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Detained by Data: A Critical Analysis of the Virginia Pretrial Risk Assessment Instrument

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Abstract

This research is a critical analysis of criminal justice policy in Virginia, specifically, the use of the Virginia Pretrial Risk Assessment Instrument (VPRAI), a computer application designed to help judges make objective pretrial detention and release decisions. Although the VPRAI was originally intended as a tool to further criminal justice reform in Virginia, there has been very little independent inquiry into its use. My research gathers qualitative data through interviews with professional stakeholders and former defendants to address this gap in knowledge, and identify the benefits, consequences, and challenges associated with the VPRAI. I conclude that, at the present time, it is not effectively contributing to reform efforts, and I propose several policy modifications that could improve its use as a tool to eliminate cash bond, lower incarceration rates, and produce unbiased pretrial detention decisions.

Introduction

Federal and state criminal justice policies are undergoing a paradigm shift from a “tough on crime” approach to a “smart on crime” approach in order to reform policies that have caused American per capita incarceration rates to exceed those of all other nations (Sawyer & Wagner, 2019). This strategy seeks to safely reduce the practice of incarceration, which has become a costly policy in both financial and social terms. Further, evidence demonstrates that the costs of mass incarceration outweigh the benefits. In 2015, at the start of the federal government’s Smart on Crime Initiative, then U.S. Attorney General Eric Holder, acknowledged that, “well-intentioned policies designed to be ‘tough on crime’ have perpetuated a vicious cycle of criminality and incarceration,” and that the “rise in incarceration is not only unsustainable—it has not materially improved public safety, reduced crime, or strengthened communities” (Holder, 2015, 1). A “smart on crime” approach recognizes these consequences, and seeks to reform the practices that contribute to ineffective, unfair, and unnecessary detentions. This new approach strives to make more informed, fair, and accurate decisions using evidence-based strategies and technologies.

One major objective of a “smart on crime” approach is to reform the practice of detaining low-risk individuals before their trial. It is important to reform this practice because it significantly contributes to mass incarceration in two ways. One, it adds to the pool of incarcerated individuals at the front-end of the criminal justice process. Currently, over half a million people, nation-wide, are detained before their trial (Sawyer & Wagner, 2019). Many of them are low-risk, however they remain behind bars because they cannot afford to pay a cash bond (Sawyer & Wagner, 2019). Two, the consequences associated with pretrial detention, such

as job loss, can have reverberating effects, keeping criminal defendants in a cycle of criminality and incarceration (Dobbie, Goldin & Yang, 2016).

Many criminal justice experts believe that adhering to the risk principle can safely reduce the practice of pretrial detention. The risk principle asserts that sorting offenders into groups based on their likelihood to re-offend and appear for trial will help officials use resources more effectively, and preserve public safety. Risk sorting helps officials direct resources to those who need it most, and limit intervention for those who need it least (Milgram, Holsinger, VanNostrand & Alsdorf, 2015). The strategy most commonly used to help the criminal justice system adhere to the risk principle at the pretrial stage is to replace subjective pretrial decisions with data-driven recommendations produced through computer applications that sort defendants by risk level (National Conference of State Legislatures, 2015). The rationale behind this “smart on crime” practice is that pretrial incarceration rates can be lowered safely when only those who are calculated to have a high-risk of flight or re-offense are detained (Milgram, Holsinger, VanNostrand & Alsdorf, 2015).

Virginia realized the importance of pretrial reform, and began adhering to the risk principle in 1989, when it incorporated pretrial reform into its “smart on crime” initiative to help safely address jail overcrowding (Virginia Department of Criminal Justice Services, 2018b). Virginia codified this reform effort through the Pretrial Services Act in 1995, which established agencies that could help judicial officers make better informed pretrial detention decisions based on a defendant’s risk (Virginia Department of Criminal Justice Services, 2018b). By 2005, Virginia had become the first state to implement a state-wide computerized pretrial risk assessment instrument to sort pretrial defendants based on risk (Virginia Department of Criminal Justice Services, 2013).

These computer applications, known as risk assessment instruments (RAIs), use an algorithm to predict the likelihood that an individual will fail to appear at their trial, or will re-offend before trial. Many different RAIs are used across the nation, and while their algorithms differ, all pretrial RAIs generate recommendations to either detain or release a criminal defendant. At the pretrial stage, judges consider these recommendations when making bail or bond decisions. The RAI algorithm weighs social factors and a defendant's criminal history against a historical dataset (Goel, Shroff, Skeem & Slobogin, 2018). The dataset is comprised of statistics on prior criminal defendants' actions and pretrial outcomes (Bechtel, Holsinger, Lowenkamp & Warren, 2016). RAIs sort pretrial defendants into risk levels based on how a criminal defendant's factors match up to those of prior criminal defendants.

Although RAIs are frequently used nationwide in the pretrial process, they are not always efficient, and they are criticized just as often as they are praised (Hannah-Moffat, 2015). However, the Virginia Pretrial Risk Assessment Instrument (VPRAI) appears to be exempt from such criticism, which is why it is the focus of this research. Literature on the VPRAI reflects that there is an alarming imbalance between criticism and praise. Perhaps the criticism on the VPRAI is scarce because there is a lack of independent inquiry. Indeed, the company who created the instrument has produced much of the research literature concerning the VPRAI.

My research provides a valuable contribution by offering an independent source of research on the VPRAI. I have gathered qualitative data through interviews with Virginia criminal justice professionals, and documented, for the first time ever, the perspectives and knowledge they have gained through their experience with the VPRAI. One interview actually evolved into a courtroom observation, which allowed me to experience the use of the VPRAI during bond hearings. I have also gathered qualitative data through interviews with former

criminal defendants who were impacted by the VPRAI process, and I have included their personal perspectives and experiences in my research—another first. The data from this second interview group helps to ensure that the research is comprehensive and inclusive. As a whole, this data identifies the benefits, challenges, and consequences associated with the VPRAI, and allows me to assess its use and effectiveness.

