# Polygraph & Forensic Credibility Assessment: A Journal of Science and Field Practice

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#### Polygraph & Forensic Credibility Assessment: A Journal of Science and Field Practice

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#### Scope

The journal Polygraph & Forensic Credibility Assessment: A Journal of Science and Field Practice publishes articles about psychophysiological detection the of deception, and related areas. Authors are invited to submit manuscripts of original research, literature reviews, legal briefs, theoretical papers, instructional pieces, case histories, book reviews, short reports, and Special topics will be similar works. considered on an individual basis. А minimum standard for acceptance is that the paper be of general interest to practitioners, instructors and researchers of polygraphy. From time to time there will be a call for papers on specific topics.

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## Literature Review of Polygraph with Juveniles and Children

Jared Rockwood

#### Abstract

Polygraph has been used in forensic, law enforcement, and legal circles, for over one hundred years and has remained a controversial tool throughout that time. Over the last few decades, it has been increasingly used in the supervision and treatment of persons convicted of sexual offenses. Some individuals have raised questions about the lack of research specific to adolescents and polygraph, especially in forensic context working with youth that have offended sexually. This literature review will summarize the literature that has been produced over the last century regarding polygraph testing of children and youths, especially those that have committed sexual offenses.



## Literature Review of Polygraph with Juveniles and Children

Polygraph was first developed one hundred years ago and has been used extensively in various settings including law enforcement, probation and parole monitoring, and in both forensic and private therapeutic settings. It has been a controversial tool for much of the last century in each of these settings. One area where this controversy can be observed is in the use of the polygraph with juveniles that have committed a sexual offense, primarily as part of a therapeutic process but also as a form of court supervision. The purpose of the literature review will be to look at research that has been produced over the last century addressing youths and children.

## **Polygraph Testing**

The most common form of polygraph test in the U.S. is the comparison question test (CQT) that was first described by Summers, (1939) and adapted by Reid (1947) and others. Fundamentally, it uses a comparative analysis between relevant questions (RQs) and comparison questions (CQs). Research has established that the differential response rates between RQs and CQs can predict truth and deceptions at rates well above chance (American Polygraph Association, 2011). The vast majority of polygraphs performed throughout the world are CQTs (Rosenfeld, 2018, p.24), and they represent almost exclusively the types of exams performed as part the therapeutic process with juveniles.

Traditionally, when polygraph is included in the treatment of youth that sexually offend there are two types of screening exams performed. There are sexual history exams and maintenance exams. The sexual history exam tends to focus on undisclosed victims and looks at issues such as violence, relationship to victim, gender diversity, etc. On the other hand, maintenance polygraph exams are used to monitor behaviors while in treatment or on supervision to ensure compliance with basic rules and expectations, and to attempt to increase community safety through the identification of problem behavior as a potential intervention to avert reoffending.

## Literature Review by Decade

#### Pre 1950s

The initial polygraph research by Lyon (1935) provided very limited information about the process and procedure. He had a sample of 100 juvenile delinquents that completed a polygraph. The topics of these exams were not identified, and Lyon used an early version of polygraph that did not include EDA (Hindman & Peters, 2001). Lyon reported that 25% of these juveniles passed their polygraph; of the remaining 75% who failed the exam, 29% of those confessed to the behavior they were accused following the failed exam. The other 46% failed the exam but did not provide confirmatory disclosures. Determining the accuracy of these findings is not possible because Lyon's method and data were not published or linked to other evidence to establish ground truth.

Five years later, Rourke and Kubis (1940) did a study comparing juvenile delinquent (JDs) to non-delinquent juveniles (NDJs). There were 170 male subjects in the study, 80 JDs and 90 NDJs. This was a controlled study with a variation on a mock crime scenario. Mock crime scenarios are often used in research to simulate the parameters of actual crime. In this case, the boys were paired, one was to take money that was offered by the proctor, and they all were then to deny having taken the money. The polygraph examiner used a format similar to the CQT that involved critical, emotional, and buffer questions. The charts were evaluated immediately by the original examiner. Four months later, the original examiner and a second examiner blind scored the same charts. According to the research, accuracy of the polygraph reached 97% (higher than in most subsequent polygraph research). Accuracy remained unchanged after four months both with the original examiner and the outside examiner scoring chart. There was no quantifiable difference between JDs and NDJs.

#### 1970s

During the 1970s, a bifurcation developed between publishing new studies in polygraph and publishing opinions about its utility and potential future development. There were two new studies published in this time period, and they focused on the lower age limits of polygraph utility. One study focused exclusively on children three to four years old (Lieblich, 1971). The other study looked at youth spanning roughly 9–14 years old (Abrams, 1975). Both studies used a concealed information test (CIT) format scoring EDA response to key items in a recognition test.

Lieblich (1971) found that adult CIT Lykken scoring criteria could not be used with young children without modification. Yet, there was a clear expected directional response in children to the key presented when looking at directional response versus CIT scoring criteria and he concluded that with appropriate decision rules the CIT was effective with children as young as three to four years old. Lieblich's work was a replication of a Lykken study completed in 1968 (Lieblich, 1971).

Abrams (1975), on the other hand, looked at children that spanned the theoretical lower limits of polygraph efficiency. Abrams and Weinstein (1974) had previously studied lower functioning adults and found accuracy for polygraph was compromised with individuals with cognitive functioning below 12 years. Abrams (1975) research project therefore looked at accuracy of polygraph in children spanning from 9-14 years old; they found accuracy was well above chance and even stronger among older children. Specifically, Abrams found that polygraph was accurate in youth from 11-14 years old at 88% while children 9-10 years old fell to 63%. In other words, it reinforces the need to ensure individuals have an adequate functional maturity of at least 11 years old. This is typically done by selecting a chronological age that surpasses the minimal functioning expectation.

The remaining three articles are not primary research but explore some of the possibilities of polygraph within the juvenile justice system and generally speak optimistically about polygraph's potential utility and incorporation into the juvenile justice system. Beatty reviews *Commonwealth v. a Juvenile* (1974) and the legal arguments presented for and against polygraph. This was a manslaughter case where juvenile defendant had completed two polygraphs, each by different examiners, and he passed both of them. The defense moved successfully to have the results admitted to the court. The court articulated concerns of fifth amendment protections and prejudicial to the jury in adult courts as precluding polygraph historically. Ultimately, the court decided under strictly defined consent that polygraph could be admitted. In this same vein, Pino (1974) argues that because juvenile courts do not have a jury, the concern that jury would be unduly influenced by polygraph results and their fact finder role could not be subsumed; the juvenile court has no jury and operates specifically for the rehabilitation of the youth as opposed to a more punitive adult model. Lewis (1979) was an anecdotal exposé on the California Youth Authority's use of polygraph. He recognizes the controversy around polygraph but affirms its validity (citing the example of a murder that was solved primarily through polygraph) and potential to both protect falsely accused individuals and preserve state funds. Although not acceptable as a form of scientific evidence or proof, Lewis described an anecdote involving the identification a group of individuals that had been smuggling narcotics into the facility. Lewis expressed an opinion that the courts had become more favorable towards polygraph and would remain so into the future.

#### 1990s

There were only a few polygraph-specific articles related to juveniles that were produced during the 90s, and none published in the 80s. One study was the first and only to directly evaluate CQT with juveniles (Craig, 1997). Although Rourke and Kubis (1947) seemed to use a very similar procedure, their research predated the codification of the CQT as it is done today. The focus of Craig's research, similar to its predecessors (Abrams, 1975; Lieblich, 1971), was designed to better understand the lower age limits of polygraph accuracy. Craig (1997) identified a few interesting differences between adults and juveniles in physiological reactions, including that juveniles in his study seemed to respond stronger in the cardio channel than in the EDA channel - a finding that does not appear to be replicated yet and which, on the surface, would appear to be inconsistent with other published information and anecdotal experience suggesting greater similarity of polygraph effect sizes and structural models for adults and adolescents. Research with adults has consistently shown

the EDA data to be the most diagnostic category by a significant margin (Nelson, 2019). Craig measured youth from 9 to 16 years old. His findings indicated that polygraph was fairly consistent even at the lower limits of the age group, contrary to the research previously mentioned by Abrams (1975). Craig's overall findings for the accuracy of polygraph were much more moderated showing 73% overall accuracy with youth (as opposed to Abrams 88% with youth 11-14 and 63% with youth 9-10) with a much larger false-negative rate than false-positive (opposite almost all adult research that identifies error rates with larger false-positive) (APA, 2011). More specifically, Craig found an 88% accuracy detecting innocence and 57% detecting guilt. This, again, does not reflect the much higher accuracy found in the adult research that shows CQT single-issue exams to exceed 90% in overall accuracy (APA, 2011).

Additionally, there was a correlation study looking at the role of polygraph in augmenting accurate disclosure of sexual histories (Emerick & Dutton, 1993). Emerick and Dutton used a sample of 76 males from 10 to18 years old that had been court referred for offense-specific treatment. The researchers compared historical data, to a sex history interview, to polygraph; in the event that the subjects failed a polygraph, there was an additional interview to clarify the missing information. Emerick and Dutton found that using polygraph increased yields in all measured variables including: number of victims, number of sexual contacts per victim, gender diversity of victims (male or female, versus both), victim-offender relationships (family/extended family/acquaintance/ stranger), degree of force, manipulation, or coercion, and intensity of offense behavior (penetration/oral/anal). Polygraph significantly enhanced the information that was collected in charts and in therapeutic interviews.

The last of the articles from this decade was a literature review that provided a succinct analysis of the prior 50 years and the handful of studies that had been published to that date (Adang, 1995). He separated these articles into issues of competency, legal use, formal studies, and surveys of treating professionals and polygraph examiners.

#### 2000s

The first decade of 2000 did not produce any experimental polygraph data but instead focused on issues of increased disclosure and professional opinion about the polygraph. Two of the articles focused on opinions on the use of polygraph with juveniles (Craig, 2003; Brandes & Cheung, 2009). The other article looked at several decades of polygraph with juveniles and compared results of therapeutic interviews to polygraph disclosure (Hindman & Peters, 2001).

The Hindman and Peters article (2001) showed that polygraph increases disclosure specifically with diversity of gender in sexual offenses (i.e. offenses towards males were underreported in absence of polygraph). Hindman and Peters also reported an increase in the number of victims and frequency of contacts that juveniles disclosed. All of these are underreported both by adults and youth. One major difference Hindman and Peters point out between adult offenders and juvenile offenders is that youths are less likely to over report personal victimization.

Craig & Molder (2003) surveyed law enforcement to get a better understanding of use of polygraph with juveniles. Craig and Molder found that although many respondents had done polygraph with minors (some as young as six years old), more than 50% of respondents had not changed how they perform an exam on a youth versus an adult. Very few respondents assessed suitability of youth for taking exams (review of cognitive capacity, Individual Education Plan, or other psychological information).

The final journal article of this decade by Brandes and Cheung (2009) looked at professionals working with juveniles who had committed a sexual crime and the professionals' opinions about a variety of issues including polygraph (12 step and reunification being the other topics). Brandes and Cheung found 57% of professionals endorsed the use of polygraph as part of the treatment process, and only 7% opposed the use of polygraph with juveniles in treatment.

#### 2010s to present

Roughly a third of all publications on juveniles and polygraph were completed in the last decade. Most of these articles represented an ideological conversation around polygraph rather than research on the accuracy of polygraph with juveniles (Jenson et al. [2015] being the exception to this). Those that are supportive of polygraph to some degree (Stovering et al., 2013; Jensen et al., 2015; Van Arsdale et al., 2012; Youder et al., 2018) split diametrically with those opposed (Chaffin, 2011; Prescott, 2012; Rosky, 2016).

Most of those that support the use of polygraph cite the advantage of the added information gained through admissions and confessions. In addition to probabilistic accuracy and classification rates that consistently exceed chance, there have been consistent findings that the use of polygraph increases disclosure in areas such as number of sexual contacts, frequency of offense behavior, gender diversity of offending targets, triggers, tendencies, and vulnerabilities (Jensen, 2015; Van Arsdale et al., 2012). Stovering et al., (2013) reported that clinicians and supervisors gave a modal rating of the polygraph as "very helpful," and concluded that it increased the accuracy of information disclosure. Youder et al. (2018) hypothesized that full disclosure and honesty from juveniles actually improves rapport with therapists and have stated that youth who pass the polygraph complete treatment at much higher rates. It is interesting to note that Van Arsdale et al. (2012) found that one third of their outpatient clients had previously graduated from residential care; yet when asked to complete a polygraph many additional victims were disclosed. The research project by Jensen et al. (2015) demonstrated that the overall pass/fail rate of adults and juveniles was on par with one another, suggesting that there may not be a huge disparity in the accuracy of the exam between adults and adolescents.

Critics of polygraph during this decade lay out several theoretical and ethical concerns. Chaffin (2011) takes a firm stance against polygraph, in part, because he views the instrument itself as a deceptive pseudoscience with no known error rate. But ultimately, the key concern he and others (Prescott, 2012; Rosky, 2016) carry is that polygraph may contribute to a power-based dynamic between clinicians and clients. Committed juveniles are placed in a position where therapy is mandated, and yet research has clearly shown that punitive models of treatment are ineffective in creating intrinsic, long-term change (Andrews & Bonta, 2003, 340). Critics worry that using polygraph in treatment is another manifestation of the coercive behaviors that already manifest in the youth's offending behaviors (Prescott, 2012). They have also expressed concern that polygraph can draw out false confessions, leading to costly incarceration and stunted normative psychological development. Finally, this group of authors (Chaffin, 2011; Prescott, 2012; Rosky, 2016) hypothesize that the use of coercion in the polygraph process risks retraumatizing already-traumatized youths.

The most recent publication on polygraph and juveniles is from the Association for the Treatment of Sexual Abusers (ATSA; 2017), when they published guidance suggesting that clinicians not use the polygraph with adolescents. They cited several reasons for this position: there is limited research around the use of polygraph with juveniles that have engaged in sexually abusive behavior; polygraph fails to reduce recidivism; and fear that coercive aspects of the polygraph are potentially harmful to young people. They also noted that polygraph is not widely used outside of the U.S. (ATSA, 2019a).

#### Discussion

With almost one hundred years of use in the criminal justice system, including with juveniles, the critique that there is limited polygraph research with juveniles has merit to it. That stated, the handful of research articles focused on juveniles and polygraph seem to confirm that polygraph is able to predict credibility at rates greater than chance (Abrams, 1975; Craig, 1997). In addition, despite the critique that polygraph has "no known error rate" (Chaffin, 2011), Craig (1997) documented the error rate in his particular study, and the APA has clearly documented such in the research in general (APA, 2011). Chaffin (2011) goes on to argue that the danger of a false-negative (when someone who is actively lying is not identified by the polygraph) is that inno-

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cent individuals are then at greater risk because these offenders will get away with the behavior. Such a critique seems to ignore that human judgment of credibility is only slightly better than the flip of a coin (Raskin et al., 2014). Therefore, failing to use technology that provides additional information across almost all target base rates places potential victims at a much greater risk than if left to clinical judgment (Honts, Handler & Nelson, 2013). Prescott addresses the concern about inaccurate disclosure by encouraging clinicians to have all safety plans address the potential that family members or others in the home have been subject to unknown victimization (Prescott, 2012).

Independent of the ability of polygraph to classify deception and truth telling with some degree of probabilistic accuracy, there is the added critique that there is no polygraph research that shows a reduction in recidivism among adolescents that have offended sexually. Konopasik and Manno have demonstrated improved treatment completion as a biproduct of timely completion of a sexual history (Konopasik & Manno, 2020) and Cook et al. demonstrated a slight reduction in recidivism correlated with polygraph completion among adults (Cook et al., 2014). The lack of research showing a reduction in recidivism among adolescents is a valid critique of polygraph; despite speculation that polygraph monitoring exams would have a deterrent effect on recidivism, this has not panned out in recidivism research. Note however that general recidivism research shows a very low base rates (7%) among adolescents who have sexually offended (Freeman-Longo, 2006). Therefore, tying any single component of treatment to recidivism is a challenge and is likely more a biproduct of trying to evaluate a low base rates phenomenon, versus the (in)effectiveness of any specific intervention. This expectation of unilaterally reducing recidivism through a single component of intervention seems to be uniquely applied to polygraph but not to other components of the therapeutic process.

In a similar way, researchers are critical of the lack of research validating polygraph, yet level theoretical accusations that polygraph is traumatizing to youth (Chaffin, 2011; Prescott, 2012; Rosky, 2016). This criticism is made without any research to support the positions. This concern would be easy enough to empirically study and either validate or invalidate the claim. The underlying assumptions is that it is important for polygraph to prove itself, while criticisms require no such standard.

