to a computerized polygraph.

The examiner then conducts a pretest interview where the subject signs a release to take the test, and he then discusses any medical or psychological problems with the individual. The examiner attempts to determine if there is anything that might prevent the subject from being a good candidate for a polygraph examination.

The examiner then explores the case with the subject asking pertinent questions about alibis, sequence of events, or other aspects of the case. The subject is informed about the operation of the polygraph, the attachments that will be used during the test, and the way the test will be conducted. Each of the questions to be used on the test are developed with the subject and reviewed with him making any changes that are necessary.

The Testing Sequence

A polygraph examination is composed of a series of short tests that last three to four minutes each. In most examinations there will be three to five tests during which the relevant, irrelevant, and control questions are asked with the subject responding either “yes” or “no” to them. If there are any special instructions, the examiner will review them with the subject prior to the test. Depending on what technique the examiner was trained, there will be a structured method of conducting the examination and ordering the questions.

Scoring

Once the examiner has an adequate series of charts to evaluate, he will begin the scoring process. This is done most often using a numerical scoring method that evaluates the subject’s physiological responses to the relevant and control questions. The computer polygraph may also use an algorithm developed by the Johns Hopkins University Applied Physics Laboratory to score the examination. The examiner can use this algorithm to independently score the examination or for quality-control purposes to verify his own determination.

The Training

Polygraph examiners are usually trained at American Polygraph Association (APA) approved schools, which are required to have their curriculum and school periodically inspected and approved by the association. Graduating from an APA-approved polygraph school and passing the APA examination allows an examiner membership in the organization. In addition, depending on where the examiner intends to practice, there may be separate state regulatory examinations in order to be licensed to perform polygraph examinations within that state. When selecting an examiner, his training, licensing, and membership in the American Polygraph Association should be considered. A summary of licensing laws can be found on the American Polygraph Association website.

Uses for a Polygraph

There are a number of types of cases where a polygraph may prove useful. While there are restrictions on testing current employees, there is no restriction on testing former employees.

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In some cases the polygraph can be helpful in establishing the scope of the loss and the methods that were used by the perpetrator to cause the loss. There are a number of specialized tests that can be used in these types of cases that may assist the organization in estimating the loss.

Another use of the polygraph is to test the reliability of an informant's information. Many large-scale investigations are begun based on information from a non-employee informant. Establishing the veracity of the informant's information before committing large scale resources to an investigation is often prudent.

Additionally, when there has been an investigation of an organized non-employee theft ring, the polygraph may be used to confirm information obtained during the interrogation of these suspects and to verify the truthfulness of their admissions. This can often direct the continuing investigation into organized groups and assure that investigative resources are used to their best advantage.

Police departments may be able to test employees regarding internal thefts, but they will be unlikely to share the results of the examinations with the company. If the company did learn and use the results to terminate or discipline the associate, the organization may have violated the Employee Polygraph Protection Act.

Understanding the polygraph and the possible role it may play in an investigation can help the investigator establish the truth as well as focus resources. The polygraph has limitations, but also is a tool that should not be ignored during an investigation. ■

Parting Word
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The second quote is by Tom Matthews, senior vice president of asset protection of Saks Fifth Avenue:

When others know you believe in diversity, they will honor it. If it's not part of your belief system, you'll have a hard time selling it.

Belief, accomplishment, and honor are key words and concepts in making diversity happen in the loss prevention profession.

On Sharing Information

The November/December 2002 issue had an interview with Rosamaria Sostilio, vice president of asset protection at Saks Fifth Avenue. The cut out quote is

EDITOR: ***Is there an area where there is a lot of collaboration between you and other retailers?***

SOSTILIO: ***Not enough. I think we just get wrapped up in our day-to-day lives. It's not that people don't want to, because we do talk about such things whenever we come together. But it just doesn't happen enough where we pick up the phone and share information. It's something that we need to do better as an organization and as an industry.***

There are some who believe that it is a competitive advantage by some retailers not to share information and programs with others. Gosh, you would think that with organized theft, epidemic refund fraud, terrorism, and supply-chain concerns, just to name a few, that retail and LP could find some common ground to manage and react to critical information.

On Promoting Loss Prevention

The May/June 2003 issue had an interview with Len Schlesinger, COO of Limited Brands. The cut out quote is

EDITOR: ***The loss prevention function has been in your pyramid of responsibility for a while, but you now have Paul Jones, the vice president of loss prevention, directly reporting to you. What caused you to make that decision?***

SCHLESINGER: ***Loss prevention reports to me because talk is cheap. At the end of the day, is it much more important where I visit, where I spend my time, who I see, than what I talk about. I believe that unless someone at a senior level is willing to engage at a level of more than words, you can't achieve the kind of change that we're trying to manifest here in loss prevention.***

And as many of you know or have heard, talk has not been cheap at Limited Brands. Jones is a senior vice president now and his key staff reports are all at the VP level. Their programs are driving the shrink down. Everybody in the profession wins when LP is recognized and given authority and responsibility.

On September 11th

The September/October 2002 issue had a personal story about September 11th by Bobby Senn of the New York Fire Department. The cut out quote is the first paragraph of the story:

My day began at 7:00 a.m. on the morning of the 11th. After a few normal responses in our local area, I had just grabbed the newspaper and a cup of coffee when one of our guys yelled, "A plane just hit the World Trade Center!"

If you have not read this article, pull out that issue or ask for a back issue. It is breathtaking. Our lives in loss prevention and as citizens have changed forever because of 9/11.

I could go on and on. I would imagine you, too, have favorite quotes or articles from previous issues that have special meaning to you. Share them with me and tell me why.

Oh, by the way, I do not let the cleaning service in my office or near my collection.

Jim Lee
Executive Editor