I seek to answer the question of whether the VPRAI is an effective tool for furthering criminal justice reform in Virginia, or whether it is a flawed instrument that is contributing to pre-existing criminal justice problems. This question is difficult to answer when analyzed through the lens of the literature currently available. I conclude that, at the present time, the VPRAI is not effectively contributing to reform efforts, and I propose several policy modifications that could improve the use of the VPRAI as a tool to lower incarceration rates, eliminate cash bond, and produce unbiased pretrial detention decisions.

Literature Review

Benefits of RAIs

Risk assessment instruments (RAIs) have been touted by some criminal justice reformers and policy makers as effective solutions for furthering criminal justice reform. As one proponent put it, “It may seem weird to rely on an impersonal algorithm to predict a person’s behavior given the enormous stakes. But the gravity of the outcome—in cost, crime, and wasted human potential—is exactly why we should use an algorithm” (Neufeld, 2017, para. 9). Support for RAIs comes from a wide range of criminal justice reformers including scholars, researchers, criminal defense organizations, political leaders, and non-profit groups. The benefits they cite include

increased community safety, their potential to replace the practice of cash bond, and their ability to lower costly incarceration rates (Glazer, Sassaman & Wool, 2017; Herring, 2018; National Association of State Legislatures, 2017; Neufeld, 2017).

Supporters of RAIs believe that their risk-based recommendations will improve the safety of the community by correctly identifying high-risk individuals for detention, and properly identifying low-risk individuals for release. The release of low-risk individuals improves public safety because facts show that detaining lower-risk defendants, even for a few days, increases the long and short-term likelihood of new criminal activity (Milgram, Holsinger, VanNostrand & Alsdorf, 2015). In fact, New York City officials believe that their pretrial RAI use has allowed them to safely decrease incarceration rates while also keeping their crime rates below the national average (Glazer, Sassaman & Wool, 2017).

Additionally, RAI supporters also believe that these actuarial tools are a promising replacement to the cash bond practice, which is viewed as an ineffective and unfair pretrial detention policy (Herring, 2018). The Vera Institute for Justice asserts that the cash bond practice drives disparity already present in the judicial system, and it should be eliminated by shifting to a risk-based decision making practice (Glazer, Sassaman & Wool, 2017). When pretrial release is based on one's ability to pay, the people who are unable to pay for their freedom face "immense pressure to plead guilty to crimes..." which results in judicial disparities for marginalized groups (Legal Aid Justice Center, 2019, para. 7). Therefore, cash bond practices are believed to be ineffective and unfair because they detain low-risk individuals merely because they are poor. This unnecessarily adds to incarceration rates, and creates judicial disparities, particularly for marginalized groups.

A final argument in support of the use of pretrial RAIs is that they can help lower costly incarceration rates. Research that supports this claim shows that some pretrial RAIs have helped to reduce pretrial incarceration rates. For example, according to the National Association of Public Defenders (2017), the pretrial RAI used in Washington D.C., in conjunction with reining in the use of cash bonds, was instrumental in achieving a 90% pretrial release rate of arrestees in 2016 (National Association of Public Defenders, 2017). Additionally, the New York City Mayor's Office of Criminal Justice states that NYC's pretrial RAI use has allowed the city to achieve "the lowest incarceration rate of any big city in the nation" (Glazer, Sassaman & Wool, 2017, para. 4). Further, New Jersey's pretrial RAI implementation has also resulted in pretrial releases being granted in 90% of cases in 2013 (National Association, 2017). Such large release rates would indeed lower the pretrial detention burden on local jails, and in turn result in cost savings, which is predicted by the Pretrial Justice Institute (2018) to average \$74.61 per day for each detainee.

Concerns with RAIs

On the other hand, some criminal justice reformers are wary of RAIs because some of the factors considered in the risk calculations could serve as proxies for race, gender, or socioeconomic status. Some RAI's can elevate one's risk score "on the basis of acuteness of disadvantage, reinforce/mask racial and gender disparities, produce false positives, and lead to less transparent decisions" (Hannah-Moffat, 2015, 224).

Concerning racial bias, critics of RAIs point out that, if the risk factors that serve as proxies for crime, (such as factors concerning an individual's criminal history, criminal justice supervision, and pending charges), are weighed by an algorithm in equal proportion for all races, then they could exacerbate racial bias already present in the criminal justice system (Glazer,

Sassaman & Wool, 2017). This is because people of color are “disproportionately policed, and are more likely to be charged by prosecutors and forced into pleas that result in convictions” (Glazer, Sassaman & Wool, 2017, para. 5). As a result, it is thought that, using criminal history data to measure risk will exacerbate existing racial disparities in the criminal justice system, and have a continuing “ratchet effect” on this profiled population because risk calculations are heavily determined by criminal history, which can serve as a proxy for race (Harcourt, 2015, 237). Other scholars note that, while criminal history is a strong re-offense predictor for all races, its inclusion in a RAI presents a “conundrum,” because, even if predictive bias can be ruled out, there is still the question of its perceived or actual disparate impact (Skeem & Lowenkamp 2016, 34).

Additionally, RAI critics are concerned that some RAIs do not properly measure the risk of two other vulnerable groups--lower-income individuals and women. Their concern stems from the fact that some RAIs measure risk with factors that include employment status, which could negatively affect individuals that are in a lower socioeconomic bracket (Starr, 2015). Further, many RAIs do not consider mitigating risk factors at all, which are thought to be particularly important when calculating a woman’s risk level (McCoy & Miller, 2013). The general concern is that because of the way RAIs measure risk and omit mitigating factors, these two groups will be assigned into a higher risk level, and be detain by data that cannot accurately measure their true risk. Legal scholar Sonja Starr (2015) asserts that it is wrong to use socioeconomic factors, such as employment status, in risk calculations because individuals ought to be considered by their individual risk, rather than assigned risk points because they belong to a socioeconomic group that is generalized as having a higher flight or re-offense risk. Starr (2015) argues that

neither a judge, nor policymaker, would support detention based on poverty; therefore, they should not support RAIs that consider this factor.