Finding any specific data on the final critique that polygraph is a uniquely U.S. phenomenon was a little more difficult because there is no centralized resource that tracks nations that do or do not use polygraph. The American Polygraph Association (APA) is the largest centralized community of polygraph examiners in the world, but as indicated by the formal name, it is a U.S. based organization. Krapohl (2018) in an article for the APA Magazine broke down the membership of the association. At that time, there were nearly 3,000 members of the organization; 900 of these were not from the U.S. (30% of the membership) representing 55 countries (25% of the world). These numbers do not speak to what extent polygraph is used in these countries, and it also does not preclude the idea other countries use polygraph not represented within the APA. But it does speak to a commitment by a fourth of the world to seeking out membership and training in order to be up-to-date in polygraph science. That being stated, although Canada does have polygraph in private industry, they have banned PCSOT polygraph for both youth and adults. Similarly, the United Kingdom has banned juvenile PCSOT but continue to court-mandate adult PCSOT (Chaffin, 2011).

Although not included in the ATSA position statement on juvenile polygraph testing, another concern to highlight would be both the age of some individuals being subjected to a polygraph and the lack of attention to suitability (Craig & Molder, 2003). The APA has set an expectation of suitability for polygraph of a mean age equivalence or standard age score above 11 years old (APA, 2012). Craig & Molder (2003) indicated some officers had performed polygraph on children as young as six years old. The same study indicated that 50% of the examiners do not change any procedures when testing youth. Yet, previous studies have indicated there may be some differential physiology in adolescents that would benefit from modifying adult scoring algorithms (Craig, 1997). At a minimum, adapting language to be age appropriate and simplifying the interaction would be ideal. Inquiry into involvement

with a school IEP, would also potentially provide information as to cognitive functioning. The examiner should look into what the IEP addresses and if it is focused on behavioral versus cognitive functioning. In the event that there are processing or cognitive issues proceeding with a polygraph may be ill advised. Another important modification would be to be aware of the greater susceptibility of adolescents to provide a false confession. Several of the high-profile false confession cases that have been documented by the Innocence Project include misuse of polygraph and polygraph evidence.

One of the indisputable advantages of using polygraph is clear information gain. In a position statement called Understanding and Responding to Adolescent Sexual Behavior (2019), ATSA clearly sets out the importance of understanding sexual behaviors in a broader context, some of which is developmentally normal. They warn of pathologizing normative sexual behaviors. In the second to last section of the document, they recognize that some juveniles engage in sexually harmful or abusive behavior (ATSA, 2019b). They then delineate six examples, three of which are engaging/ attempting sexual contact without informed consent; manipulating younger/vulnerable individuals; using coercion, threats, force, exhibitionism, voyeurism, or social media for sexually exploitive purposes. The final section of this document indicates that juveniles that have engaged (or suspected) in harmful/abusive behaviors require further assessment. As has been stated previously, polygraph is the single best way to obtain accurate disclosures around issues of number of victims; number of sexual contact per victim; gender diversity of victim (male or female, versus both); victim-offender relationship (family, extended family, acquaintance, stranger); degree of force, manipulation, or coercion; intensity of offense behavior (penetration/oral/anal); triggers; tendencies; and vulnerabilities (Emmerick & Dutton, 1993; Hindman & Peters, 2001; VanArsdale et al., 2012; Jensen et al., 2015).

Early theories of sexual offence including the abused-abuser cycle, which was eventually discredited when offenders' self-reports began to be compared with polygraph verified accounts (Hindman & Peters, 2001). Among adults that had offended, 66% claimed victimization, but after participating in a sexual history polygraph, the rate dropped to 29%. Initially 21% admitted juvenile offenses, but 71% admitted after polygraph. After polygraph began around 1983, researchers identified more victims, less history of victimization, and earlier onsets of offense behavior than had previously been reported. Average pretreatment disclosure was 1.25 victims while polygraphed disclosure was 9 (Hindman & Peters, 2001). In the 70s, the California Youth Authority documented a series of 53 exonerations that likely saved the state just shy of \$1 million in wrongfully convicted incarceration; thus, there is a potential economic incentive to incorporate polygraph (Lewis, 1979).

#### **Future Research**

One of the frequent critiques of juvenile PCSOT polygraph is that there is not enough research to validate its use. Ideally this void in the literature could be addressed in several different areas. It would be important to continue the work of Craig (1997) studying CQT accuracy with adolescents. In the event that the adult algorithms require modifications such as a greater emphasis on cardio response versus EDA, such accommodations could be done at the analysis level.

Research around the theoretical assumptions that have been made regarding polygraph traumatizing already vulnerable youth could be an interesting and readily available point of research. One method for doing so could be using the Youth Outcome Questionnaire (YOQ). This is a tool that is utilized in many treatment settings to look at ongoing functioning of adolescents over time. The YOQ has scales relevant to trauma and emotionally dysregulation that could be compared to periods of time when a polygraph was administered, for example. There are many other ways this topic could be addressed, and doing so may be one step to addressing concerns regarding polygraph. Research into false confessions and the use of polygraph could be another point of information that would address some of the underlying theoretical objections to polygraph.

More important than addressing objections to the use of polygraph would be the effect of polygraph as part of the treatment process. A potential method for research in this vein would be to look at the phenomenological experience of youth that have taken a polygraph looking at their experience and if they found polygraph to be traumatic, or alternatively if they found it to be an aid to their personal growth and therapeutic experience. Similarly, it could be interesting to look at the experience of family systems and the effect that polygraph has in building trust within these systems.

Recidivism may not be the most appropriate measure for polygraph utility since the low base rate of reoffence would make any individual intervention in the treatment process very difficult to assess. The purpose of treatment with juveniles that have engaged in any criminal behaviors, including sexual misconduct, should have the ultimate end goal of reducing recidivism. Yet, parsing out polygraph individually as the causal factor of ameliorating recidivism is an unreasonable expectation. That stated, if an informed treatment process looking at highly unreported behaviors, such as number of victims, use of coercion, diversity in offense patterns, and so on, is able to inform risk and target criminogenic needs, that would be useful information to potentially improve therapy interventions. In the limited research that has been done on disclosure and polygraph it consistently shows that polygraph increases the amount and details of disclosure. The empirical question would be if such information is tied to better treatment process and outcomes.

#### Conclusion

Polygraph has been a controversial tool in both legal and therapeutic settings since its advent. Much of the debate around its usefulness and consequences has been informed by personal opinions, theoretic positions, and emotional hype. Despite the clear limitations in the research, one of the early questions that has continued to be of interest among polygraph researches throughout the last century involves the lower age limits of polygraph's ability to detect deception. Even in very young children, it has proven to have accuracy that exceeds chance, and when dealing with preteens and juveniles that are older than eleven, there seems to be support for its accuracy similar, albeit somewhat less than, what is found in the adult research.

Polygraph has been shown to increase access to information that may be of interest to the clinical process and has even been able to challenge myths and assumptions of previous decades about a victim-offender cycle. Perhaps the conversation around polygraph could be informed by empirical research and data to take some of the emotion and opinion out of the conversation. In the event that polygraph does not add to the well-being of youth in treatment for sexual misconduct, it should be set aside as a relic of the past. On the other hand, in the event that polygraph does yield measurable benefits to youth in treatment for sexual offenses and their families, it should not be dismissed outright but used as one tool in the treatment process.

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## Examining The Impact Of Occupational Stress On Polygraph Examiners In The United States

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#### Abstract

Few researchers have focused on the impact occupational stress can have on polygraph examiners who conduct screening examinations with federal government polygraph programs. This lack of research has created a gap in the literature on occupational stress. This qualitative case study explored how 19 federally certified polygraph examiners, with experience in conducting screening examinations, conceptualized, and addressed issues related to occupational stress in their day-today work routine. The findings suggested that occupational stress does impact polygraph examiners to a certain extent. The extent of the impact of occupational stress is examiner dependent; meaning each polygraph examiner appraises the stress and decides when the stress is too much for them to handle. Occupational stress for polygraph examiners can also affect burnout, job satisfaction, and job performance in ways that can vary from examiner to examiner. Coping methods that polygraph examiners decide to use mitigate occupational stress is also examiner dependent. This study's findings promote positive change by bringing attention to the topic of occupational stress with the specific focus on polygraph examiners, providing polygraph examiners suggestions for positive coping methods, and potentially creating dialog between polygraph examiners and management officials to design and implement effective stress management and prevention programs.

Keywords: occupational stress, polygraph examiner, burnout, job satisfaction, job performance, coping methods

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Occupational stress occurs when characteristics of the work environment adversely affect an individual's health and well-being (Beehr et al., 2003). Occupational stress and its effects can impact many people in the United States and countless countries around the world (Jacobs, 2019). It has become a global epidemic because of the adverse economic, social, and health outcomes it can cause. Many occupations have various levels of stress associated with the job requirements. Occupational stress can cause severe threats to employees' physical and mental health, primarily when workloads are demanding (Soteriades et al., 2019). Too much stress can create physical, psychological, and physiological issues (Jacobs, 2019). Different workplace hazards, like management issues, workplace harassment, and environmental conditions, are often sources of occupational stress (Soteriades et al., 2019). Employees can often cope with the stress and strain they experience and doing so does not impact their overall ability to function in their work roles. Occupational stress has been studied in many occupations; the focus has been on finding general themes

for causes of occupational stress in the general workforce (Nowrouzi et al., 2017). Many of the broad topics associated with occupational stress may not apply to the specific needs and requirements of professions like polygraph examiners.

Polygraph examiners have unique job requirements that are often not known to the general public (Krapohl & Shaw, 2015). Few occupations are based on knowing how to determine the truth versus a lie (Iacono & Ben-Shakhar, 2019). Polygraph examinations are widespread psychological tests used in law enforcement, national security, and employment screening around the world (Honts & Thurber, 2019). These examinations have been identified as one of the tools to help law enforcement officers with decision-making (Iacono & Ben-Shakhar, 2019). They can also help law enforcement officers and counterintelligence officers validate and verify information received during investigations (Iacono & Ben-Shakhar; Krapohl & Shaw, 2015). Results from the present study provided insights into the occupational stress polygraph examiners experience because of the everyday need for polygraph examinations.

The data collected in this project could be used to increase awareness concerning the occupational stress polygraph examiners experience and provide information for organizations on how to prevent occupational stress. Preventing occupational stress is supported through the availability and successful implementation of organization stress management programs (Havermans et al., 2018). Identifying coping mechanisms for occupational stress can also help organization leaders understand how employees process occupational stress (Zhang et al., 2019). Implementing stress management programs that include making work culture changes, offering training programs, and incorporating stress policies could help to prevent and avoid the adverse effects of occupational stress (Havermans et al., 2018).

#### Method

A qualitative single case study approach was used with federally certified polygraph examiners from the United States to identify the impact of occupational stress. In the present study, a segment of occupational stress was reviewed with a key focus on how occupational stress affects a specific career field through exploring and understanding the phenomena in the contexts in which it naturally occurs (see Heitner & Sherman, 2014). Polygraph examiners may experience occupational stress in ways similar to employees in other fields, which could lead to issues with burnout, job satisfaction, job performance, and coping methods. The following research question was addressed through this study: R1 How does occupational stress impact polygraph examiners in the United States?

#### Sample

The study sample comprised N=19 federally certified polygraph examiners. They were employed as federal polygraph examiners, either as independent contractors or government employees at the time of the study, were previously employed federal polygraph examiners, or were retired. All participants completed most of their polygraph work with a federal polygraph program in the United States. Eleven participants were male; eight were female. Fourteen were Caucasian American, three were Hispanic American, one was African American, and one was Asian American. The participants ranged in age from 30 to 75 years (m=56). Their years of experience ranged from 2.5 years to 44 years (m=16). Sixteen attended various NCCA-accredited schools, including the U.S. Army Military Police School, the Department of Defense Polygraph Institute, and the Defense Academy for Credibility Assessment. One participant attended the Central Intelligence Agency's polygraph school before it became a part of the Department of Defense Polygraph Institute, which is now NCCA (NCCA, 2017a). One participant went to the Munford School of Polygraph and fulfilled all requirements to be recognized as a federally certified polygraph examiner. One participant went to a polygraph training program accredited by the American Polygraph Association and fulfilled all requirements to be recognized as a federally certified polygraph examiner. All participants confirmed that they have worked in a federal government agency polygraph program and maintained their certification requirements under NCCA while working as a federal polygraph examiner. The participants' polygraph experience with conducting screening polygraph examinations ranged from 2.5 to 32 years, with a mean of 13 years.

#### **Data Collection**

An introductory email was sent to potential participants by the American Polygraph Association webmaster, who had access to the association's member list. Because of the precautions and guidelines associated with COVID-19, all interviews were conducted by telephone or Zoom. All participants were asked the same questions on concepts related to occupational stress.

#### Data Analysis and Results

The interview reports were organized into a question and response layout based on the interview script. The interview script contained 27 questions arranged into six categories: (a) demographic information, (b) participant explanation and experience with occupational stress, (c) participant explanation and experience with burnout, (d) participant description of the impact of occupational stress on job satisfaction, (e) participant explanation of the effects of occupational stress on job performance, and (f) participant experiences using coping methods and suggestions for coping strategies polygraph examiners can use. Each interview report reflected a standardized format based on the interview script, which aided analysis of the participants' responses.

## Findings

Polygraph, also called the psychophysiological detection of deception (PDD) or lie detection, is a field most participants felt the general public widely misunderstands because of Hollywood's cinematic portrayals. Bourke et al. (2015) explained that there is a certain mystique surrounding polygraph, but that there is nothing magical about it. Becoming a federally certified polygraph examiner requires completing the rigorous and academically challenging graduate-level PDD program, which involves completing a 520-hr comprehensive series of courses (NCCA, 2017b). Course completion is often followed by an internship at the individual's sponsoring agency. Detailing every aspect of the polygraph process, discussing the accuracy or effectiveness of polygraph, and explaining the various types of polygraph and techniques polygraph examiners administer is beyond the scope of this study and the study's findings.

Various techniques are employed depending on the type of examination administered. The specific testing area selected for this study was screening examinations conducted by federal government agencies. The particular testing area was chosen because of its use in preemployment screening of applicants for various federal government agency positions. Honts (1994) stated that the industrial application of PDD tests, when looking at just the numbers of examinations conducted, is far more important than the criminal justice applications. The exact numbers related to the industrial application of PDD tests versus the criminal justice applications of PDD tests for federal government agencies today have not been made available to include in this study. Based on the responses from many study participants who conduct both types of examinations, screening polygraphs are administered at a higher rate than criminal polygraph examinations in their respective agencies.

Police officers' work environments have many occupational and organizational stressors and

exposures that can lead to developing mental health disorders (Purba & Demou, 2019). According to academic researchers, policy practitioners, health care professionals, and psychologists, policing is one of the most stressful occupations because officers are exposed to stressful situations in higher frequencies than people in other professions (Purba & Demou). Many of the present study's participants had previously worked as law enforcement officers or were currently working as law enforcement officers and polygraph examiners. There was no specific focus on comparing or contrasting a polygraph examiner's work versus a law enforcement officer's job in this study. The participants knew the study focus was on conducting screening polygraph examinations even though many of them also conduct criminal polygraph examinations. Some participants did compare their work as polygraph examiners in a screening polygraph program to their work in a criminal-specific polygraph program. A very minimal connection was made between stress levels experienced in both programs. The association was solely based on the importance of polygraph examiners' decisions and the stress associated with hearing detailed information in child sexual assault or abuse cases. Any further analysis of this connection goes beyond this study's findings.

Several participants expressed concerns regarding a layperson's misunderstanding of polygraph. Within this context, examiners conveyed certain stressors about the importance of polygraph-related decisions. Industrial uses of PDD, especially for federal government agencies, have particular significance because these tests determine who becomes employed and their security clearances (Honts, 1994). Polygraph examinations can also help law enforcement officers and counterintelligence officers validate and verify the information they receive during investigations (Iacono & Ben-Shakhar, 2019). Many participants referred to this by expanding on the importance of their decisions as related to "life or death." Significant importance is still placed on the decisions polygraph examiners make concerning the outcomes of the examinations they administer.

Polygraph is a useful interviewing tool in obtaining confessions and acquiring important information (Bourke et al., 2015). Eliciting information throughout the interview process is a requirement of the job. Depending on the type of polygraph administered, there are specific areas of focus that polygraph examiners discuss with examinees. Many of the participants addressed concerns about the impact that information elicited outside of a screening examination's focus area has had on them, with the most frequent reference being information related to the sexual abuse of a child. Many participants referred to the elicited information as the dark side of humanity.

Bourke et al. (2015) identified sexual abuse as one of the worst crimes a person can commit. Sexual crimes are often acts committed in secrecy and using denial as a defense tactic can allow individuals a place of psychological refuge (Nunes & Jung, 2013). It is almost impossible for some offenders to hide their acts of secrecy because carrying the burden of their actions becomes extremely tiring (Bourke et al., 2015). Even though they are trained on how to elicit all the offense elements, hearing this information can have a long-lasting impact on polygraph examiners, especially for examiners who have children around the same age of the victim. Researchers have found that occupations like mental health professions, requiring work that regularly demands empathy, dealing with negative emotions, or suppressing or regulating personal emotions, uniquely contribute to occupational stress (Zapf et al., 2001). One study participant explained the long-lasting impact of eliciting information from an examinee about the sexual abuse of a child and having to suppress personal emotions in such situations:

> Because there is one case in particular that I almost start crying every time I think about this kid. And I will never forget her. And I feel immensely guilty. For convincing this kid, that it was okay what he was doing to her. But that was my job. And the problem is that, with him, I had to convince him it was okay so he would tell me more. And then I sent him right back into the house with this little girl thinking it was okay. And I don't think anything ever came of it. And if I said anything to law enforcement, I would lose my job. And then it becomes do I stand up for her individually or do I keep quiet for her and hopefully help more?