Further, when it comes to calculating a woman's risk, researchers found that risk calculations should be different because some factors were better predictors for men, while others were better predictors for women. For example, substance abuse factors were determined to only be good predictors for men, while factors of positive social support significantly predicted recidivism risk accurately for women (McCoy & Miller, 2013). Another group of researchers concluded that gender-specific risk assessments could better predict risk for women because gender-neutral risk calculations can overestimate a woman's risk. They highlighted the example of a pretrial RAI used in Florida, COMPAS, which uses gender-neutral data to calculate risk, and was discovered to be incorrectly assigning women into a higher risk level (Goel, Shroff, Skeem & Slobogin, 2018).

Perhaps settling the argument on whether RAIs can produce fair outcomes for all groups of people is a study by Kleinberg, Mullainathan and Raghavan (2016). These researchers first defined three different ways in which to measure the "fairness" of a RAI. Then, they developed a theorem to test if it was possible for a RAI to achieve all three aspects of fairness. They proved that "except in highly constrained special cases, there is no method that can satisfy these three conditions simultaneously" (Kleinberg et al., 2016, 1-5). Kleinberg et al. (2016) determined that it is highly unlikely that a RAI can produce completely fair predictions because base rates differ among different groups of people.

The Need for Transparency, Independent Inquiry, and Caution

Proponents and opponents alike stress the need for RAI transparency, for independent validation of these tools, and the need to exercise caution when it comes to how much emphasis is placed on data. Research by legal scholar Hannah-Moffat (2015) legitimizes these concerns. She found that in general all RAIs are similar to Pandora's Box. They are poorly understood by policymakers and the practitioners who use them. She found that even developers of RAIs question their accuracy.

When a RAI lacks transparency its outcomes will be viewed with skepticism, and its use will weaken confidence in the judicial system (Goel, Shroff, Skeem & Slobogin, 2018). A study conducted by researchers from ProPublica (2016) on the pretrial RAI, COMPAS, called attention to the fact that, without transparency and independent validation, researchers and the public will question a RAI's rightful use in the judicial system. These researchers examined Florida's use of COMPAS, and found that it was producing racially biased pretrial release recommendations. African Americans were twice as likely to be incorrectly assigned to a higher risk category than were whites, while whites were more often miscalculated to be low-risk. A statistical test determined that the racial difference was not attributed to differences in the defendants' prior crimes or the type of crimes they were arrested for. When trying to pinpoint what was causing the racial disparity the researchers hit a wall. Northpointe, the for-profit software company that developed COMPAS, would not share the specific calculations used by the algorithm to assess nearly two-dozen risk factors. Northpointe claimed the algorithm was its intellectual property (Angwin, Larson, Mattu & Kirchner, 2016). ProPublica was never able to determine the reason for its racial discrepancy, and COMPAS remains a widely criticized pretrial RAI because it lacks transparency (Spielkamp, 2017).

Literature on certain RAIs show that these instruments can be developed and validated in a manner that make them more transparent and trusted. For example, the Indiana risk assessment tool named IPAS is a university-developed and validated tool, which gives it a higher degree of credence than a RAI developed by a for-profit company. IPAS also published its scoring guide and pretrial interview procedures (Latessa, Lovins & Makarios, 2013; University of Cincinnati, 2010). Additionally, a RAI developed by the Laura and John Arnold Foundation, called the PSA, has been praised a great deal for its transparency and independent validation. The PSA is not only developed by a non-profit, and open about how it calculates risk, but it also requested that experts at Harvard Law School study its effectiveness (Access to Justice, 2018). In summary, non-profit development, independent validation, and procedural transparency can increase confidence in the use of RAIs.

Still, scholars caution that “law is not math,” and that policy makers and judicial officers often fail to question the use of, or outcomes produced by, risk assessment algorithms (Kahn, 2018, 190). At least one data scientist has cautioned that widely-used algorithms are capable of producing biased outcomes, and can result in damage to whole groups of people. This requires stakeholders to carefully consider how much emphasis should be placed on these “weapons of math destruction” (O’Neil, 2016, 3).

Further, Starr (2015) cautions that the “debate over risk assessments has played down the factors that the assessments rely on, employing feel-good euphemisms like ‘evidence-based sentencing’” (Starr, 2015, 235). One study confirms Starr’s assertion. Researchers conducted an exhaustive search for research on pretrial risk assessments, and found that there is a “distinct lack of research that utilizes any amount of methodological rigor” (Bechtel, Holsinger, Lowenkamp

& Warren, 2016, 1). This study suggests that, overall, RAIs are being implemented without much inquiry, and accepted without critical thought.

Finally, the Electronic Frontier Foundation (2018) cautions us to consider how much weight is placed on RAIs. This technology-focused watchdog group points out that RAIs reduce people to the sum of their data, and ignore their humanity. This concern, combined with the aforementioned concerns, draws attention to several reasons why we should exercise caution before implementing a tool that detains people based on data.

The VPRAI and the Pretrial Process

According to the Virginia Department of Criminal Justice Services (DCJS), the VPRAI is a computer application that was implemented in 2005, and is currently used by the majority of cities and counties in Virginia (Rose, 2016; Virginia Department of Criminal Justice Services, 2018b). Virginia has 33 separate pretrial services agencies that use the VPRAI to “assess risk of flight and danger to the community posed by pretrial defendants” (Virginia Department of Criminal Justice Services, 2013, 7). The VPRAI is an actuarial risk assessment that uses a mathematical model to sort pretrial defendants into risk categories by weighing facts about a detained pretrial defendant against data gathered in the 1990s on the actions and outcomes of former Virginia defendants (Rose, 2016).

It is important to understand where the VPRAI fits into the pretrial process, which is the judicial stage between an arrest and trial. During this time period, the accused can be detained in jail if a judicial officer determines that the accused presents a flight risk before trial, or there is reason to believe the accused could pose a danger to the community if released. The pretrial process in Virginia is as follows (see Table 1, on page 48, for visual depiction). The process

begins after arrest. In most cases, the arresting officer takes the defendant to a magistrate, where an initial bail decision is made without using the VPRAI. If the magistrate decides to detain the defendant, the officer will take the defendant to jail, where he will wait to have his bail reconsidered during a bond hearing (Department of Magistrate Services, 2018). While the defendant is in jail waiting for his bond hearing, a pretrial services officer will conduct an initial assessment of the defendant to determine whether the current charges make him eligible for a pretrial risk assessment. If eligible, the detained defendant will be asked a series of questions related to his employment, caregiver, student status, pending charges, drug use, and criminal history (Virginia Department of Criminal Justice Services, 2018a). Next, the pretrial officer will input facts about the defendant and the defendant's answers into the VPRAI software, which will generate a risk score. From this risk score, a recommendation to continue with pretrial detention or release is calculated by a portion of the VPRAI called the Praxis. If the recommendation is to release, the Praxis will include the terms of release that should be imposed to mitigate the risk of flight and re-offense (Virginia Department of Criminal Justice Services, 2018a). Later, at the defendant's bond hearing the judge will look over the VPRAI report, which contains the defendant's risk score, criminal background information, the pretrial officer's notes, and Praxis recommendation. Finally, the judge will consider the risk assessment recommendation in his decision to release the defendant (Virginia Department of Criminal Justice Services, 2018a).

Benefits associated with the VPRAI

It is important to note that the Praxis recommendation to release often comes with non-monetary conditions attached to increase the likelihood that a pretrial defendant will show up for his court date, and remain on good behavior. Some of the conditions Praxis may recommend are: court date reminders; criminal history checks while on release; face-to-face check-ins with

pretrial services officers; and drug testing (Virginia Department of Criminal Justice Services, 2018a). According to the most recent statewide data, these risk mitigating interventions may be the reason why pretrial defendants that have been released, and have received some level of pretrial supervision between 2015 and 2018, appeared for court dates approximately 95% of the time, remained on good behavior 94% of the time, and complied with all pretrial requirements about 88% of the time (Virginia Department of Criminal Justice Services, 2018b). While these percentages seem to imply that Praxis' non-monetary release conditions are beneficial, a comparison cannot be made between those given pretrial services and those who have not because outcomes for those who have not are not tracked (Virginia State Crime Commission, 2018).

However, the pretrial success rates do point out that the VPRAI's most beneficial component could be its Praxis risk-mitigating recommendations, which impose some level of pretrial supervision for released defendants. For the time being, these are not only the most promising statistics on the outcomes produced by the VPRAI--they are also the *only* statistics available on the impact of the VPRAI on pretrial release outcomes for bailable defendants. The DCJS stated in their most recent report that no statistics on the VPRAI's release rates are available at this time, but that these figures were being gathered, and would be forthcoming (Virginia Department of Criminal Justice Services, 2018b). Additionally, the Virginia Crime Commission is currently in the middle of a pretrial inquiry that seeks to provide more data on pretrial outcomes (Virginia Department of Criminal Justice Services, 2018b). Therefore, while the Praxis release recommendation is the only component of the VPRAI that has been statistically shown to be beneficial, forthcoming statistics may reveal other beneficial aspects such as improved release rates and lower use of cash bonds.

Another possible benefit, though not yet realized, is that the VPRAI offers a method to move away from cash bond practices because it emphasizes that release decisions should be based on risk, and it never recommends the use of cash bonds. Virginia criminal justice professionals are supportive of this potential benefit. Virginia Attorney General Mark Herring has expressed the need for alternatives to cash bonds, “I want to keep dangerous people in jail and I want people to show up for court, and it’s clear that there are better, more effective ways to achieve that. It doesn’t make much sense, nor does it make our communities safer, to make a low-risk, non-violent person sit in jail, while more violent or dangerous people can go free because of their wealth” (Herring, 2018, para. 3). Additionally, a statement from the Virginia Department of Criminal Justice Services also expresses the belief that an RAI could help eliminate cash bond. The statement declared that the VPRAI’s objective and risk-based recommendations could help usher in a “new norm” for pretrial policy in Virginia that would include a shift away from the use of cash bonds in order to reduce unnecessary pretrial detention (Virginia Department of Criminal Justice Services, 2013, 4). However, the VPRAI has not actually been used to eliminate the use of cash bond. In fact, almost 60% of those who are released before trial, and receive Praxis recommended pretrial services, must also pay a cash bond (Virginia State Crime Commission, 2019). If Praxis recommendations were embraced as intended--without the addition of cash bonds--then the VPRAI would be a beneficial tool to eliminate the detention of indigent defendants, and ensure that high-risk defendants were not released merely because they had financial resources.

Concerns with the use of the VPRAI

There is a concern with how well the VPRAI measures risk for minorities. A 2016 study by its developer, Luminosity, found that there is “a difference in the predictive ability of the

VPRAI risk factors for People of Color and for Whites, with the model performing better for Whites” (Danner, VanNostrand & Spruance, 2016, 8). Two factors in particular were determined to be a poor measure of risk for people of color because it over-classified their pretrial risk. The first was two or more violent convictions, and the second was the duration of the individual’s residency. Additionally, the validation study found that the VPRAI over-classified pretrial failure risk for women when it assigned weight to one factor concerning duration of residency and another factor considering two or more violent convictions (Danner, VanNostrand & Spruance, 2016).

Another thing that is concerning is that, despite these findings, the study reached a final conclusion that the VPRAI produced race and gender-neutral results. Luminosity reasoned that when all of the VPRAI’s factors were weighed, summed, and collapsed into risk categories, the risk classifications became race and gender-neutral (Danner, VanNostrand & Spruance, 2016). This conclusion is concerning because it is the only race and gender-neutral study available, but may be considered biased because Luminosity has a vested interest in the VPRAI’s performance. Criminal justice professionals that believe this study is proof the tool produces unbiased results, are putting their faith in a potentially skewed conclusion.