I think it's *[reporting procedures and* requirements| sorely lacking in terms of the kind of information that examiners are exposed to. And you are trained to get and you get it and you put yourself in a position where you're scarred by it and then you put yourself in a position where you feel like you're enabling it. And then nothing happens as a result because of bureaucratic BS. And that's because they don't want to get involved. So then why am I putting myself through this? Why did I just convince this kid that it's okay what he's doing? Because now, at this point, he's not going to get the job. But nothing else is going to happen to him. And maybe he just doubled down on the girl because I said it's okay. Not those specific words, but, I mean, that's kind of the feeling that we leave them with.

That case is going to bother me for the rest of my life. It just seems like in your efforts to save the world, for lack of a better way to say it, you get nothing but negativity back. And I think that's why I wanted to talk to you. Was because *I* think it's hugely important that both *management and the government start* to recognize what they're putting us through, but also if we can get a little bit of "Hey, we're human, too" out there instead of us being the bad guys. This is just my albatross and something that I have to carry with me as the price I pay for being willing to do this thing that not a lot of people are willing to do.

Similar to the work of mental health professionals, health care professionals, and law enforcement officials, polygraph examiners encounter situations where they must carry out procedures, make decisions that will impact the individual's life, and be concerned about retribution, which many other professions do not have to be concerned with (Lloyd & King, 2001).

#### **Occupational Stress**

How the study participants defined occupational stress related to the work they do differed very little from how it is defined in other professions. According to Beehr et al. (2003), occupational stress occurs when characteristics of the work environment adversely affect an individual's health and well-being. Based on the participants' responses, occupational stress is stress created from the job requirements that produce changes in the polygraph examiner's overall well-being. This definition corresponds with the definition described by Beehr et al.

All of the participants agreed that polygraph examiners experience occupational stress. The amount of stress depends on how the individual examiner perceives the stress. Many participants viewed polygraph with an "all or nothing" attitude. The premise for this attitude for many participants was that every polygraph examiner knows there is a level of stress associated with administering a polygraph and, as one participant said, "You either accept it or find a different job." There are inherent aspects of the polygraph process geared to creating some level of stress in examiners, which is why many participants agreed that all stress is not bad stress when looking at the work polygraph examiners perform.

#### Stressors

Stressors have been characterized as objective conditions employees experience in their psychosocial and physical environments that represent the external forces or situations acting on them (Israel et al., 1996; Wickramasinghe, 2010). Some of the stressors participants described were mainly associated with external forces or situations acting on them. The stressors that fit this category were demands of the job, pressures from supervisors or QC, and outside pressures. Purba and Demou (2019) suggested similar organizational stressors, including lack of support, heavy workload, interpersonal conflict, inadequate resources, time pressures, and overly bureaucratic organizational systems, as the most significant sources of stress for police officers.

Many participants identified the number of screening examinations they had to complete as a key aspect in the demands of the job stressor. The average schedule for those conducting screening examinations is two examinations a day, 4 to 5 days a week. The examinations are scheduled back-to-back, and a break between each examination may not be available. Many of these examinations can last up to 4 hours. Following each examination, the examiner must address administrative aspects like com-

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pleting reports, briefing management or other departments, and rescheduling examinees. An average day for a polygraph examiner working in a screening environment, according to many participants, could be between 10-12 hours. Organizational stressors are suggested to be the most significant source of stress for police officers because they view these stressors as oppressive, unnecessary, unavoidable, and uncontrollable, resulting in a lack of job autonomy and lack of control over employment circumstances (Purba & Demou, 2019; Tsai et al., 2018). These organizational stressors are outside of a polygraph examiner's control and create a great deal of stress similar to what is seen in police officers.

Occupational stress can occur when there is an imbalance between the worker's perceived demand and perceived capability, creating a discrepancy between the worker's expectations and the experienced reality of the work situation (Reid, 1993). Kornhauser (1965) found a direct link between poor mental health and unpleasant work conditions, the expectation to work faster and expend a lot of physical effort, and inconvenient and excessive work hours. A mismatch between the worker and the work environment can lead to the worker experiencing occupational stress. As described by most participants, these stressors often create adverse effects for polygraph examiners such as decreased work-life balance, lack of focus, increased burnout rates, and poor overall health.

Some of the stressors participants described were a combination of being self-created and pressures from outside. Examples of these stressors were the need to do a good job and the examination results. Police officers in Purba and Demou (2019) identified similar stressors when responding to the daily activities in their work. Police officers are always scrutinized through societal and political expectations, often resulting in more stress being placed on officers to respond effectively and appropriately (Purba & Demou). The need to do a good job and the examination results are often interconnected because of the importance placed on the decisions polygraph examiners make. Many participants summarized it as the gatekeeper perspective. One said, "For U.S. government polygraph examiners, they are considered the last line of defense against

bad people coming into the government, and there is an expectation that they will catch every single bad person." To a certain extent, polygraph examiners do not control examination results as the examiners do not make the final decisions. Final decisions about polygraph examinations are made by supervisors, QC officers, or quality assurance (QA) officers. These individuals expect polygraph examiners to do a good job in the room, collect good charts, analyze the charts to make an initial "good call," and elicit information so that the OC or OA can make the final decision. These expectations can create stressors because the polygraph examiner may disagree with QC or QA decisions, but QC or QA ultimately makes the final decision.

When participants were questioned about what creates occupational stress for polygraph examiners, the answers were almost identical to their responses about the stressors polygraph examiners experience. The similarities in responses furthered the discussion on stressors by providing more specific detail on how program requirements or demands of the job, the need to do a good job, and QC and upper management pressures create occupational stress for polygraph examiners and how the challenge-stressor model can also be applied to understanding the impacts of occupational stress on polygraph examiners.

#### Challenge-Hindrance Stressor Model

Stressors can have varying impacts on the amount of occupational stress workers experience (Gerber et al., 2020). Previous research findings support the notion that not all work stressors are equally harmful (French et al., 2019). The present study's findings support previous findings as many participants explained that not all the work stressors they identified were equally harmful. What one polygraph examiner might view as harmful, another examiner might consider as motivating.

When discussing the stressors, participants were asked to identify the stressors as challenge or hindrance stressors. Through a cognitive appraisal process, any demand can be categorized as either a challenge or hindrance depending on the individual's appraisal processes (Schmitt et al., 2015). To aid in the cognitive appraisal process, each participant was given the same general explanation of a challenge stressor and a hindrance stressor. Using the general explanations, participants reflected on their own experiences with the stressors or reflected on how they thought other polygraph examiners would consider the stressors to determine if the stressor was a challenge or hindrance stressor.

Similar to the empirical evidence that support the distinction between challenge and hindrance stressors, the present study's findings support that although challenge and hindrance stressors can both produce strain, challenge stressors can also produce positive attitudes and emotions that offset the strain's negative effects and create positive outcomes for employees (Rosen et al., 2020). In the present study, challenge stressors were more frequently associated with the stressors identified as demands of the job, need to do a good job, and outside pressures. Participants who described the need to do a good job as a challenge stressor explained that even though learning the job can be a challenge, once the job is learned, people begin to thrive on the challenge and become better polygraph examiners. Many participants explained that challenge stressors motivated them to always want to do a good job and get things right as they relate to the overall polygraph process.

Hindrance stressors interfere with or prevent growth and accomplishments (French et al., 2019; Rosen et al., 2020) and can be demotivating forces (Cooke et al., 2019). For many participants, hindrance stressors were more frequently associated with the stressors identified as supervisor and/or QC pressures, outside pressures, and demands of the job. Many participants viewed hindrance stressors as demotivating forces. Participants who reported hindrance stressors associated little to no positive outcomes with the strain produced from these stressors. Many participants viewed the interactions with supervisors and/ or QC as demotivating forces because all of the polygraph examiner's work is immediately reviewed, and feedback is given. Supervisors and QCs who routinely give negative feedback on a polygraph examiner's work, especially when the feedback is contrary to polygraph training or it leads to negative working relationships, demotivate the examiner. Polygraph

examiners' performance evaluations are often associated with the quality of work they produce. Examiners are usually evaluated by their immediate supervisors, who can also be the examiner's QC.

Many participants who identified supervisor and/or QC pressures as a hindrance stressor discussed this stressor's impact on the work relationship between polygraph examiners and supervisors/QC. Many participants explained that a negative relationship based on distrust and feelings of dislike for the supervisor/QC could develop because of personality clashes, disagreement in making calls, and distrust in the supervisor/QC's abilities. In role theory, when expected behaviors are inconsistent, workers will experience stress, become dissatisfied, and perform at lower levels than if there is no conflict in the expectations imposed on them (Burke, 1976). Many participants advised that the supervisor/QC can directly impact examination outcomes because the supervisor/QC makes final decisions on all polygraph examinations. Participants explained that when polygraph examiners have a choice, they will work with the QC who closely aligns with them when making calls. Many participants who viewed supervisor and/or QC pressures, outside pressures, and demands of the job as hindrance stressors related them back to the impact these stressors can have on examiners' performance evaluations.

#### Impact of Occupational Stress on Polygraph Examiners

Stressful workplace events can have positive and negative benefits (McGowan et al., 2006). If stress is negotiated correctly, it can be energizing, stimulating, lead to growth in the individual's abilities, and create new accomplishments (Quick et al., 1990). According to Ryland and Greenfeld (1991), if stress is negotiated incorrectly, it can impair workplace performance. The interaction between challenge and hindrance stressors can be used to understand how occupational stress impacts polygraph examiners and their ability to conduct polygraph examinations. This interaction suggests that challenge stressors produce beneficial effects on worker well-being and hindrance stressors produce more negative effects on well- being (French et al., 2019). Challenge stressors are viewed as the fundamental characteristics of personal growth, and hindrance stressors are viewed as obstacles preventing employees from accomplishing targeted goals (Tufail et al., 2019).

Most participants believed that polygraph examiners want to do a good job and conduct a fair test for every examinee, which are the challenge stressors that produce positive personal challenges. Many participants viewed the need to do a good job as a positive personal challenge because this stressor motivates them to stay focused and provide every examinee a fair test. When polygraph examiners are motivated to do a good job, they also go the extra mile when facing challenges in examinations such as getting inconclusive results and working through until a conclusive result or an admission is obtained. One participant said she believes many polygraph examiners are "Type A and take it personally when they do not reach goals set before them." Once the goal is obtained, many participants spoke of the feelings of personal victory, meaning they had confidence in their abilities and knew their job. The personal attachment to success for polygraph examiners is an example of the fundamental characteristics of growth and beneficial effects on worker well-being that challenge stressors produce. The relevance of conducting a fair test relates to Bourke et al.'s (2015) and Honts's (1994) explanations of the significance placed on polygraph as an effective interviewing tool and the importance stakeholders or agency officials place on the outcomes.

When polygraph examiners are distracted by hindrance stressors such as supervisor and/ or QC pressures, outside pressures, and demands of the job, they lack focus. Hindrance stressors also impair their ability to conduct a fair test and show up as negative personal challenges. Many participants described not conducting fair tests as creating possibilities for people to slip through the cracks and potentially harm the U.S. government. Other participants viewed the inability to conduct a fair test as a negative personal challenge because these examiners may lack confidence in their abilities and could incorporate unethical practices. As one participant described it, polygraph examiners may "do things to create a response which is highly illegal, unprofessional, and will cost them their job." When hindrance

stressors impact polygraph examiners, these stressors produce more negative effects on well-being (French et al., 2019) through a lack of confidence in their knowledge, skills, and abilities and create obstacles that prevent the examiners from accomplishing targeted goals (Tufail et al., 2019).

The need to do a good job all the time and for every examinee can also be related to the beliefs surrounding perfectionism and personal responsibility for client welfare. These beliefs are common among therapists and can link to stress (Emery et al., 2009). According to Glickauf-Hughes and Mehlman (1995), counselors will often struggle with feelings of doubt and insecurities surrounding being good enough. Some participants in the present study stated that when an outcome is not successful, they take it personally and begin to question their abilities even when they know they did a good job and gave the examinee a fair test.

The interactive approach can also be applied to understand how occupational stress impacts polygraph examiners and their ability to conduct polygraph examinations. Using the interactive approach, researchers identified that people respond differently to stressors even when the work factors are the same (Ivancevich & Matteson, 1984). The present study's findings support the interactive approach because even though the participants have conducted screening polygraph examinations, their responses to the stressors were different, and the way they assumed most polygraph examiners would respond to stressors varied.

Proponents of the interactive perspective suggest that work environments are not inherently stressful (Ivancevich & Matteson, 1984). In their comments, many of the participants combined the demands of the job with the work environment because of the way most polygraph programs administering screening polygraphs are set up. When viewing work environments from this perspective, the findings support the concept that polygraph programs that focus on administering screening polygraphs are inherently stressful. It is the relationship between the person and the environment that creates stress (Ivancevich & Matteson). The findings support the perspective that the relationship between the person

and the environment creates stress for polygraph examiners. How each polygraph examiner appraises the stressor will determine the stressor's impact on the examiner and his or her ability to conduct a polygraph examination.

#### Burnout

Burnout is one of the main concepts associated with occupational stress. The definition of burnout as it relates to the work polygraph examiners perform is slightly or not at all different than how burnout is defined in other professions. Based on the participants' comments, stress is created from the overall fatigue associated with doing a repetitive task for an excessive period of time with no break. This definition of burnout concurs with the popular theory of job burnout developed by Maslach et al. (2001), which defines burnout as a psychological syndrome that happens in response to prolonged interpersonal job stressors or a collection of negative consequences of chronic work stress.

All of the participants in the present study agreed that at some point in a polygraph examiner's career, he or she will experience some level of burnout. Burnout can be caused by various stressors and impact polygraph examiners in different ways. Workload and office conflicts were the two main stressors the participants identified as creating burnout for polygraph examiners, especially examiners working in screening polygraph programs.

Demands associated with workload include the number of screening examinations conducted each day, the expectation to elicit information, completing administrative tasks like writing reports and scheduling participants, and no variety in the type of examinations. Many participants stated that the rigorous schedule of conducting two screening polygraph examinations a day without a break causes stress and leads to burnout. One participant described it as "In the rush to do two a day where you have to have a file or case ready to be able to deal with somebody totally new and still perform the same job to the same quality standard that it needs to be can be demanding." When polygraph examiners experience workload-related burnout, most participants identified it as examiners simply going through the motions of doing the job. Simply going through the motions of doing the job relates to what Jeung et al. (2018) described as a state of emotional depletion and or exhaustion that is dysfunctional. The polygraph examiner lacks passion and motivation to complete the job.

When the polygraph examiner is just following a script, not going the extra mile, and viewing each examinee as just a number and not an individual, it is similar to the characteristics of burnout that Simionato and Simpson (2018) described as harmful feelings or attitudes regarding job tasks and a decreased sense of personal accomplishment about work successes.

Office conflicts are stressors associated with polygraph examiner versus polygraph examiner conflicts and poor relationships with supervisors, management, and/or QC. Prolonged exposure to a stressful work environment created by burnout symptoms can produce a negative emotional response to one's job (Jeung et al., 2018). Suffering can be created due to these office conflicts and the negative emotional responses to one's job.

Suffering can be created by events inside the workplace such as ineffective organizational policies and procedures, harsh treatment from supervisors, and the inability to have a good relationship with coworkers (Aboul-Ela, 2017). Suffering can be a cause of stress and can produce absenteeism, lower job performance, burnout, and job dissatisfaction, which can lead to higher financial costs for organizations (Aboul-Ela). Many participants explained that polygraph examiners may begin to compare themselves to other polygraph examiners doing the same task and question why they are not obtaining the accolades, promotions, or additional jobs, which can lead to burnout. Many participants related the creation of the competitive environment to institutional factors such as poor relationships with supervisors, management, and/or QC, favoritism, and performance evaluations. One participant explained that "If you don't feel you're performing well or as well as your colleagues, that certainly can be discouraging and contribute to the burnout."

Most of the participants who gave examples of personal experiences with burnout while in a screening polygraph program identified burnout as the primary burnout cause. The job's repetitiveness can cause increased fatigue levels, cynical attitudes, and feelings of not being appreciated. Institutional or organizational factors such as lack of autonomy, limited opportunities for promotion, or lack of appreciation or rewards systems, can also contribute to burnout (Galek et al., 2011). When burnout became an issue, many participants said they left the organization and went to another organization or they found a position outside of polygraph in the same organization.