Method

Despite its widespread use in the Commonwealth, very little is known about the effectiveness of the VPRAI. Its risk assessment data bank is inaccessible to outside researchers, which makes it impossible to conduct an independent validation study. Further, its utility has only been assessed, in whole or in part, by the for-profit company that created it, which requires independent researchers to approach literature on the VPRAI with a good measure of skepticism. Therefore, in order to undertake a scholarly analysis of the VPRAI, I collected qualitative data

through interviews with professional stakeholders, and former criminal defendants who have experienced the use of the VPRAI by one of Virginia's pretrial services agencies, specifically the Rappahannock Regional Jail Pretrial Services Agency. Speaking directly with practitioners who use the form, as well as individuals who have had the form used in their criminal proceedings, provides an important opportunity to consider firsthand how well the VPRAI works in assessing the risk of both individual criminal defendants but also more broadly in terms of its overall use as a pretrial assessment tool intended to further criminal justice reform efforts. Finally, one of my professional stakeholder interviews actually evolved into a court room observation, which allowed me to experience the VPRAI being used during bond hearings. I recorded my observations and they are conveyed below.

This Fenno-inspired (1978) research method of participant observation and elite interviews was approved by the University's Institutional Review Board (IRB) under the expedited review process. Approved research on human subjects, a vital component of my thesis, required that I amend my original plan regarding who was included as research subjects. In order to qualify for the expedited approval process I had to omit from my research any defendants whose cases had not been fully adjudicated by the courts because they are considered a particularly vulnerable population. Additionally, for IRB approval the interviews with the former defendant group had to be conducted face-to-face in order to ensure the interview was conducted in a confidential manner, and to verify each participant's identity as a former defendant whose case had been fully adjudicated. Finally, in order to gain IRB approval I had to provide participants in the professional stakeholder group with the option to participate confidentially. This confidentiality restriction also required the interviews to be offered in a face-to-face format.

Interviews with Professional Stakeholders

I conducted interviews with eight criminal justice stakeholders whose work involves, or is impacted by, the VPRAI. Additionally, one interview included an observation of how the VPRAI is used during a bond hearing. All eight professionals were selected based on their willingness to be interviewed, and relay their professional experiences with the VPRAI as used by the Rappahannock Regional Jail Pretrial Services Agency. My research focuses on experiences related to just one of Virginia's pretrial services agencies because each of the 33 pretrial agencies have nuanced differences. The composition of these eight professionals are as follows: one judge from Stafford County; one prosecutor from Stafford County; two pretrial services officials from the Rappahannock Regional Pretrial Services Agency; two defense attorneys who represent indigent and non-indigent defendants; one local elected official (a Virginia delegate), who is also a public defender; and finally, one official from the Virginia Department of Criminal Justice Services (DCJS). (Detailed information on these interviewees are included in the appendix, see page 55.)

Each of these professional interviewees were asked the same set of questions in order to compare their answers. (These interview questions are included in the appendix, see page 56-57.) These questions were designed to develop an understanding of how the VPRAI impacts the work of each professional, and to capture their concerns and opinions on its use. Questions also probed whether these individuals believed the factors used by the VPRAI were a good measure of risk, and how we might improve the VPRAI overall. After the interviews, I analyzed the answers and identified emerging themes. Next, I used a table to sort answers among three major themes: challenges; consequences; and benefits. See Table 2, on page 49-51, for a speedy review of these themes.

Bond Hearing Observation

One interview was unique because it evolved into a courtroom observation, which allowed me to experience the VPRAI being used during bond hearings. After interviewing the prosecutor, I was invited to sit beside him during a series of bond hearings (about six in total), which allowed me to experience how the prosecutor and judge use the VPRAI's pretrial report to determine whether a detained pretrial defendant should be released, and if so, on what terms. As the bond hearings proceeded, the prosecutor showed me each defendant's pretrial report, which included the risk score and Praxis recommendations. I listened as the judge and prosecutor reflected on the reports and wove the information contained in them into their prosecutorial recommendations and judicial decisions. After the bond hearings were over, I recorded my observations.

Interviews with Former Criminal Defendants

Next, in order to gain insight into how the VPRAI and Praxis are implemented, and to identify any patterns that emerge with their use, I conducted confidential, in-person, interviews with non-incarcerated former defendants. These former defendants have been detained pretrial at the Rappahannock Regional Jail (RRJ) and had a pretrial risk assessment conducted by the RRJ Pretrial Services Agency. Because the actual risk assessment scores and pretrial recommendations are not available to the public, I asked this interview group questions that allowed me to recreate their original risk assessment scores, pretrial recommendations, and outcomes. (These interview questions are included in the appendix, see pages 58-61.) These interviews allowed me to gain insight into who gets labeled high-risk, and under what

circumstances someone would get labeled as low-risk. I was also able to determine if the judge followed the Praxis recommendation to release or detain. Further, by interviewing this group I was able to collect evidence on whether the use of the VPRAI has helped further criminal justice reform efforts in Virginia. Finally, I was able to gather data on the social and economic impact associated with pretrial detention for defendants, as well as the impact on their families.

Due to the restrictive face-to-face interview method necessary to obtain institutional review board approval, only six former defendants agreed to meet for an interview. Of those six, only five were qualified to participate after a criminal history inquiry revealed that one former defendant had not actually been detained before trial, and therefore the VPRAI would never have been used to assess this individual's risk level. This small group of former criminal defendants are not a representative sample of the whole group, but the offenses with which they were charged are typical criminal offenses and interviews with this small group do allow for some insight into the outcomes produced by the VPRAI.

After collecting the former defendants' responses, I was able to replicate their pretrial risk assessment recommendation by using portions of the VPRAI Instructional Manual that I obtained from the DCJS website. (See Tables 3-5, on pages 52-53, for a visualization of the risk calculation procedure.) It was important to replicate this data because the actual risk scores and Praxis recommendations are off limits to researchers, and were not provided to any of the former defendants I interviewed. Therefore, I had to replicate this data in order to learn what each former defendant's risk level and Praxis recommendation would have been. The replicated Praxis recommendations, combined with the knowledge I gained during the interview on the actual outcome of each former defendant's pretrial detention, allowed me to determine, for each former defendant, whether the judge followed the recommendation to release or detain. It is

worth noting that this calculation would typically be done through the VPRAI computer software, but this is inaccessible to outside researchers. However, despite the different method, the algorithm used is exactly the same; therefore, the risk calculation should be the same.

My calculations began just like a pretrial services officer's, by matching each defendant's answers on the interview form to the VPRAI risk factors listed on Table 3 (page 52), and tallying up the points. Then, I matched each defendant's total score with the corresponding risk level listed on Table 4 (page 52). Finally, I correlated the risk level with the manual Praxis chart, shown on Table 5 (page 53).

After calculating each former defendant's risk level according to the method listed in the manual, I combined the score and other findings on Table 6 (page 54), for easy analysis. The findings were grouped under the headings of: risk score; released before trial; the VPRAI and Praxis recommendation was followed; the defendant recalls answering the pretrial questions; cash bond or pretrial services was a condition of the defendant's release; the number of days detained before trial; and the hardships the defendant or their family experienced as a result of pretrial detention.

Findings

Professional Stakeholders

There was a general agreement among professional stakeholders --the judge, prosecutor, defense attorneys, public defender, DCJS official, and pretrial services officers-- that the VPRAI is helpful to their work. (For a summary of these findings see Table 2, column two, on pages 49-51.) Those who work with pretrial defendants mentioned that the VPRAI's pretrial report gives them a convenient and condensed summary of a pretrial defendant's history. For example, the

judge cited that the pretrial report is helpful to him because it condenses a large amount of important information he must consider for each bond hearing. The judge also viewed the pretrial report as helpful because he considered it to be a recommendation from a neutral party. Likewise, the prosecutor mentioned that the pretrial report's summary of a defendant's risk factors and criminal history was useful for him to consider when making his bond recommendations to the judge. Both defense attorneys said the pretrial report was helpful to their work because it allowed them to learn their client's history, and see what the judge and prosecutor would consider for their client's release. The Virginia delegate and public defender mentioned that the VPRAI helps stakeholders make safer release decisions based on risk.

Even those who do not work directly with pretrial defendants said that the VPRAI was a helpful tool. For example, the DCJS official mentioned that the VPRAI helps him in his work because one of his duties is to ensure that pretrial services' resources are used wisely, and the VPRAI helps to identify the high-risk defendants who need pretrial resources and the low-risk defendants who do not. Finally, both the pretrial officers stated that the VPRAI helps them to objectively calculate a defendant's risk in order to make an evidence-based release recommendation that is free of subjectivity and personal bias.

Additionally, as shown on Table 2 (pages 49 - 51), column six, all professional stakeholders said they support the use of the VPRAI. This is likely attributed to a belief that the benefits associated with the VPRAI outweigh its risks. There is a significant difference between the multitude of benefits listed in column two, and the lack of concern that the tool could result in the biased outcomes listed in column seven. Further, column four highlights what each member of this group identified as consequences related to the VPRAI, and many of these consequences are positive. For example, the judge mentioned that the VPRAI has made pretrial

services better at assessing defendants. And, one pretrial officer believed a consequence of the VPRAI was that it helped low-risk defendants avoid detention, and thus lowered their risk for recidivism and the likelihood that they would plead guilty out of desperation. The professional stakeholders that I interviewed all support the use of the VPRAI, and this is most likely because they identify many ways in which it is beneficial to defendants and criminal justice professionals; they identify only a few concerns over how its use could result in bias outcomes or negative consequences.

Several stakeholders also noted that the VPRAI risk scores and Praxis recommendations do not actually dictate pretrial outcomes. These stakeholders pointed out that pretrial officers can override Praxis recommendations, and that judges make the final release decisions. (These findings are contained in columns two and three of Table 2, pages 49-51.) For example, the public defender mentioned that in her experience pretrial officers do not consistently follow the Praxis recommendations because they are permitted to use their discretion, and can override the computer's recommendation as they see fit. Both pretrial officers corroborated her claim, and explained that they may occasionally change the release recommendation when Praxis is unable to consider mitigating and aggravating factors, such as forthcoming charges or forthcoming employment.

Additionally, defense attorney #1 mentioned that in her experience judges often override Praxis release recommendations as judicial discretion permits them to do so. The judge also acknowledged that the VPRAI's pretrial report was a helpful *component* in his release decisions because it was a neutral source of information, but he never stated that the Praxis recommendation *controlled* his decision. He reasoned that a judge must be mindful of unwise release recommendations. The prosecutor conveyed that he supports the use of the VPRAI as a

component of the release decision but that ultimately it must aid bond decisions, not control them. The prosecutor also mentioned that, while the computerized release recommendation can be helpful, human discretion is still needed. These findings are important because they demonstrate that the VPRAI is used to help guide pretrial release recommendations and decisions, and that despite their use, professional stakeholders still exercise their professional discretion.

Some stakeholders I interviewed reflected on how cooperation and communication among professional stakeholders is important because it helps establish confidence in the use of the VPRAI. For example, as shown in columns three and four of Table 2, both the judge and prosecutor mentioned that it was important to have a good working relationship with pretrial services officers in order to establish confidence in their pretrial release recommendations. The prosecutor stated that in his experience the quality and resources of each pretrial agency is different, and that getting to know the pretrial officers who conduct the VPRAI assessments and issue the release recommendations helps build his confidence in their ability to produce a sound recommendation.