Burnout can have negative effects on polygraph examiners similar to what has been found with police officers. In police officers, exposure to stress can lead to burnout, resulting in distracted officers, higher rates of work-related injuries, absenteeism, and early retirement (Salinas & Webb, 2018). The primary impact of burnout, as described by participants, was polygraph examiners not doing a good job, a finding similar to Salinas and Webb. Not doing a good job as a polygraph examiner shows up as not going the extra mile, cutting corners or engaging in unethical behaviors, and a desire to leave the polygraph program.

As previously noted, polygraph examiners' work is essential and can have long-lasting impacts on examinees and federal government agencies. Participants said that the main way burnout is displayed is when polygraph examiners do not go the extra mile, which requires putting in the extra effort to collect good charts, sifting through examinees' concerns, thoroughly explaining questions, or eliciting information for an admission. Cutting corners or engaging in unethical behaviors often show up as polygraph examiners trying to speed up the examination or manipulating charts to force outcomes. Failure to go the extra mile, cutting corners, or engaging in unethical behaviors can have detrimental effects on federal agencies because, as one participant said, "Someone could get through a polygraph examination who should not have."

Many participants stated that burnout could be displayed by high turnover in screening polygraph programs. Some participants related the desire to leave the polygraph program to the stress associated with rigorous schedules, lack of variety, and job demands in screening programs. Many participants said that high turnover in screening polygraph programs also impacts organizations. Burnout attributes that impact organizations include decreased work quality, lower client or customer satisfaction, and higher professional development needs as well as increases in employee turnover, absenteeism, and job termination (Jeung et al., 2018; Johnstone et al., 2016; Wang et al., 2017). Many federal screening polygraph programs require contractual agreements of up to 5 years for new polygraph examiners. Many participants identified the expectation for polygraph examiners to remain in their positions in federal screening programs as 2 to 4 years. According to some participants, most polygraph examiners in federal screening polygraph programs do not get the swing of things until after the first 2 years at least. Some participants said that many new polygraph examiners do not make it past the first 2 to 3 years before requesting to leave the program because of burnout. High turnover rates could mean more new polygraph examiners replacing experienced polygraph examiners, which could create an experience gap for many federal screening polygraph programs.

Many participants said that burnout could often be mitigated by providing polygraph examiners the ability to conduct a variety of polygraph examinations, travel, or placement in other positions in the polygraph program such as QC, supervision, scheduling, training, etc. For most participants, having a variety of options available is a way to break up the repetition and monotony they associate with conducting screening polygraph examinations. Taking a break from a schedule of repetitive and rigorous screening polygraph examinations can allow polygraph examiners the ability to recharge and potentially diversify their career experiences.

#### Job Performance and Job Satisfaction

Many participants associated job performance with job satisfaction when describing occupational stress's impact on polygraph examiners. Job performance is defined as employees' actions and behaviors in their work roles and responsibilities that add to organizational goals (Safarpour et al., 2018). Job satisfaction is described through the job characteristics model which explains employees experience job satisfaction because they perceive their work to be meaningful (Allan et al., 2018). When participants viewed occupational stress as a motivator, meaning that polygraph examiners have high confidence levels, obtain good admissions, and feel like they are part of something greater, they described the potential for high job satisfaction and job performance levels. When participants viewed occupational stress as an obstacle, meaning that polygraph examiners have low confidence levels, fail to obtain good admissions, and do not feel like they are part of something greater, they described the potential for lower job satisfaction and job performance. These findings support findings from Judge et al. (2001), who found that job satisfaction and job performance were at least moderately correlated. These findings also support Allan et al.'s (2018) conclusions that occupational stress can lead to job dissatisfaction and lower job performance.

When focused solely on job performance, the findings also support Cavanaugh et al. (2000), who found that challenge stressors were positively associated with job performance and hindrance stressors were negatively associated with job performance. Participants in the present study explained that when polygraph examiners feel confident in their jobs, they know they executed the job well, and feel a sense of accomplishment in supporting the overall agency's mission, challenge stressors lead to higher job performance. When examiners experience occupational stress because of hindrance stressors like supervisor or QC pressures, outside pressures, and job demands, these hindrance stressors lead to lower job performance. This said, Schat and Frone (2011) stated that Cavanaugh et al.'s research did not provide information on whether all potential challenge and hindrance stressors related to job performance or whether aggregate relationships were driven by a small set of specific stressors because only aggregate measures of challenge and hindrance stressors were used. As Schat and Frone noted, more research is needed on whether all potential challenge and hindrance stressors relate to job performance or whether a small set of specific stressors drive these aggregate relationships.

#### **Coping Methods**

Occupational stress has been identified as a disruptive phenomenon because of its many manifestations (Dillenburger, 2004). Occupational stress can manifest through distressed behavioral patterns in three areas: motor behavior, emotional behavior, and physical health (Dillenburger). According to many participants in the present study, polygraph examiners may experience distressed behavioral patterns because of how they interpret the level of occupational stress they experience. Examples of distressed motor behaviors are overindulgence, accidents, emotional withdrawal, or poor relationships. Examples of distressed emotional behaviors include tiredness, anxiety, boredom, depression, or low self-esteem. Headaches, poor sleep, indigestion, dizziness, and trembling are examples of distressing physical health behaviors (Dillenburger). When responding to questions concerning how occupational stress, burnout, job performance, and job satisfaction can impact polygraph examiners, many participants described experiences, either personal or observed from others, that detailed how distressed behavioral patterns manifested because of experiencing occupational stress.

Applying Lazarus and Folkman's (1984) transactional model of stress and coping, coincides with the present study's findings, particularly when participants addressed experiencing stress at work, coping methods, and how they chose the coping methods that work best for them. This model holds that people complete situational appraisals of stressors and determine the best way to handle the outcomes through using various coping methods (Morris & Long, 2002). Research on problems associated with burnout and organizational and occupational stress has shown that people master complex stressful situations with coping and defense mechanisms (Fedorenko et al., 2020). Most participants in the present study said they had experienced stress at work as a polygraph examiner. They identified the various coping methods that worked best for them, depending on the amount of stress experienced and resource availability. They also

provided recommendations for coping methods that other polygraph examiners can use when experiencing occupational stress.

Many participants agreed that appropriate coping methods for polygraph examiners would vary as each examiner must decide what works best for him or her. People choose how to master complex stressful situations by determining which coping method is most appropriate to the situation's requirements and individual characteristics (Fedorenko et al., 2020). Speaking with other polygraph examiners that they trusted and physical exercise were the two most frequently used and recommended coping methods among study participants.

Many participants viewed these coping methods as a "great release." Being able to talk with other polygraph examiners that they trust allows them to check in, decompress, or vent about cases, because, as one participant said, "Only someone in the same field would understand exactly what you go through." Many participants also explained that speaking with trusted coworkers allows them to gain feedback and learn about additional tools or best practices on handling various aspects of the polygraph process that they might not obtain through formal feedback or training sessions. As one participant said, physical exercise helps to "deflate the anxiety and stress" that happened during that day. These findings support Gutshall et al. (2017), who studied the effects of occupational stress on police officers' cognitive performance and recommended that having a physical exercise routine and keeping open communication with colleagues can prove beneficial in the long run.

Many participants also identified spending time with their families as a way to cope with occupational stress. Spending time with their families gave many participants an outlet where they could recharge and decompress from the stress experienced that day. Some participants recommended that polygraph examiners take a break from work by using their leave, engaging in hobbies, or shutting off from work at the end of each day to recharge and decompress so they can have a fresh outlook when they return to work.

Purba and Demou (2019) found that police officers create individual coping mechanisms that allow them to cope and accept stressful situations as natural requirements of their job. Many of the present study's participants, just like police officers, described creating individual methods that helped them cope with the inherent stress that comes as a natural part of being a polygraph examiner. Through the process of coping and accepting stressful situations as a natural requirement of the job, police officers become more resilient to stress than those not working in the profession (Purba & Demou). These findings support similar experiences among the study participants who incorporated coping and accepting stressful situations as a natural part of the job.

### Implications for Theory and/or Practice

There is evidence from the study participants that occupational stress does impact polygraph examiners in federal government agencies that conduct screening polygraph examinations. The extent of the impact varies from individual to individual. The amount of occupational stress that one polygraph examiner can handle may not be the same amount that another polygraph examiner can handle. The appraisal of the occupational stressor, especially when analyzing the stressor as a challenge or hindrance stressor, could lead polygraph examiners to have concerns with job satisfaction, job performance, and burnout. Many polygraph examiners use coping methods to handle the distressing behavioral patterns produced from occupational stress. The most frequently used and recommended coping methods were physical exercise and speaking with other trusted polygraph examiners.

It is impossible to completely remove all of the stress associated with the overall polygraph process, just like it is impossible to completely remove all stress from one's life (Richardson & Rothstein, 2008). More information on the occupational stress experienced by polygraph examiners and available coping methods should be made accessible to polygraph examiners at all levels. Preventing occupational stress is supported through the availability and successful implementation of organizational stress management and prevention programs (Havermans et al., 2018). People can learn to manage stress through stress management training programs, which often focus on reducing work-related stressors or teaching workers how to decrease the adverse outcomes of exposure to the stressors (Richardson & Rothstein, 2008).

Implementing a stress management program that includes making work culture changes, training programs, and incorporating a stress policy could potentially prevent occupational stress for polygraph examiners and help them avoid the harmful effects of occupational stress (see Havermans et al., 2018). Polygraph training programs could incorporate training blocks that focus on polygraph examiners' stress and offer recommendations that new polygraph examiners can use to cope with any stress they may experience. Continuing education courses that focus on polygraph examiners' stress and offer recommendations that polygraph examiners can use to cope with any stress they may experience could also be developed.

Identifying coping strategies for occupational stress can help organizations understand how employees process occupational stress (Zhang et al., 2019). Beneficial effects of stress reduction in employees can include increases in job satisfaction and job performance and increases in resilience and social relationships at work (Pang & Ruch, 2019). Polygraph program managers should incorporate stress management programs that outline occupational stress and burnout, steps to take to create a plan of action to address the issues causing the stress, and resources for coping strategies. Many of the present study's participants explained that polygraph is a profession with inherent stress just from the nature of the job. According to most participants, many polygraph examiners deal with occupational stress in harmful ways like increased alcohol consumption, illegal drug use, engaging in inappropriate behaviors in the office, or in distressed behavioral patterns. Engaging in these activities, in many

participants' opinions, has adverse effects on the overall health of polygraph examiners. According to Kaplan (1990) and Hobson and Delunas (2001), attention must be given to behavioral patterns of ill health because the life expectancy of individuals exposed to stressful events could be reduced, their quality of life decreased, or a combination of the two may be experienced. Management must establish mitigation protocols to ensure that polygraph examiners know how to identify and cope with this inherent stress.

Knowing how to detect early warning signs of occupational stress is essential for creating and implementing stress management and prevention programs specific to polygraph examiners. More research is needed on how occupational stress impacts polygraph examiners as little to no research was conducted on this topic before this study. Additional research will add to the literature on occupational stress and create literature specific to polygraph examiners on this topic, as has been done with other professions.

## Conclusion

There is evidence from this study that occupational stress does impact polygraph examiners in federal government agencies that conduct screening polygraph examinations. The extent of the impact varies from individual to individual. Appraisal of occupational stress, especially when analyzing stressors as challenges or hindrances, can result in issues with job satisfaction, job performance, and burnout. Many polygraph examiners use coping methods that allow them to handle distressing behavioral patterns produced from experiencing occupational stress. The most frequently used and recommended coping strategies were physical exercise and speaking with other polygraph examiners.

Occupational stress's effects on polygraph examiners had not been extensively studied before this study. More studies should be conducted to add to the bodies of research on occupational stress and the polygraph field. The results developed from this study can be used to improve and create policies, procedures, and training regarding occupational stress and stress management and prevention

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programs. Scholars and practitioners can also use the results as foundational data regarding the impact of occupational stress on polygraph examiners.



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## Posterior Odds of Deception and Truth Telling for Low and High Prior Probabilities

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#### Abstract

This project is an illustration of two important concepts in Bayesian Analysis: 1) the prior probability or prior odds, and 2) the posterior probability or posterior odds. We demonstrate that for any probabilistic test result, the actual, or practical, posterior likelihood of deception or truth telling will vary in mathematically predictable ways in response to the prior probability (e.g., base-rate). Results are shown for a distribution of prior odds from 1 in 10 to 9 in 10 using Bayes Factor (i.e., the posterior odds under the equal prior) as a likelihood function to calculate the Bayesian posterior conditional odds of deception or truth-telling. Results show that for any polygraph test score the posterior odds of deception are higher than expected when the prior probability is high, and they are lower than expected when the prior probability is low.

Keywords: polygraph, prior probability, Bayes factor, posterior positive predictive odds, posterior negative predictive odds, base rate

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#### **Prior Probability (Base Rate)**

Prior probability, often stated more simply as *prior*, refers to strength of information before testing and analysis are completed. In other words, what is known about the strength of information available to support the different possible conclusions before testing is completed?

There are a number of ways to obtain and quantify prior information. One such way is to use base rate or incidence rate. Incidence rates, or base rates, describe what is known about the proportion of a testing group or population that has been previously observed to exhibit or possess a phenomenon of interest (Raskin, 1986). In the polygraph context the incidence rate is the proportion of other persons who have engaged in the behavior of interest. When doing so, we take the incidence rate for the group to use as a prior probability when testing any individual. Using the base rate as the prior, we can refer to the estimate as the prior base rate. And the incidence rates of guilt and innocence are complimentary. For example, if the base rate of guilt is 10%, the base rate of innocence is 90%. With base rate of guilt of 20 %, the base rate of innocence would be 80%, and so on.<sup>1</sup>

When conducting screening polygraphs on the topic of sexual re-offense for a convicted person in treatment and on probation in the community, we could think of the prior probability as the proportion of other similar persons who have actually engaged in the problem behavior of interest. If we tested a group of similar persons, the prior base rate would be the proportion of persons who have been previously known to have engaged in a new sexual offense while in treatment and under supervision in the community. For most cases, this method of obtaining a prior estimate is satisfactory. However, for some high-risk persons, it may underestimate the prior probability of guilt. And, in the same way that all probabilities are estimates, all priors are estimates. The exact probability cannot be known, and for this reason, scientists can often be observed to discuss ranges of probabilities. This is done using confidence intervals in the frequentist paradigm, and with credible intervals in Bayesian analysis. Another Bayesian approach to the calculation and discussion of a range of statistical estimates is to calculate results using different possible prior estimates.

Prior information should, ideally, be objective. It is sometimes the case that little or no objective prior information is available to support the different possible conclusion. In these situations, testing can be completed under the equal prior, with the assumption that the strength of information to support different possible conclusions is objectively equal. The equal prior expressed is expressed as .5 in decimal form. The same value can be expressed as 50% by simply multiplying the value by 100 and adding the % sign. Probability information can also be expressed in the form of an odds by taking the probability (p) and dividing by (1-p). Odds are especially useful because they can express probability information using integers, similar to percentages, but have the added advantage that odds show explicitly that all probabilities are an expression of the strength of some possibility compared to the strength of some other possibility. The equal prior expressed as an odds is 1 to 1, which can also be expressed as 1 in 2. More explicitly, there is one chance the person has engaged in the behavior of interest or concern, to one chance they have not engaged in that behavior.

For example, if we were conducting a Post-Conviction Sex Offender Testing (PCSOT) polygraph test on denial of the instant offense, for which a person has been convicted and sentenced, the prior probability may be 50% or greater, depending on the allegations and legal charges. Objective information may also be used, when available, to estimate the prior. However, it is often the case that objective information is not readily available, and the



<sup>&</sup>lt;sup>1</sup> Another way to estimate a prior is to use our knowledge about accuracy and error rates from a previous test. In this paper we deal only with prior incidence rates.

prior information to support different possible conclusions can then be regarded as objectively equal. Of special interest here is the fact that the exact prior probability is often unknown. If we could somehow know the exact prior probability, we would often have no need for further testing. The practical point here is that the prior does not need to be exact but only reasonable. The goal of testing, and more specifically Bayesian analysis, is to update and improve the precision of our knowledge and information in support of the different possible conclusions.

An important point of interest and discussion is that polygraph examination targets can have prior probabilities that differ substantially from an equal prior. For example, the proportion of convicted persons who commit new sexual offenses while living in the community under supervision is currently thought to be low (see below). In this case, the equal prior may not be the optimal prior. In these situations – when the equal prior is not a reasonable or realistic prior – the resulting Bayesian posterior probabilities may be similarly unreasonable or unrealistic. It can also be the case that different methods of selecting or determining a prior probability can give very different information. For example: simply using known population recidivism rates as a prior may not be optimal for some high-risk individuals. A practical solution in these situations is sometimes to calculate and report Bayesian posterior results under multiple different possible prior probabilities.