Additionally, pretrial officer #2 mentioned that cooperation with professional stakeholders whose work does not entail the direct application of the VPRAI is also important to instill overall confidence in its use. He cited that there is a lack of cooperation between stakeholders whose daily work involves the VPRAI and professional stakeholders with the Virginia Crime Commission whose job includes studying criminal justice policies like the VPRAI. This lack of communication results in the Commission having a poor understanding of the VPRAI, which in turn limits their ability to establish confidence in its use. In summary,

findings show that good cooperation among professional stakeholders is necessary to build confidence in the use of the VPRAI.

Another finding is that the VPRAI helps to manage criminal justice resources. Interviewees mentioned this was beneficial to both professional stakeholders and to defendants. For professionals, the VPRAI separates high-risk defendants from low-risk defendants, and the Praxis recommends which pretrial services are necessary to mitigate a defendant's flight risk or likelihood he re-offends. The DCJS official noted that this allows pretrial services—such as check-ins, trial reminders, electronic monitoring, and drug testing—to be precisely targeted to the high-risk individuals who need them the most, and be omitted for the low-risk defendants, which saves resources. Additionally, the public defender mentioned that carefully prescribed Praxis release conditions are beneficial to defendants because just the right amount of pretrial supervision helps released defendants return to court and remain on good behavior. The DCJS official likewise mentioned research shows that giving just the right amount of pretrial restriction is important because too much can hinder a pretrial defendant's success. It seems that the VPRAI's ability to sort defendant's by risk level allows for resources to be used in the most effective and beneficial manner.

Interview responses also revealed several challenges associated with the VPRAI's use. One challenge is that there is a lack of knowledge on how the VPRAI works—or even how well it works. For example, defense attorney #2 pointed out that many attorneys lack a full understanding of how the VPRAI calculates and reports risk. While he finds pretrial reports to be a helpful summary of his client's history, he is confused by the numerical risk levels listed on the reports, and does not understand how the risk levels are assigned, or what they mean for his client. The DCJS official also mentioned that professional education should be offered to all

professional stakeholders. Pretrial officer #1 offered a different take on who needs more education on the VPRAI--he mentioned that there should be a greater effort to make constituents aware of its use. Finally, as shown on column five of Table 2, half of the interviewees in this group expressed the need for more inquiry into the use of the VPRAI, so that its use can be improved and better understood. These findings highlight the need for professional VPRAI training, and for more literature to be published on its use and effectiveness.

A second challenge associated with the use of the VPRAI was identified when two interviewees expressed frustration that pretrial detentions often begin at the magistrate level, where the VPRAI is not used. Defense attorney #1 mentioned that it is often the magistrate who makes the initial pretrial detention decisions, and these initial decisions are made before the VPRAI assessment begins. Additionally, the public defender added that these initial detention decisions often come with excessive cash bonds that are difficult for defendants and attorneys to overcome. These findings suggest that the VPRAI may be more useful if the magistrates used it early on in the pretrial process.

The professional stakeholders interviewed also suggested three ways to improve the factors used to calculate risk. They believed the VPRAI risk factors should be modified to: include mitigating factors; differentiate between the severities of crimes; and more accurately weigh the dangers posed by those arrested for DUIs, drug offenses, and domestic abuse. (These findings are contained in column five of Table 2, pages 49-51).

Including mitigating factors into the algorithm would help produce a more accurate measure of an individual's risk. For example, defense attorney #1 suggested that substance abuse *treatment* history should be included as a mitigating factor because it would likely mitigate any drug abuse history that the VPRAI currently considers an elevated risk factor. The public

defender also mentioned that the VPRAI should consider mitigating factors such as a defendant's community ties, which lowers flight risk, in order to produce a more accurate measure of risk.

The prosecutor, both attorneys, and the public defender all mentioned in their interviews that the VPRAI should differentiate between the severities of crimes in order to make a more precise determination of a defendant's risk to the community. For example, defense attorney #2 suggested that the VPRAI should weigh different types of violent crimes differently, and risk should be assigned according to their severity. Similarly, the DCJS official suggested that domestic violence should be considered uniquely when factoring in the risk a defendant poses to the community. Defense attorney #1 further suggested that a defendant accused of a property crime should be considered less of a risk to public safety than if he were convicted of a violent crime.

Additionally, the VPRAI should more accurately weigh the dangers posed by those arrested for DUIs and drug offenses. For example, the judge and defense attorney #2 were both concerned that, when it comes to "hard" drug charges, the VPRAI does not take into account the risk an individual poses to themselves; instead, it often recommends release without adequate pretrial services. Similarly, when it comes to DUI charges, the prosecutor was concerned that the VPRAI does not adequately consider the danger an individual poses to themselves or the community, and it often recommends release without adequate pretrial services. Pretrial officer #2 highlighted that this problem is attributed to the VPRAI being poorly designed to weigh drug use differently, depending on the type of drug and the risk associated with its use.

The interviewees suggested that the aforementioned modifications be made to the VPRAI because they believe that these changes would help the VPRAI measure a defendant's risk more accurately. These findings demonstrate that professional stakeholders have many suggestions on

how to improve the VPRAI. The significance of this is that, while professional stakeholders are not data scientists or software developers, they do have good ideas regarding how to improve the factors that are considered in the algorithm.

One final significant finding is that only one interviewee from this group expressed specific concerns that the VPRAI could produce biased outcomes. The public defender mentioned that she was concerned that there could be an increase in the likelihood of pretrial detention for minorities due to over-policing in minority communities. This is a concern because the VPRAI increases a defendant's level of risk based on their criminal history, which could be more substantial for someone living in a community that is policed more frequently. The fact that only one interviewee was concerned by this highlights the need for independent literature on the VPRAI that points out why professional stakeholders should be mindful to the possibility that even data-driven risk assessments can produce biased outcomes.