#### Literature review for sexual reoffending

A literature review was conducted to locate studies that describe rates of sexual recidivism. Published studies suggest low rates of sexual reoffending among persons subject to supervision in the community. Zgoba, et al., (2012) provided estimates of recidivism of 5% at five years and 10% at ten years. Cohen & Spidell (2016) estimate the three-year recidivism rates for a sex offender arrested for any sex offense to be 2.8%. Seto, Hanson and Babchishin (2011) provided estimates of recidivism for online offenders committing any new sexual offense during a 1.5-to-6-year follow-up (4.6% any new sex offense, 2% for a contact offense, and 3.4% a new child pornography offense.) Seto and Eke (2005) reported on a survey of over 200 persons convicted of possession of child pornography and found 4% of them committed a known contact sex offense in a 2.5-year follow-up.

A 2003 Bureau of Justice Statistics (BJS) report published that in an 8.5-year follow-up of 9700 offenders, persons convicted of sex offenses had a 5.5% recidivism rate for a new contact offense. A United States Sentencing Commission Report to Congress in 2012, reported in a study of 610 persons convicted between 1999-2000 for non-production offenses, had a 3.6% recidivism rate for a sexual contact offense during a follow-up period that average 8.5 years. Researchers at the Federal Bureau of Prison Study (Faust, Renaud & Bickart, 2009) reported on a 3.8-year follow-up on a cohort of 870 mixed (production and non-production) offenders where they found 5.7% engaged in sexual recidivism. A Canadian study (Eke, Seto & Williams, 2011) involved 541 male offenders with an average follow-up time of 4.1 years and reported 11% engaged in sexual recidivism.

While there are, without doubt, other published data estimating sex offender recidivism, available information, as illustrated here, converges to suggest a recidivism rate in the range of 5 to 10%. Published estimates may underestimate the actual rate of reoffending, as they are primarily based on re-arrest and convictions. However, even if they underestimate reoffending rates by a factor of 100%, they suggest that sexual recidivism is a low frequency event for which both prediction and testing via polygraph, or other credibility assessment methods, will be scientifically and statistically complicated. In situations where the prior probability is close to the error or inconclusive rate, it can result in outcomes for which a substantial portion of observed positive test results are incorrect. Lower prior probabilities are associated with a higher false positive index (FPI: the ratio or proportion of false positive errors and all positive results), even when the rate of false-positive error is reasonably low. In practical terms it can easily result in observed outcomes in which approximately half of positive outcomes are incorrect. This is not to suggest there is no value in the polygraph testing at low base rates, as polygraph testing encourages information disclosures of previously unknown information (Grubin, D.,

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Kamenskov, M., Dwyer, R.G., & Stephenson, T., 2019).

#### **PCSOT Instant Offense testing target base** rate estimates

Polygraph testing of the Instant Offense refers to the investigation of the veracity of a person's denial of an offense for which they have been found guilty or have pleaded guilty in court. It is estimated that 90-95% of all criminal cases are resolved through a plea bargain (U.S. Department of Justice, 2011). And while it is preferable that the courts will enter a factual basis for all sexual offense convictions - in which the actual behavioral offense is stated in the courtroom and entered into the official record - it may unfortunately still occur in some jurisdictions that a person may enter into a plea bargain arrangement for a lessor, even non-sexual, crime without the establishment of the factual basis of the sexual offense. For these and other reasons, people are often referred for post-conviction sex offense specific mental/behavioral health treatment while denving having committed a sexual offense. Intuition suggests that persons who have been found guilty of or pleaded guilty to a sexual offense may have a higher than chance prior probability of guilt for these polygraph examinations.

#### **Incremental validity**

Test results are meant to add incremental validity to decision-making processes. Incremental validity refers to the notion that access to information, from testing or other sources, is thought to help professional decision-makers to make better (i.e., more correct, and less prone to error) decisions. If credibility assessment test results are scientifically valid – if they are capable of providing information that is associated with the criterion of interest to a degree that is in some way usable as a basis of information to support better decision-making, then the test results matter.

Field practice standards for both polygraph examiners and polygraph programs should be developed with this view. Polygraph practitioners should be warned against any assumption that the test result is of no value or little use. The alternative view, that test results themselves do not matter, or that test results of themselves are in no way useful or informative, suggests that the polygraph is not a scientific test and is merely an interrogation prop – for which any technology of questionable validity would suffice.

#### Base rate phenomenon

The base rate phenomenon refers to the impact the prior can have on the confidence one can place in the test result. This phenomenon applies to all forms of scientific testing and here we consider the impact on polygraph outcomes. David Raskin testified before the United States Senate Committee on Armed Services on these very concerns (Raskin, 1984). John Kircher and David Raskin have been discussing this under-appreciation of the base rate phenomenon or error in terms of outcome confidence for many years (Kircher & Raskin, 1987; Raskin, 1987). They have argued for educating polygraph examiners and the consumers about prior probabilities and the influence these can have on how much confidence can be placed in a test result.

Alternatively, the *base-rate fallacy* is the failure, or error on the part of professionals and others, to recognize and account for differences that prior base rates can have on the precision or accuracy of posterior classifications. And Raskin (1984; 1987) and Kircher & Raskin (1987) have been warning legislators and consumers of this fallacy for some time.

#### Posterior odds for an observed test result

The posterior odds for a test result can be thought of as the predictive odds that a positive categorical result (i.e., indicative of deception) or negative test result (indicative of truth-telling) is correct. Positive posterior odds (PPO) provide an estimate of the odds of deception for a given test score. Conversely, negative posterior odds (NPO) provide an estimate of the odds of truth telling for a given score<sup>2</sup>. A convenient and intuitive feature of Bayesian posterior odds, unlike frequentist p-values, is that they are intended to describe the practical meaning of the probabilistic information. Equally important, Bayesian posterior odds are complimentary. That is, the odds of truth-telling can be easily derived from the odds of deception, and vice versa. Posterior odds are calculated by mathematically/algebraically conditioning the prior odds with the test result in the form of Bayes Factor. Thus, posterior odds are said to be conditioned by the prior. Alternatively, the prior can be said to be conditioned or updated on the test data. When an exact prior cannot be identified, the test result be conditioned on a range of priors, resulting in a range of posterior results.

A simple way to calculate PPO or NPO is to use the multinomial tables published by Nelson et al. (2019) as a Bayes Factor for the distribution of possible test given scores . Bayes Factor provides a metric for the relative change in the strength of information, from prior to posterior, in support of a categorical conclusion. Bayes Factor is effectively the posterior odds when calculated under the equal prior and will be equal to the posterior whenever the prior is equal (50%.) Using the Bayes Factor as a likelihood function, posterior results for any test score can be easily calculated for any prior using Bayes theorem (Nelson, 2018).

#### **PPO Table**

Table 1 shows the PPO, calculated using Bayes' theorem, for test results for a range of grand total scores with lower than chance base rates of guilt. When reading Table 1, the left column shows a range of possible deceptive scores with extreme values omitted. Other columns represent a range of different priors. Column headers show the prior probability of guilt with prior odds of guilt in parentheses. The PPO can be seen in the in the row for each possible score using column for each different prior. For example, 0.5 would be a 50% prior probability of Guilt, with a complementary prior probability of 50% for innocence. This can be expressed as a prior odds of 1:1. At the other end we have .10, which is a 10% prior

probability of guilt and thus a corresponding 90% prior probability of innocence. This can also be expressed as a prior odds of guilt of 1:9 or a prior odds of innocence of 9 in 10. In other words, for each possible score, when the prior probability of guilt is .10, we expect that 1 out of 10 persons is expected to be actually guilty, while 9 of 10 are actually innocent.

 $<sup>^{3}</sup>$  Multinomial likelihood tables were calculated under the analytic theory of the polygraph – that greater changes in physiological activity are loaded at different types of test stimuli as a function of deception or truth telling in response to relevant target stimuli. Data are multinomial because polygraph examiners assign one of three possible values [+, 0, -] to each analysis spot.



<sup>&</sup>lt;sup>2</sup> PPO and NPO are used here as the Bayesian analogs for positive predictive value (PPV) and negative predictive value (NPV). Whereas PPV and NPV commonly imply the use of frequentist statistical methods, PPO and NPO are used to avoid confusion and to convey important differences in assumptions and procedures with Bayesian and frequentist analytic methods,

	.9	.8	.75	.67	.5	.33	.25	.2	.125	.1
	(9:1)	(4:1)	(3:1)	(2:1	(1:1)	(1:2)	(1:3)	(1:4)	(1:7)	(1:9)
Grand										
Total Score	Posterior Positive Predictive Odds						_			
-24	4668	2075	1556	1037	519	259	173	130	74	58
-23	3170	1409	1057	704	352	176	117	88	50	39
-22	2184	971	728	485	243	121	81	61	35	27
-21	1527	679	509	339	170	85	57	42	24	19
-20	1084	482	361	241	120	60	40	30	17	13
-19	779	346	260	173	87	43	29	22	12	9.6
-18	567	252	189	126	63	32	21	16	9	7
-17	419	186	140	93	47	23	16	12	6.6	5.2
-16	313	139	104	69	35	17	12	8.7	5	3.9
-15	236	105	79	53	26	13	8.8	6.6	3.8	2.9
-14	181	80	60	40	20	10	6.7	5	2.9	2.2
-13	139	62	46	31	15	7.7	5.2	3.9	2.2	1.7
-12	109	48	36	24	12	6	4	3	1.7	1.3
-11	85	38	28	19	9.5	4.7	3.2	2.4	1.4	1.1
-10	68	30	23	15	7.5	3.8	2.5	1.9	1.1	0.8
-9	54	24	18	12	6	3	2	1.5	0.9	0.7
-8	44	19	15	9.7	4.8	2.4	1.6	1.2	0.7	0.5
-7	35	16	12	7.9	3.9	2	1.3	1	0.6	0.4
-6	29	13	9.6	6.4	3.2	1.6	1.1	0.8	0.5	0.4
-5	24	10	7.8	5.2	2.6	1.3	0.9	0.7	0.4	0.3
-4	19	8.6	6.4	4.3	2.1	1.1	0.7	0.5	0.3	0.2
-3	16	7.1	5.3	3.5	1.8	0.9	0.6	0.4	0.3	0.2
-2	13	5.8	4.4	2.9	1.5	0.7	0.5	0.4	0.2	0.2
-1	11	4.8	3.6	2.4	1.2	0.6	0.4	0.3	0.2	0.1
0	9	4	3	2	1	0.5	0.3	0.3	0.1	0.1

Table 1. Prior Probability of Guilt at high and low prior rates of guilt (prior odds in parenthesis)

To use Table 1, simply locate the column for the prior, and select the row for the grand total score in the left column. The selected table cell shows the PPO.

#### Example of PPO with a low prior base rate

Working through an example, a person previously convicted of a sex offense is being tested for a new sexual offense, while subject to probation supervision (i.e., a PCSOT monitoring test). In this example, the examiner used a single-issue test, and the resulting Grand Total Score was a minus 10. If we were to assume that the person on probation is not among the highest risk level for convicted persons, and that the estimated risk level for this person was low to moderate, then published research suggests the prior probability of guilt to be about 5-10%, Using the 10% column in Table 1, the PPO of that person having committed a new offense, given the grand total score of -10 is 0.8 to 1 that they have actually committed a new sexual offense. Stated differently, the odds are about 1.25 to 1 (i.e., still greater than chance or 1:1) that they did not commit a new

sexual offense – even with a grand total score of -10 under the low prior base rate of 10%.

## Example of PPO with a high prior (base rate) target

Working through another example, a person who was convicted of a sex offense following a thorough police investigation denies ever engaging in that behavior, despite the conviction. That person's treatment and supervision team requests an Instant Offense polygraph test targeting the alleged behavior for which they were convicted. Because there was a thorough investigation and a court trial, the prior probability (prior odds) of this person having engaged in that behavior is likely higher than chance, 50% or 1:1. The examiner is using a single-issue test, and the resulting Grand Total Score was -6. If the assumption was that the prior probability of guilt was .75 (odd of 3:1), Table 1 shows the PPO for that test as 9.6 to 1 that they were deceptive during testing targeting the behavior of concern.

#### Conclusion

This project is an illustration of two important concepts in Bayesian Analysis: 1) the prior probability or prior odds, and 2) the posterior probability or posterior odds. We demonstrate that for any probabilistic test result, the actual, or practical, posterior likelihood of deception or truth telling will vary in mathematically predictable ways in response to the prior probability (e.g., base-rate). Results are shown for a distribution of prior odds from 1 in 10 to 9 in 10 using Bayes Factor (i.e., the posterior odds under the equal prior) as a likelihood function to calculate the Bayesian posterior conditional odds of deception or truth-telling. We show that for any polygraph test score the posterior odds of deception are higher than expected when the prior probability is high, and they are lower than expected when the prior probability is low.

Credibility assessment testing targets can have low or high prior probabilities of guilt for testing target behavior. Prior probabilities can have an important impact on the PPO - the strength of in-formation conveyed by a positive test result. Although not shown in Table 1, priors will have a similarly important impact on NPO. All scientific tests, and therefore all credibility assessment tests, are imperfect. This is because scientific tests of all types use statistics and probabilities to quantify phenomena of interest that cannot be subject to direct physical measurement. Scientific tests are not expected to be infallible but are only expected to quantify the level of confidence or margin of uncertainty that can be attributed to a conclusion. Polygraph test data analysis has advanced to the point at which we have theoretically grounded and evidence-based estimates of the practical strength of categorical test results. We can use these estimates to optimize our testing according to our strategic goals. And as illustrated above, base rates can have a profound effect on the PPO and NPO in test results.

Tables are a simple and convenient way of working with an array of results from complex

calculations. Prior to the widespread and inexpensive availability of powerful microcomputers, tables were a preferred method of ensuring that complex calculations were done correctly – reducing difficulties to the tasks of locating the correct table and understanding the table information. Indeed, availability and familiarity with books of mathematical and statistical tables were a necessary part of any scientific and research activities that involved mathematical and statistical calculations.

One of the authors (RN) has developed an Excel Spreadsheet that allows examiners to estimate posterior ODDS of deception and truth-telling (PPO and NPO) when using the Empirical Scoring System-Multinomial test data analysis system (Nelson, 2017). That full spread sheet contains a more complete set of calculations for both single issue and multiple issue polygraph exams, and may be downloaded from the APA website by clicking:

#### PPO NPO ESS Spreadsheet

Historically, a great deal of intellectual activity was devoted to the chores of calculating and making sure that tabular information was of sufficient precision. Today computers can be utilized to conduct complex calculations, including the calculation of tables. Tables are of such great convenience, that many computer algorithms will simply use table lookups instead of reproducing complex calculations for each individual case. An ability to automate complex, and potentially error-prone, manual tasks is an important advantage of computers today, and most professionals in most areas of scientific testing and data analysis today will prefer to automate their calculations after they have become reasonably familiar with the foundational conceptual processes.

In summary, when the prior probability of guilt is low, the NPO will be higher, and PPO will be lower. Conversely, when the prior probability of guilt is high, the PPO will be higher, and NPO will be lower. Although somewhat intuitive, it is neither possible nor reasonable to attempt to quantify the strength of the posterior information using intuition alone. Mathematical and statistical calculations – and reference tables – are an inevitable component of any scientific testing process. Field practitioners and trainers who neglect the challenge of familiarizing themselves with the use of these concepts and reference tables will themselves be guilty of the dubious choice of neglecting to advance their knowledge, skills, and practices with advancing technologies. Such a choice could inevitably bring unwanted ethical, economic, social, and practical consequences.

An ability to understand and calculate PPO and NPO is a necessary component of an adequately developed scientific credibility assessment test. A basic understanding of PPO and NPO is a nec-essary skill for all expert practitioners whose role is, in part, to convey the practical meaning of test results so that others can correctly understand and use them. Polygraph testing practices without these requisites and fundamentals, though perhaps highly useful as an interrogation prop, will be at risk for accusations of pseudo-scientific practice. And this can make them vulnerable to potential disruption when other methods of credibility assessment begin to offer test results supported by reasonable statistical inferences. An ability to easily calculate PPO and NPO for polygraph test results represents an advancement for both the science and field practice of polygraphic credibility assessment testing.

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## Model Policy for the Evaluation of Examinee Suitability for Polygraph Testing

## Approved September 4, 2021

## September 4, 2021

- 1. <u>Statement of purpose.</u> This Model Policy is intended to assist polygraph examiners, referring professionals, program managers, law enforcement agencies and governmental organizations to make decisions regarding the suitability of potential examinees to undergo polygraph testing which includes the pretest interview, data collection and data analysis. This policy is intended to protect examinees from undergoing examinations for which there is no potential benefit to themselves or their communities, and to avoid expenditure of resources for examinations that may not contribute to the goals of investigation, candidate screening, risk assessment or risk management processes.
- 2. <u>Scope of authority.</u> Examiners should be responsible for knowing and adhering to all legal and regulatory requirements. In the case of any conflict between the Model Policy and any legal or regulatory requirements, the legal or regulatory requirements prevail. Examiners who work in jurisdictions and programs without legal or regulatory requirements should refer to this Model Policy as a guide.
- 3. <u>Goals of testing.</u> Polygraph testing is a decision support tool intended to add incremental validity to investigative and evidentiary decisions, screening processes, risk assessment or risk management activities. Polygraph testing and polygraph test results are intended to obtain information and quantify the probabilistic likelihoods and/or margins of error associated with the classifications of deception or truth-telling. Polygraph testing and polygraph test results should not replace or supplant the need for professional decision making. Any or all of the following objectives should be considered a sufficient reason to complete polygraph testing:
  - 3.1. Increased disclosure of information;
  - 3.2. Increased deterrence of problems (e.g., non-compliance or unsuitable persons);
  - 3.3. Increased detection of involvement or non-involvement in problem behaviors or criminal activities.
- 4. <u>Examinee suitability</u>. Persons who are suitable to undergo polygraph testing should minimally meet the following requirements:
  - 4.1. Capacity to consent to the polygraph examination, as demonstrated by awareness and understanding of the context or reason for the examination referral.
  - 4.2. Possess a basic understanding of right from wrong, and the difference between truth and lies, as demonstrated by an ability to verbalize potential reasons for being honest or dishonest, and the potential rewards or consequences for dishonesty or truthfulness; and
  - 4.3. Maintain consistent orientation to date, time, and location, for example: being able to provide basic identifying information, (i.e., name, address, date, date of birth, etc.) to complete an authorization form.



- 5. <u>Unsuitability for polygraph.</u> Examiners should not conduct polygraph examinations on individuals determined to be unsuitable. In some cases it may be necessary to delay the test until the issues of unsuitability are resolved: Conditions that may preclude an examinee from suitability for polygraph testing include the following:
  - 5.1. Acute or active psychotic symptoms indicating a lack of contact with reality, such as unmanaged hallucinations or delusional thinking that will interfere with interactions or understanding during the test;
  - 5.2. Severe or profound intellectual disability or developmental disorder, as evident during the pre-test interview or determined through psychological assessment;
  - 5.3. Any diagnosed severe mental health condition with acute symptoms that would interfere with the examination;
  - 5.4. Severe injury or pain, or acute illness that would interfere with the examination; or
  - 5.5. Observable impairment due to the influence of drugs or intoxicants.
- 6. <u>Special populations.</u> Examiners should conduct all examinations in a manner that is sensitive to any medical, mental health or developmental issues that may affect an examinee's functioning or the quality of the examination data. There is no published research suggesting that any medical, mental health, or developmental issues will result in erroneous examination results. Ethical, professional, and empirical practices suggest that the application of normative data and normative interpretation rules to persons whose functional characteristics are outside the normal range should be regarded with caution.
  - 6.1. Medical. Persons with some acute or chronic medical/physical conditions may be regarded as marginally suitable for polygraph testing, at which times the test results should be accordingly qualified.
    - 6.1.1. Except as precluded by law or regulations, examiners should note in the examination report any diagnosed acute or chronic medical conditions. Medical conditions, including stable injuries, depending on their severity, do not necessarily preclude an individual from being suitable for polygraph testing, but accommodation may need to be made for them, and it may at times be advisable to delay polygraph testing until the prospective examinee's health has improved.
    - 6.1.2. Examiners should defer to medical professionals when determining the suitability of prospective examinees who are known to be pregnant. Examiners may require a statement or waiver from a physician, or other medical professional, attesting to the fact that the pregnancy is normal and uncomplicated with no expected reason why polygraph testing would interfere with the pregnancy. Examiners may delay polygraph testing of any individual determined to be experiencing a medically complicated or high-risk pregnancy.
  - 6.2. Medications. Consideration should be given to the effects of prescribed medication, and test results accordingly qualified and viewed with caution if necessary. Unless experiencing significant side effects, prescription medications will not usually impair the interpretable quality of the test. Medication effects, however, vary with the types and numbers of medication, dosages, length of time on medications, in addition to the individual's physiology. Some increase in inconclusive results may occur from some medications, but is should be noted that medications do not act differentially among



the polygraph test questions, and no known increase in decision errors has been reported associated with the use of medication.

- 6.2.1. Except as precluded by law or regulations, examiners should note in the examination report a list of the examinee's reported prescription medications, and any corresponding acute or general medical health conditions and side effects, including the absence of understanding of the reasons for a prescription medication.
- 6.2.2. Examiners should advise examinees who take prescriptions to take all prescription medications as prescribed by their medical or psychiatric provider.
- 6.3. Developmental. Persons with diagnosed developmental disorders should not be tested unless it can be reasonably expected that the goals of the program, investigation, agency, or individual can be met by the polygraph testing, and that the testing process will not jeopardize the health or safety of the examinee. Testing may proceed when these individuals are viewed as marginally suitable for polygraph testing, and test results should be accordingly qualified and viewed with caution.
  - 6.3.1. Examiners should determine suitability on a case-by-case basis for prospective examinees that have diagnosed developmental disorders, such as serious impairment in cognition, learning, language, communication, conceptual functioning, or temporal/organization deficits.
  - 6.3.2. Memory impairment. Individuals with severe memory impairment caused by dementia, brain injury or other conditions may not be suitable for testing depending on the severity and extent of impairment.

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## Model Policy for Post-conviction Sex Offender Testing September 2021

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- 1. <u>Model Policy</u>. This Model Policy is a description of recommended best-practices for polygraph professionals who engage in Post-Conviction Sex Offender Testing (PCSOT) activities. It is intended to provide a basis for local programs to develop or update their PCSOT policies. However, it does not address all aspects of PCSOT activities or policy implementation at the local level.
  - 1.1. <u>Compliance and local authority</u>. Examiners should acquaint themselves with and adhere to all legal and regulatory requirements of their local jurisdictions. In case of conflict between the Model Policy and local requirements, policies or legislation, local procedures should take precedence.
    - 1.1.1. <u>Compliance with this Model Policy</u>. Examiners whose work varies from the recommendations of this Model Policy should be prepared to provide justification for doing so.
    - 1.1.2. <u>Compliance with professional standards</u>. Unless prohibited by law, regulation or agency policy, all members of the American Polygraph Association (APA) shall comply with the APA Standards of Practice.
  - 1.2. <u>Periodic review</u>. This Model Policy will be reviewed and amended periodically in order for it to remain consistent with emerging information from empirical studies and changes in practice.
- 2. <u>Evidence-based approach</u>. This Model Policy is based on knowledge and principles derived from existing research pertaining to polygraph testing, risk assessment, risk management, and behavioral/mental health treatment of persons convicted of a sexual offense. Some elements of this Model Policy are intended to promote reliability and professionalism through the implementation of standardized field practice in the absence of data from empirical studies.
  - 2.1. <u>Face-valid principles</u>. When an evidence-based approach is not possible, this Model Policy emphasizes face-valid principles pertaining to polygraph testing and related fields of science including psychology, physiology, mental health treatment, risk assessment, signal detection, decision theory, inferential statistics, and predictive analytics.
  - 2.2. <u>Evolving evidence</u>. In the event that evidence from empirical studies indicates that the practice recommendations of this Model Policy are inconsistent with empirically based evidence, the evidence-based information should prevail.
- 3. <u>PCSOT program goals</u>. The ultimate goal is to increase public safety. One of the primary goals of all PCSOT activities is to increase the amount of information available to those working with persons convicted of sexual offenses in order to add incremental validity to risk assessment, treatment planning and risk management decisions.
  - 3.1. <u>Multidisciplinary collaboration</u>. Examiners who engage in PCSOT activities should emphasize a collaborative approach to work with other professionals involved in the supervision and treatment of persons convicted of a sexual offense. This approach involves communication between individuals from varying disciplines and systems including treatment providers, supervising officers, polygraph examiners, medical and psychiatric professionals, child-protection/family-services workers, and other professionals as may be deemed necessary.
    - 3.1.1. The aim of this collaborative approach is to formulate supervision and treat-



ment strategies that are matched to individual strengths, needs, and abilities in order to enhance competencies, and to promote changes in thoughts, feelings, and behaviors to promote healthy living and reduce the risk of sexual recidivism, enabling the successful reintegration of the offender back into the community.

- 3..2 <u>Operational objectives</u>. Any or all of the following operational objectives should be considered a reasonable and sufficient basis to engage in PCSOT activities:
  - A. Increased disclosure of problem behaviors of relevance to professionals who work with persons convicted of a sexual offense.
  - B. Deterrence of problem behavior among persons convicted of a sexual offense by increasing the likelihood that engagement in such behaviors will be brought to the attention of supervision and treatment professionals.
  - C. Quantification of the likelihood of deception or truth-telling about involvement in or abstinence from problem behavior that will alert supervision and treatment professionals to any escalation in the individual's level of risk to others or to the community.
  - E. Enhancing engagement of persons convicted of sexual offenses by encouraging increased disclosure of relevant information and by demonstrating adherence to treatment and supervision plans.
- 4. <u>Decision-support.</u> Polygraph testing of persons convicted of a sexual offense should be regarded as a decision-support tool intended to assist professionals in making decisions regarding risk and safety.
  - 4.1. <u>Professional judgment</u>. Polygraph testing and polygraph test results should not supersede or replace the need for professional expertise and judgment but contribute to it. While as a scientific test polygraphy provides information, decisions that are based on it, especially those concerning other persons, are the responsibility of professionals. The probabilistic nature of polygraph test outcomes should be taken into account when used as part of the professional decision-making process.
  - 4.2. <u>Successive hurdles</u>. Examiners may use a successive hurdles approach to testing to maximize both the informational efficiency and sensitivity of multi-issue (mixed- is-sue) screening polygraphs and the diagnostic efficiency and specificity of event- specific/single-issue exams. Successive-hurdles activities may include the use of additional testing or other activities, including posttest discussion, and additional field or background investigation. Follow-up examinations may be completed on the same day as the initial exam, or they may be scheduled for a later date.
    - 4.2.1 Examiners may use single issue test formats for follow-up exams conducted in response to a previously unresolved multiple issue screening exam. Single issue test formats should also be used for event-specific/diagnostic exams that are conducted in response to known allegations or known incidents for which there is reason to suspect the involvement of the examinee.
  - 4.3. <u>Confidentiality and mandatory reporting</u>. Except as provided by law, information from the polygraph examination and test outcomes should be kept confidential and provided only to those professionals involved in the multi-disciplinary supervision and treatment of the examinee.



- 4.3.1. <u>Examiners and mandated reporting</u>. Examiners should adhere to local and state mandatory reporting laws.
- 4.3.2. <u>Other professionals and mandatory reporting</u>. Examiners should remain aware that other professionals in the collaborative treatment approach may be subject to mandatory child-abuse reporting or other mandatory disclosure requirements.
- 5. <u>General principles</u>. Examiners who engage in PCSOT activities should adhere to all of the generally accepted principles that pertain to polygraph testing, including but not limited to the following:
  - 5.1. <u>Right s and dignity of all persons</u>. Examiners should respect the rights and dignity of all persons to whom they administer polygraph examinations. Examiners should conduct all polygraph tests with sensitivity and awareness to issues of diversity and individual differences.
  - 5.2. <u>Polygraph examiner as part of the supervision and treatment team</u>. Examiners should consider themselves to be an integral part of the multidisciplinary supervision and treatment team. Contact with the supervision and treatment team should be on a regular basis as needed, though the examiner will not maintain routine contact with the examinee between examinations.
  - 5.3. <u>Non-interference with on going investigations</u>. Examiners who engage in PCSOT activities should not interfere with or circumvent the efforts of any investigation of a new criminal allegation.
  - 5.4. <u>Known and unknown allegations</u>. Examiners who engage in PCSOT activities should investigate and attempt to resolve known allegations and known incidents before attempting to investigate or resolve behavioral concerns that do not involve a known allegation or known incident unless requested otherwise by the referrer.
  - 5.5 <u>Confirmatory testing</u>. PCSOT activities should be limited to the Psychophysiological Detection of Deception (PDD). Confirmatory testing approaches involving attempts to verify truthfulness of partial or complete statements pertaining to an issue of concern should not be utilized in PCSOT programs. Truthfulness may be inferred when it is determined with reasonable and reproducible probability that the examinee has not attempted to engage in deception regarding the investigation targets.
  - 5.6. <u>Ethical and professional roles</u>. Examiners who possess multiple types of credentials (i.e., examiners who are also therapists, probation officers, or police officers) should be limited to one professional role with each examinee and should not conduct polygraph examinations on any individual whom they directly or indirectly treat or supervise.
  - 5.7. <u>Number and length of examinations</u>. Examiners should not conduct more than five examinations in a single day,
    - 5.7.1. <u>Length of examination</u>. Examinations should be scheduled for not less than 90 minutes in duration from the start of the pretest interview through the end post-test review.
    - 5.7.2. <u>Number of ex ams per examinee</u>. Because of the risks of familiarization and other possible retest effects, examiners should not conduct more than four consecutive examinations per year with the same examinee. This does not include re-testing due to a lack of resolution from an earlier examination.



- 5.8. <u>Examination techniques</u>. Examiners should use a recognized comparison question technique for which there is evidence of validity and reliability, including estimates of sensitivity and specificity, published in the APA journal or other peer-reviewed scientific journal. There should not be more than four relevant questions per test series.
- 6. <u>Operational definitions</u>. Examiners should ensure that every behavior of concern to the multi-disciplinary supervision and treatment team is anchored by an operational definition. Operational definitions should be common among all referring professionals and use language that is free of jargon. It should be easily understood by the examinee. Examples of operational definitions include the following:
  - A <u>Physical sexual contact:</u> refers to rubbing or touching another person's sexual organs (i.e., breasts, buttocks, genitalia) whether over or under clothing, for the purpose of sexual arousal, sexual gratification, sexual stimulation or sexual "curiosity." This includes having, allowing, or causing another person to rub or touch one's own sexual organs, whether over or under clothing. This does not include medical care with adults or children, or parental contact with children's private areas in the form of diapering, wiping, bathing, dressing, or changing, unless done for the purpose of sexual arousal or stimulation.
  - B. <u>Non-contact Sexual Behavior:</u> refers to sexual behaviors such as exhibitionism, voyeurism, public masturbation, child pornography, or other sexual behaviors that are unlawful but do not involve physical contact.
  - C. <u>Sexual contact</u>: any form of contact with an individual for the purpose of sexual arousal, sexual gratification, sexual stimulation or sexual "curiosity."
  - D. <u>Force (real or implied violence)</u>: any form of real or implied violence, including for sexual arousal, physical restraint to prevent a victim from leaving, escaping, or moving away from the assault, or threats of harm to a victim's family members or pets. Force/ restraint may also include alcohol or drug use in a manner that deprives a person of an ability to consent.
  - E. <u>Coercion (non-violent)</u>: any non-violent means to gain compliance of a victim who expresses his or her reluctance to comply (e.g., bribery, threats to embarrass or end a relationship, etc.). Coercion may also include using or providing alcohol or drugs in a manner that influences a person' thoughts, choices and behavior in ways that would differ from those when not under the influence.
  - F. <u>Grooming (child grooming)</u>: any means of building trust or exploiting a relationship; this could include befriending family members to gain access to a child which could allow the victim to surmise a perception of complicity, also applies to internet-based behaviors.
  - G. <u>Manipulation</u>: any means of trickery to gain the compliance of a victim who is unaware of the sexual motives of the offender (e.g., wrestling, horseplay, tickling and similar behaviors).
  - H. <u>Relative (family member)</u>: any person related by blood, marriage, or adoption, or where a relationship has a legal relationship or the appearance of a family relationship (e.g., dating or live-in relationship with the person(s) natural, step or adoptive parent).
  - I. <u>Minor, child, youth, and underage person</u> includes any person defined by local laws and legislature as being below the age of consent to engage in sexual behavior.



- J. <u>Incidental contact</u>: refers to any brief, unanticipated or unplanned contact, greeting (e.g., waving, or smiling), interaction (i.e., verbal), or incidental physical contact (e.g., shaking hands, hugging, patting the head, bumping into, exchanging money or merchandise, etc.).
- K. Physical contact: includes shaking hands, hugging, patting the back or head, bumping into, exchanging money or merchandise along with other forms of physical contact including sitting on one's lap, holding, wrestling or athletic activities, etc.
- L. <u>Unapproved contact with minors</u> any contact or activity with minors that goes against the examinee's agreement with treatment, probation, or parole (whether state or federal). This may include a variety of restricted behaviors that vary for individuals, including being alone with a minor, non-sexual physical contact, and/or other interactions.
- M. <u>Alone/unsupervised cont act with minors</u>: interaction, activity or contact with minors in any context which takes place in the absence of someone approved by treatment and/or supervision to supervise this contact.
- N. <u>Approved Supervisor</u>: an individual who the supervision and/or treatment team has agreed can supervise contact between the examinee and a minor. They will have been informed of the individual's diagnosis and offense issues, knowledgeable about the limits of acceptable behavior, and how to report a problem.
- O. <u>Pornography</u>: the explicit depiction of sexual subject matter for the purpose of sexually arousing the viewer, sometimes referred to as X-rated or XXX material, though there is no formal rating system. Child Sexually Explicit Material (CSEM)/Indecent Images of Children (II OC): any visual depiction of sexually explicit conduct involving a minor (someone under 18). May include videos, digital or computer-generated images indistinguishable from an actual minor, and images crated, adapted, or modified, but appear to depict an identifiable, actual minor. Undeveloped film or videotape, and electronically stored data that can be converted into a visual image. (USCC.Gov, 2021)
- Q. <u>Sexually stimulating materials/erotica</u> the use of sexually arousing imagery, especially for masturbation purposes.
- R. <u>Sexual thought</u> thoughts or patterns of thoughts, often in the form of mental imagery with the goal of creating or enhancing sexual arousal or sexual feelings.
- S. <u>Sexual Fantasy/Erotic fantasy</u>: can be a developed or spontaneous story, or a short mental flash of sexual imagery. This differs from a sexual thought by length and narrative complexity. Short sexual thoughts often lead into a sexual fantasy.
- T. <u>Masturbation</u>: refers to sexual stimulation of one's genitals, often, though not always, to the point of orgasm. Stimulation can be over or under clothing, either manually or through other types of bodily contact, through the use of objects or devices, or through a combination of these methods. Although masturbation with a partner is not uncommon, masturbation for the purpose of this Model Policy refers to self-masturbation.
- 7. <u>Examination questions</u>. Examiners should have the final authority and responsibility for determining test questions and question language, which must be reviewed with the examinee. Examiners should advise the supervision and treatment professionals to refrain from informing the examinee of the exact test questions and investigation targets, or coaching the



examinee in the mechanics, principles, or operations of the polygraph test. Questions about polygraph testing should be directed to the examiner at the time of the examination. It is however appropriate for community supervision team members and treatment professionals to inform the examinee of the purpose or type of each examination.

- 7.1. <u>Relevant questions</u>. Relevant questions should pertain to a single frame of reference, which relates to the type of PCSOT examination. (See section 8.)
  - 7.1.1. <u>Content</u>. Relevant questions should address behaviorally descriptive topical areas that have a common time of reference (time-period under investigation). and frame of reference (purpose of the exam) Content should bear operational relevance to evidence-based risk assessment, risk management and treatment planning methods. Examiners should exercise caution to ensure they do not violate any rights of examinees regarding answering questions about criminal behaviors.
  - 7.1.2. <u>Structure</u>. Relevant question construction should be:
    - A. answerable by a "NO" without unnecessary mental exercise or uncertainty;
    - B. behaviorally descriptive of the examinee's direct or possible involvement in an issue of concern;
    - C. simple, direct and easily understood by the examinee;
    - D. time-delimited (date of incident or time of reference);
    - E. free of assumptions of guilt or deception;
    - F. free of jargon, legal terms; and
    - G. free of references to mental state or motivational terminology except to the extent that memory or sexual motivation may be the subject of an examination following an admission of behavior.
- 7.2. <u>Comparison questions</u>. Comparison questions should meet all common requirements for the type of comparison question being applied.
  - 7.2.1. <u>Structure</u>. Comparison questions should be structurally separated from relevant questions by either the frame of reference or the time of reference. Nothing in this Model Policy should be construed as favoring the use of exclusive or non-exclusive comparison questions or probable or directed lie comparison questions.
- 8. <u>Types of PCSOT examinations</u>. Examiners should utilize four basic types of PCSOT examinations: instant offense exams, sexual history disclosure exams, maintenance exams and sexual offense monitoring exams. These basic types of examinations provide both a frame of reference and a time of reference for each examination. Examiners should not mix investigation targets from different frames of reference (examination types) or times of reference within a single PCSOT examination.
  - 8.1. <u>Instant offense examination</u>. The Instant Offense (IO) exam can be conducted at any time during the treatment and supervision process if a person denies all or part of the behavioral allegations of the instant offense, or if the multi-disciplinary treat-



ment or supervision team determines that accountability for the circumstances and details of the instant offense represent a substantial barrier to a convicted person's engagement and progress in sex offense specific treatment. The goals of this exam may be several and can include reduction of denial of the behavioral allegations and circumstances of the instant offense, improve the information available for treatment planning, risk assessment and risk management, and to mitigate the potential for further traumatizing an abused person.

- 8.1.1. Examiners should conduct the Instant Offense exam as an event-specific diagnostic polygraph for convicted persons who deny any or all important aspects of the allegations pertaining to the sex offense for which they have been convicted and are presently subject to supervision and treatment. It may be used to investigate a pattern or series of offenses against an individual abused person, including offenses over a period of time.
  - 8.1.1.1.It is not mandatory that the instant offense is always con- ducted as the first polygraph examination. A multi-disciplinary treatment and supervision team may wish to prioritize the maintenance exam instead of an instant offense if there are concerns about behavioral self-control for persons whose are released to the community to begin treatment and supervision after a period of incarceration.
  - 8.1.1.2.An instant offense (diagnostic) exam may also be used to investigate unresolved prior allegations, whether convicted or not, that a convicted person denies, if the multidisciplinary treatment and supervision team determine that these may present a barrier to engagement and progress in treatment or compliance with supervision and risk management efforts.
  - 8.1.1.3.Instant offense examination targets. Examiners, along with the other members of the community supervision team, should select the relevant investigation targets from the circumstances of the allegation that the convicted person denies. Target issues for this diagnostic polygraph test are not independent.
  - 8.1.1.4.Instant offense time of reference. The time of reference for this examination is the time of the reported allegations.
- 8.1.2. Instant Offense Investigative Exam. When a supervision and/or treatment team has determined it necessary to test the limits of a convicted per- sons' admitted offenses against an individual abused person (such as prior to reunification or clarification with an abused person), examiners should use an Instant Offense Investigative (IOI) screening exam. This examination may be useful after substantial progress in treatment and prior to reunification with a victim. Examiners, together with the other members of treatment and supervision team, should select investigation target questions regarding additional or unreported offense behaviors that are not already included in the allegations of the instant offense. Target questions may include the number of offense incidents, earliest or latest offenses, relevant behaviors that are not already known, the degree of physical force, restraint, violence or threats of harm, and other/unknown behaviors involving the abused person. Test questions for this screening polygraph may address a variety of behavioral issues but are not independent in as much as they will all pertain to one abused person. The time of reference for the Instant Offense Investigative exam should be the duration of the convicted person's relationship with the abused person(s).



- 8.1.2.1.Caution is warranted with the use of an IOI when the reported behavior is extensive as it may not be realistic or necessary to know everything that was done to an abused person(s).
- 8.2. <u>Sexual History Exam</u>. Examiners should use the Sexual History Examination (SHE) to investigate the convicted person's history of involvement in unknown or unreported sexual offenses and sexual behaviors that may be indicators of sexual compulsivity, sexual preoccupation, or sexual deviancy. Information and results from these examinations are intended to assist decision making in respect of risk assessment, risk management and treatment planning. Results may increase knowledge about attitudes and behaviors, other types of criminal offenses, or other serious sexual offenses. The aim is not to identify prosecutable crimes, but to help clarify if the person has a history of acting upon a particular sexual interest or desire and/or patterns of problematic behavior. Information and results from these examinations should be provided only to the professional members of the supervision or treatment team unless otherwise directed by law.
  - 8.2.1. The Sexual History Exam (SHE) should be used when a referring professional wants to investigate a convicted person's lifetime history of unknown/unreported sexual offense behaviors. Behavioral targets should be selected for their relevance to risk assessment, risk management and treatment planning in collaboration with the referring professional and may include behaviors related to selection of, access to, control or silencing of, and impact on abused persons as well as non- contact offenses. Target issues may also include behaviors related to grooming, manipulation, use of violence, physical force, restraint, threats of harm, and building or exploiting relationships as a means of gaining access to others for sexual abuse. The SHE usually addresses a range of different behaviors and targets that are generally assumed to be independent of one another. Nothing in this model policy should be construed as prohibiting the completion of the SHE in a series of more narrowly focused exams if this approach lends to more satisfactory resolution of the behavioral target issues.
    - 8.2.1.1.Examiners, in support of the supervision and treatment team, should select investigation targets that provide operational relevance to treatment planning and risk management. Validated polygraph test formats can be used with two to four relevant target issues. It is unrealistic to attempt to test and fully resolve every possible sex history target or to assume that it is possible to know everything about a convicted person's entire lifetime of sexual behavior. Examiners should familiarize themselves with the types of sexual behavior that play an important role in sex offense risk assessment and sex offense treatment. Some sexual behaviors, for example, may be indicative of sexual compulsivity or preoccupation for which the actual number of incidents may not add additional information but may be useful with convicted persons who substantially deny any involvement in those behaviors.
    - 8.2.1.2.SHE- suggested examination targets. Investigation targets should provide operational relevance to treatment planning and risk management. The examples below are not listed in any priority or suggested order, and it is not intended or implied that any or all of them should be included as relevant test questions:
      - A. Sexual contact with underage persons, as defined by local laws/statutes regarding the legal age of majority and consent, while the convicted per- son was legally an adult.



- B. Sexual contact with relatives, whether by blood, marriage, adoption, or where a relationship has a legal meaning or is in effect a family relation- ship (e.g., a dating or live-in relationship with the person(s) natural, step or adoptive parent).
- C. Use of violence to engage in sexual contact, including real or implied violence, physical force, restraint, or threats of harm toward an abused person or their family members, possibly including pets. This may include the use of a weapon or any physical or verbal means of violence. How mental, emotional or physical violence is used and whether it exceeds the amount needed to gain compliance may provide useful clinical information, especially if it increases the arousal or pleasure of the perpetrator (often referred to as sadistic behavior).
- D. Sexual contact with persons who appeared to be unconscious, asleep, or incapacitated with drugs or alcohol, or who were mentally or physically helpless for other reasons. The defining characteristic of this type of abuse is that an abused person appeared to be asleep or unconscious at the time of an abuse, and no attempt should be made to use this type of target question to determine whether an abused person was actually asleep/ unconscious or was feigning sleep or unconsciousness at the time.
- E. Voyeurism/sexual peeping activities, including attempts to view some- one naked, undressing/dressing, or engaging in sexual acts without their permission or knowledge. This includes the use or creation of a hole or opening to view others for sexual arousal, the use of optical technology or optical devices (e.g., cameras, mirrors, binoculars, or telescope) to view others for sexual purposes, and the use of cell phones to take pictures or videos of persons without their permission (e.g., up the skirt, under a bath- room stall, by hacking into or setting up a video camera).
- F. Exhibitionism/indecent exposure, including all attempts to intentionally or to appear to have "accidentally" exposed one's private parts to unsuspecting persons in public places, including the wearing of loose or baggy clothing for the purpose of enabling the sexual organs to become exposed to others for sexual purposes.
- G. Theft or use of underwear/undergarments for sexual arousal or masturbation, including taking or keeping undergarments (including other personal property or "trophies") from relatives, friends, sexual partners, acquaintances, or strangers for masturbation or sexual arousal. This may also include incidents of wearing another person's underwear or undergarments without that person's knowledge or permission, in addition to incidents in which underwear, undergarments, or personal property was re- turned after use for masturbation or other use for sexual arousal.



- H. Frottage/sexual rubbing, including genitally rubbing against or touching a nonconsenting person without their knowledge or permission, by standing or walking too close in public locations (e.g., work, stores, school, or other crowded places).
- I. Child pornography, including any history of viewing, possessing, producing, using, or distributing indecent images of minors in sexually pro- vocative poses, with or without clothes, or engaging in sexual acts either alone or with others.
- J. Sexual contact with animals, refers to all sexual behaviors (including attempts) involving pets, (whether belonging to the examinee or others), domesticated (farm/ranch) animals, or wild animals, whether living or deceased, and whether whole or dismembered. This is often referred to as bestiality.
- K. Stalking/following behaviors, including all incidents of following, tracking, or observing someone for sexual or aggressive/ angry reasons. It also includes all other efforts to monitor or observe another person's behavior in person, electronically or by using a surrogate, without that per- son's knowledge or permission.
- L. Use of a computer to solicit minors for sexual activities, including ever using the internet, or any electronic communication device in an attempt to solicit an underage person for sexual contact. It also includes engaging in online sex-chats or cyber-sex activities via internet relay chat, instant messaging, web chat, social media applications, dating/ "meet up" apps (applications), email and/or any other electronic method.
- M. Masturbation or sexual acts in public places where one could be seen by others such as in workplace/school locations, public restrooms, or adult entertainment businesses. Although not a public place, masturbating at home in front of a window in order to be seen by others is also relevant.
- N. Online sex activities, including sex-chat, sex-games, and webcam sex activities, as well as online masturbation and/or virtual activities.
- O. Paraphilias are a category of compulsive behaviors. These are exhibitionistic disorder, fetishistic disorder, voyeuristic disorder, der, frotteuristic disorder, sexual masochism disorder, sexual sadism disorder, pedophilic disorder, transvestic disorder, and other specified or unspecified paraphilic disorder. They often begin at a young age. There are other "paraphilias" too numerous to list, which are characterized by obsessive thoughts and compulsive actions over time which can be illegal and/or harmful to the individual. The examiner should communicate with professionals to become familiar and be open to the possibility that a given examinee may have those issues.
- 8.2.2. <u>Sex history document</u>. Examiners should work with the community supervision team to require examinees to complete a written sexual history document



prior to administering a sexual history polygraph. The sexual history document should provide operational definitions that unambiguously describe each sexual behavior of concern. The behavior may be clinically significant based on the age of onset, frequency and duration of the behavior, efforts to reduce the behavior, and time since the behavior was last en- gaged in. It should be the examiner's discretion to administer an alternative form of Post-Conviction Sexual Offender Testing examination if an examinee has not completed and reviewed the sexual history document prior to the examination date.

- 8.2.2.1The purpose of the document is to help examinees review and organize their sexual behavior histories. It aids in familiarizing them with the conceptual vocabulary necessary to accurately discuss sexual behaviors during the polygraph pretest interview, it can assist examinees in recognizing sexual behavior that was abusive, unlawful, or unhealthy, and identify behaviors that are considered within normal limits.
- 8.2.2.2.Testing the limits of admitted sexual compulsivity or sexual preoccupation. Examiners should attempt to prioritize the investigation of behaviors in which the examinee denies any involvement. It is not realistic to attempt to know everything about a convicted per- son's lifetime history of sexual behavior. Similarly, it is not realistic to attempt to know every incident when a convicted person admits to substantial involvement in sexual behaviors that may be an expression of sexual compulsivity or sexual preoccupation. Sex history tar- get questions should be selected carefully in the context of each case. Examinees should not be expected to have a "perfect memory" of historical sexual events. Approximate time frames and estimates
- 8.3 <u>Maintenance Exam</u>.Examiners should conduct the Maintenance Examination (ME) to investigate, either periodically or randomly, the examinee's compliance with any of the terms and conditions of probation, parole, and treatment rules.
  - 8.3.1 <u>Maintenance exam scheduling</u>. Maintenance Exams should be completed approximately each 6 to 12 months. Examiners should discuss with multidisciplinary team members the possible deterrent benefits of randomly scheduled maintenance exams for some examinees.
  - 8.3.2. <u>Maintenance exam examination targets</u>. Investigation targets for the Maintenance Exam should bear operational relevance to an examinee's stability of functioning and any changes in acute risk level as indicated by compliance or non-compliance with the terms and conditions of the supervision and treatment contracts, any of which may be selected as examination targets. Investigation targets for Maintenance Exams should emphasize the development or verification of information that would add incremental validity to the early detection of an escalating level of threat or to the community or to potential victims.
    - 8.3.2.1.<u>Unknown allegations</u>. Maintenance Exams should not address known allegations or known incidents, which are properly investigated in the context of an event-specific polygraph exam.
    - 8.3.2.2. <u>Compliance focus</u>. Maintenance Exams should emphasize target questions about compliance or non-compliance with supervision and treatment rules. Questions about unlawful sex acts or re- offense behaviors



may be included in the examination as long as circumstances related to rights against self-incrimination as listed in the section dealing with Sex Offense Monitoring Examinations do not exist. An elevated level of concern regarding re-offense should warrant a Sex Offense Monitoring Exam (SOME) – not a Maintenance Exam. Examiners should exercise caution to ensure they do not violate any rights of an examinee regarding the answering of questions about new criminal behaviors.

- 8.3.2.3.<u>Examination targets</u>. Examination targets could include, but are not limited to the following:
  - A. <u>Sexual contact with unreported persons of any age, includ-</u> <u>ing</u> any form of rubbing or touching of the sexual organs (i.e., breasts, buttocks, or genitalia) of any person not already known or reported to the supervision and treatment team, either over or under clothing, for the purpose of sexual arousal/stimulation, sexual gratification, or sexual "curiosity." It also includes causing or allowing others to touch or rub one's own private parts either over of under clothing, for the purpose of sexual arousal/stimulation, sexual gratification, or sexual "curiosity"; and sexual hugging and kissing activities.
  - В. Use of pornography, if prohibited. Pornography use includes viewing or using X-rated (or "XXX"), nude, or pornographic images or materials (e.g., pornographic magazines, pornographic movies on cable television, including scrambled television programming, pornographic movie theaters, pornographic video arcades, videotape, CD/DVD, or other recorded media including pornographic images or materials via computer or the Internet, iPod, cell phone, video games, or any electronic messaging system, or computer communication interaction system if used for sexual arousing imagery). It may also include using non- pornographic erotica (nude or non-nude) images or materials for sexual stimulation or masturbation purposes (e.g., sexually objectifying entertainment magazines, bikini or car magazines, nudity or erotic scenes in non- pornographic movies, sexually oriented stories in magazines, novels, or Internet/computer resources, and/or anything at all on television). This target may be restricted to using pornographic or sexually stimulating materials for masturbation purposes.
  - C. <u>Physical contact with underage persons</u>, which can include purposeful activities such as hugging, shaking hands, or playing together, and may also include unplanned or incidental physical contact. Examinees may or may not be subject to restrictions and reporting requirements in this area. Questions should address these restrictions as directly as possible. When there are no restrictions, this target should be omitted. When a target involving contact with minors is used, examiners should select from either 8.4.2.3.C or 8.4.2.3.D should avoid an imbalanced loading of test target issues.
  - D. <u>Being alone or unsupervised with underage persons</u>, refers to prohibited activities in which others cannot see, hear, monitor or observe the activities, or for which others are unaware of an



activity involving the examinee and one or more underage persons.

- E Including forced, coerced or violent sexual offenses, sexual offenses against underage persons, incest offenses, or sexual contact with unconscious persons. It may also include sexual deviancy/compulsivity/preoccupation behaviors such as voy-eurism, exhibitionism, theft of undergarments, public masturbation or other sexual behaviors.
  - E.1. Sexual re-offense questions should be used judiciously in the context of routine maintenance (screening) exams. Incidence rates (prior probability) for sexual recidivism are thought to be lower than other types of non-compliance for some convicted persons. However, these questions may be useful when there is a concern about an escalated risk level, in the absence of a known allegation or incident. These questions may also be useful with some convicted persons who's abusive or problem sexual behavior may be more compulsive or persistent and may also be used to investigate the limits of non-compliance when other target issues provide insufficient information on the limits of behavior that may be of interest to professionals involved in treatment planning and risk management. In addition to potentially lower prior incidence rates, sexual re-offense questions may be more complex than other questions due to potential differences in perceived or expected consequences for these behaviors and due to potential differences in the interpretation of the rights of convicted persons when answering questions about criminal acts vs behavioral non-compliance with supervision and treatment rules. It may be preferable, at times, to use re- offense screening questions in the context of a single- issue screening exam.
- F. <u>Use of alcohol, illegal drugs or controlled substances</u>, including tasting or consuming any beverage containing alcohol (if prohibited), or consuming any product containing alcohol for the purpose of becoming intoxicated, inebriated, drunk, "buzzed," or "relaxed." It also includes any use of marijuana (whether inhaled or not) or any other illegal drugs. This target also includes any misuse of controlled prescription medications, whether borrowing, sharing, trading, loaning, giving away, or selling one's own or another person's prescription medications or using any medication in a manner that is inconsistent with the directions of the prescribing physician. For persons with known addictions or substance abuse problems it may be preferable to rely primarily on other forms of testing.
- G. <u>Use of an electronic device for sexual purposes</u>, including computers, cell phones, internet or electronic games, tablets, and other devices such a cameras or surveillance and recording systems to observe, interact, or access others for sexual arousal or sexual contact.



- H. <u>Masturbation activities and masturbatory fantasies</u>, which may refer to any involvement in masturbation activities when the examinee is prohibited from those activities, or it may refer to problematic forms of masturbation such as masturbating in a public location or where one could view or be viewed by others. It may also include voluntary or involuntary/intrusive thoughts or fantasies of a minor or past victim while masturbating or masturbation due to stress, boredom, anger, or other negative mood. Sexual thought and fantasy questions should always be linked to a specific behavior of concern.
- I <u>Child Sexually Explicit Material (CSEM) /Indecent Images of</u> <u>Children (IIO C)</u>: any visual depiction of sexually explicit conduct involving a minor (someone under 18). May include videos, digital or computer- generated images indistinguishable from an actual minor, and images crated, adapted, or modified, but appear to depict an identifiable, actual minor. Undeveloped film or videotape, and electronically stored data that can be converted into a visual image. (USCC.Gov, 2021)
- 8.3.4. <u>Maintenance exam time of reference</u>. Maintenance Exams should address a time of reference subsequent to the date of conviction or the previous Maintenance Exam, generally not exceeding one year and only exceeding two years in specific circumstances. All investigation targets in a test series should have a common time of reference.
- 8.3.4. <u>Maintenance exam testing approach</u>. Examiners should typically conduct this examination as a multi-issue (mixed-issue) screening examination. However, nothing in this Model Policy should be construed as to prohibit the completion of the Maintenance Exam in a series of single-issue exams when such an approach will lend to more accurate or satisfactory resolution of the investigation targets.
- 8.4. <u>Sex offense monitoring exam</u>. Examiners should conduct the Sex Offense Monitoring Exam (SOME) to explore the likelihood that the examinee may have been involved in unlawful sexual behaviors including a sexual re-offense during a specified period of time. Other relevant questions dealing with behaviors related to probation and treatment compliance should not be included.
  - 8.4.1. <u>Sex offense monitoring exam scheduling</u>. Sex Offense Monitoring Exams should be completed whenever there is a specific request from a supervision or treatment professional to investigate the possibility of a new offense while under supervision. Alternatively, this exam may be used when 1) the likelihood of sexual offense or other sexual crime is regarded as elevated by the member of the multidisciplinary treatment and supervision team, or 2) following a previously unresolved maintenance examination that included a relevant question about sexual offense behavior. Whenever the results of a maintenance exam indicate the need for further testing to obtain a more diagnostic conclusion, a single-issue test format should be utilized. A single-issue Sex Offense Monitoring Exam can be expected to have improved diagnostic accuracy over a multi-issue (mixed issue) exam.
  - 8.4.2. Sex offense monitoring exam examination targets. Examiners should select investigation targets for the Sex Offense Monitoring Examination that pertain to new sex crimes while under supervision based on concerns expressed by the multidisciplinary supervision and treatment team.



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- 8.4.3. <u>Sex offense monitoring exam time of reference</u>. Sex Offense Monitoring Exams should refer to a time of reference generally following the date of conviction or a previous Monitoring Examination. The time of reference should be clearly stated in the test questions and may include all or any part of the time that the examinee is under supervision or in treatment, including a specific date or restricted period of time. The time of reference should emphasize the investigation of possible unlawful sexual acts or sexual re- offense during the most recent period of months prior to the Sex Offense Monitoring Exam.
- 8.4.4. <u>Sex offense monitoring exam testing approach</u>. Examiners may conduct the Sex Offense Monitoring Exam as a multi-issue (mixed-issue) screening examination. However, nothing in this Model Policy should be construed as to prohibit the completion of the Sex Offense Monitoring Exam as a single-issue exam when that approach will lend to more accurate or satisfactory resolution of the investigation targets. Examiners should consider the use a single-issue technique when the Sex Offense Monitoring Exam is used to follow-up on a previously unresolved Maintenance Exam.
- 9. <u>Testing procedures</u>. Examiners who engage in PCSOT activities should adhere to all generally accepted polygraph testing protocols and validated principles.
  - 9.1. <u>Case background information</u>. The examiner should request and review all pertinent and available case facts within a time frame sufficient to prepare for the examination.
  - 9.2. <u>Audio-visual or audio recording</u>. Examiners should record all PCSOT polygraph examinations from the beginning of the pretest interview to the completion of the post-test review. The recording should be retained for a minimum of three years or as required by local laws or standards of practice. The recording documents, conduct of the testing protocol, and the content and authenticity of the content of the information provided by the examinee, thus precluding possible future denials. It also facilitates a comprehensive quality assurance review when necessary.
  - 9.3. <u>Pretest phase</u>. Examiners should conduct a thorough pretest interview before proceeding to the test phase of the examination consisting of the following
    - 9.3.1. <u>Greeting and introduction</u>. Examiners should introduce themselves by their names and orient the examinee to the examination room.
    - 9.3.2. <u>Brief explanation of procedure</u>. Examiners should ensure examinees have sufficient information about the ensuing procedure and scope of testing prior to obtaining the authorization and release to complete the exam.
    - 9.3.3. Informed consent. Examiners should obtain the examinee's informed consent to complete the polygraph test. This may be completed in writing and/or on the audio/video recording to a waiver/release statement. The language of the statement should minimally include 1) the examinee's voluntary consent to take the test, 2) that the examination may be terminated at any time, 3) a statement regarding the examinee's assessment of his or her mental and physical health at the time of the examination, 4) a statement that information will be provided to the examinee about the polygraph test 5) a statement that all information and results will be released to professional members of the



community treatment or supervision team, 6) an advisement that admission of involvement in unlawful activities will not be concealed from the referring professionals and, 7) a statement regarding the requirement for audio/video recording of each examination.

- 9.3.4. <u>Biographical data/determination of suitability for testing</u>. Examiners should obtain information about the examinee's background including marital/family status, children, employment, and current living situation in addition to a brief review of the reason for conviction and length/type of sentence. Examiners should obtain, prior to and at the time of the examination, information pertaining to the examinee's suitability for polygraph testing.
- 9.3.5. Explanation of polygraph instrumentation and tes ting procedures. The testing process should be explained to the examinee, including an explanation of the instrumentation and the physiological and psychological basis of response. Nothing in this Model Policy should be construed as favoring a particular explanation of polygraph science. In general, an integrated explanation involving emotional attributions, cognitive theory and behavioral learning theory may be the best approach. If asked, accurate information should be provided regarding polygraph accuracy.
- 9.3.6. <u>Structured interview</u>. The examiner should conduct a thorough structured or semi-structured pretest interview, including a detailed review of the examinee's background and personal information, any applicable case facts and background, a detailed review of each issue of concern, and an opportunity for the examinee to provide his or her version of all issues being tested. For event-specific diagnostic/investigative polygraphs of known allegations or known incidents, a free-narrative interview is used instead of a structured or semi-structured interview.
- 9.3.7 <u>Review of test questions</u>. Before proceeding to the test phase of an examination, the examiner should review and explain all test questions to the examinee. The examiner should not proceed until satisfied with the examinee's understanding of and response to each issue of concern.
- 9.4. In-test operations. Examiners should adhere to all generally accepted standards and protocols for test operations.
  - 9.4.1. <u>Environment.</u> All examinations should be administered in an environment that is free from distractions that would interfere with the examinee's ability to adequately focus on the issues being addressed.
  - 9.4.2. <u>Instrumentation</u>. Examiners should use an instrument that is properly functioning in accordance with the manufacturer's specifications.
    - 9.4.2.1 <u>Recording sensors.</u> The instrument must be capable of continuously recording the following during the test: thoracic and abdominal movement, electrodermal activity, cardiovascular activity, and movement detected by seat activity sensors. Though not necessary, a channel that detects vasomotor responses or other validated data channels



may also be used.

- 9.4.3. <u>Data acquisition.</u> The conduct of testing should conform to all professional standards concerning data quality and quantity.
  - 9.4.3.1<u>Number of presentations.</u> Examiners employing a comparison question technique should conduct a minimum of three presentations of each relevant questions. It is acceptable to conduct a fourth or fifth presentation in order to obtain a sufficient volume of interpretable test data to reach a conclusive evaluation.
  - 9.4.3.2.<u>Question intervals.</u> Question intervals should allow a reasonable time for recovery. Testing interval should be consistent with the requirements of the testing format and analytic method used.
  - 9.4.3.3.<u>Acquaintance test.</u> An acquaintance test should be administered during the first examination of each examinee by each examiner. Examiners are encouraged to use an acquaintance test during the conduct of other tests as appropriate.
- 9.5. Test data analysis. The examiner should render an empirically based interpretation of the examinee's responses to the relevant questions based on all information gathered during the examination process.
  - 9.5.1 <u>Scoring methods.</u> Examiners should employ quantitative or numerical scoring for each examination using a scoring method for which there is known validity and reliability, and which has been published and replicated.
  - 9.5.2 <u>Results diagnostic exams.</u> Test results for event-specific diagnostic/investigative tests should be reported as Deception Indicated (DI) or Significant Response (SR) to indicate deception, No Deception Indicated (NDI) or No Significant Response (NSR) indicative of truthfulness, or Inconclusive (INC) / No Opinion (NO).
  - 9.5.3. <u>Results screening exams.</u> Test results of screening exams should be reported as Significant Response (SR), No Significant Response (NSR) or Inconclusive (INC)/ No Opinion (NO).
  - 9.5.5. <u>Interpretation of the test results.</u> Examiners should render a professional opinion using published and established decision rules to achieve a categorical interpretation of the probabilistic test result.
    - 9.5.5.1 <u>Single issue exam results.</u> The reported result for all relevant questions should be inherited from the overall examination result.
    - 9.5.5.2. <u>Multiple issue exam results.</u> A deceptive examination result is inherited from the relevant question with the most significant reactions indicative of deception. Examiners should not conclude an examinee is deceptive in responses to one or more investigation targets and non-deceptive in responses to other investigation targets within the same examination.
  - 9.5.6. Non-cooperation. Examiners should note in the examination report whenever there is evidence that an examinee has attempted to falsify or manipulate the



test results and whether the examinee was forthcoming in explaining his or her behavior during the test. Examiners reporting an examinee as non-cooperative are not precluded from rendering an opinion that the examinee was deceptive (SR/DI) when the numerical scores or other information such as a confession that support a conclusion that there were significant reactions to one or more relevant questions. Examiners should not render an opinion of truthfulness (NSR/NDI) when there is evidence that an examinee has attempted to falsify or manipulate the test results.

- 9.5.7 <u>Data quality</u>. Examiners should not render a conclusive opinion when there is insufficient data of adequate quality and clarity to allow a minimum of three interpretable presentations of each of the investigation targets.
- 9.5.8. <u>Computer algorithms</u>. Computer scoring algorithms should not be used to score examination data that is of insufficient quality for manual scoring.
- 9.6. <u>Post-test review</u>. The examiner or a member of the treatment or supervision team should review the initial test results with the examinee. Examiners may, at the discretion of the multidisciplinary treatment and supervision team, advise the examinee of any significant responses to any of the test questions, and provide the examinee an opportunity to explain or resolve any reactions or inconsistencies. The post-test interview may be done in collaboration with other treatment and supervision professionals.
- 10. <u>Examination report</u>. Examiners should provide a written report containing a factual and objective account of all pertinent information arising from the examination, including case background information, test questions, answers, results, and statements made by the examinee during the pretest and post-test interviews.
  - 10.1. <u>Dissemination of test results and information</u>. The polygraph examination report should be provided to the professional members of the multidisciplinary supervision and treatment team who are involved in risk assessment, risk management, and treatment/intervention planning activities.
    - 10.1.1. <u>Dissemination to other authorities</u>. Reports and related work products Dissemination to other authorities. Reports and related work products should be released to the court, parole board, other releasing agency, or other professionals at the discretion of the community supervision/ treatment team members or as required by law.
    - 10.1.2. <u>Communication after the exam</u>. Following the completion of the post-test review, examiners should not communicate with the examinee or the examinee's family members regarding the examination results except in the context of a formal case staffing.
  - 10.2. <u>Scope of expertise</u>. Examiners should not attempt to render any opinion concerning the truthfulness of the examinee prior to the completion of the test phase and test-data-analysis. Examiners should not provide an opinion regarding the medical or psychological condition of the examinee beyond the requirement to determine suitability for testing at the time of the examination, although it may be appropriate to raise concerns with the referrer. Post-test recommendations should be limited to the need for resolution of the behavioral targets of the examination within the scope of the examiner's professional capabilities.



- 11. <u>Records retention</u>. Examiners should retain all documentation, data, and the recording of each examination for a period of at least three years or as required by law.
- 12. <u>Quality assurance</u>. To ensure examiner compliance with these recommendations and other field practice requirements and to sustain the quality of the testing process, an independent quality control peer-review of a portion of each examiner's work product should take place at least once a year.
- 13. <u>Examiner qualifications</u>. Examiners whose work is to be considered consistent with the requirements of this Model Policy shall have completed a basic course of polygraph training at a polygraph school accredited by the APA or meet other training, experience, and competency requirements for professional membership in the APA.
  - 13.1 <u>Specialized training</u>. Examiners shall have successfully completed a minimum of forty (40) hours of specialized Post-Conviction Sex Offender training that adheres to the standards established by the APA.
  - 13.2. <u>Continuing education</u>. Examiners shall successfully complete a minimum of thirty(30) continuing education hours that are recognized by the APA every two (2) years.

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