Bond Hearing Observations

As I sat beside the prosecutor during the bond hearings, I made some observations about the pretrial report, which is a document produced by the VPRAI, and is used during a bond hearing. First, a pretrial report is made up of a few sheets of paper. The first sheet includes: identifying information on a defendant; a convenient summary of a defendant's charges; his risk factors; a detention recommendation based on his risk level; recommended conditions for his release; and noteworthy mitigating or aggravating factors that the VPRAI wasn't designed to consider. The other pages contain a summary of the defendant's criminal history. Another thing I noticed about the pretrial report is that the defendant's race is reported in the upper right-hand corner. A final observation about the report is that under the release or detention recommendation is a sentence that conveys whether the recommendation is consistent with the

Praxis recommendation, or whether the pretrial officer overrode the Praxis recommendation.

These findings suggest that, while the VPRAI's pretrial report provides a convenient and objective summary of a defendant's risk factors and criminal history, it also may introduce subjectivity into the release decision in two ways. First, it allows a pretrial officer to override the objective Praxis recommendation; second, it subconsciously suggests that a defendant's race might warrant inclusion into a release decision by prominently noting a defendant's race on the form.

I also noticed the way in which the pretrial report was used and by whom. The judge and prosecutor both had copies of each defendant's pretrial report, and discussed the information it contained with each other. There was a pretrial services officer present at the bond hearings to answer questions about the pretrial reports, but he was never asked any questions. Additionally, all defendants appeared at the bond hearing through video conferencing because they were currently detained in jail. None of them had a copy of their pretrial report. Interestingly, no defense attorneys were present at the bond hearings. This suggests that the pretrial report is more beneficial to the judge and prosecutor, and not readily available to incarcerated defendants. It also suggests that the pretrial report is not often reviewed or objected to by legal counsel or pretrial defendants.

I also observed the way the prosecutor used the report to present his bond recommendation to the judge. In some cases, the prosecutor verbalized his disagreement with the pretrial report's recommendation. In one case, the prosecutor pointed out that the magistrate should never have detained the person in the first place. In another case, the prosecutor pointed out that the defendant had been charged while he was detained for a different offense, and so he would remain incarcerated regardless of a decision to release. Yet in another case, the prosecutor

made note that the person was a registered sex offender, and argued that factor should be considered in the release decision. These observations suggest that the prosecutor does not always have confidence in the Praxis recommendations.

Finally, I observed the way the judge used the report to make his release decision. It appeared as though the judge had a process for making his pretrial decisions. Although the judge often followed the pretrial report's recommendation, he did so after three noticeable steps. First, he considered the pretrial report recommendation. Then, he listened to the prosecutor's recommendation. After processing both sources of information, he weighed in with his own judicial wisdom. This sequence suggests that the judge uses the pretrial report to augment his release decision, rather than control it.

Results from Interviews with Former Defendants

Interviews with former defendants revealed important pretrial detention findings. As shown in column eight on Table 6 (page 54), all former defendants in this interview group spent at least one day in jail, even though all but one of them were eventually granted pretrial release by a judge at their bond hearing, *and* a Praxis recommendation determined that detention was not necessary. This finding shows that the VPRAI is not being used early enough in the pretrial process; and as a result, defendants are being unnecessarily detained pretrial. If the VPRAI had been used by the magistrate for the initial detention decision, then he would have received the Praxis recommendation showing that detention was not necessary, and these defendants would likely not have been detained at all.

Additionally, these interviews revealed important findings concerning the use of cash bond. As shown in column six of Table 6, those who were granted release all reported that a cash

bond was required. This is important because it shows cash bond is being frequently imposed, and that it is imposed on both low and high-risk defendants. In fact, column two on Table 6 shows that three of the defendants received a risk score of zero--the lowest possible score--yet, in order to be released, they had to post a cash bond. The use of cash bonds for low-risk defendants is particularly concerning because it can result in the unnecessary detention of a low-risk individual based on his meager financial resources.

Interviews with former defendants also revealed that even short-term pretrial detentions can create hardships. As shown in column eight of Table 2, all interviewees were detained pretrial for a short amount of time--between one and three days. However, as shown in column ten of Table 6, all interviewees mentioned that they, or their families, faced some sort of hardship as a result to their pretrial detention. Financial struggles and termination of employment were the most commonly identified hardships. Other hardships included losing their house and the inability to care for a child. These findings stress the need to consider how, even one day of pretrial incarceration, can negatively impact a defendant's employment status, finances, housing, and family.

Risk score calculations revealed something interesting about this interview group--their risk scores did not always make sense, and in one case, the score did not correlate with legal requirements. For example, as shown on Table 6, two individuals were arrested for misdemeanors--one for a *violent* misdemeanor, the other for a *non-violent* misdemeanor--yet both individuals received the lowest risk score possible--a zero. If common sense were used, the court would more likely have determined that releasing someone arrested for a violent offense might pose more risk to the community than a person who was arrested for a non-violent offense. This finding suggests that judicial discretion is needed to catch such discrepancies.

Additionally, the Praxis recommendation can diverge from what is required by law. As shown in columns three and four on Table 6, the Praxis recommended release for an individual who was arrested for a DUI with a BAC greater than .15%, but the law requires mandatory detention. The discrepancy in this case could be attributed to the fact that the VPRAI manual directs pretrial officers to omit alcohol abuse when calculating the drug abuse category (Virginia Department of Criminal Justice Services, 2018). This finding also suggests that judicial discretion is needed to catch such discrepancies.

In this small sample, it was evident that the judge often followed the Praxis recommendations, but he also exercised judicial discretion when necessary. As shown in column three and four on Table 6, the judge followed the Praxis recommendation to release in all but one case--the DUI case, where the Praxis recommended release, but the law required detention. However, the judge did catch this discrepancy.

A final finding sheds more light on the early stages of the pretrial risk assessment process when the pretrial officer questions the detained defendant. This exemplifies the vulnerable position a defendant is placed in during the questioning process. Recall that during the interviews, the interviewees were asked the same questions a pretrial services officer would have asked them while they were detained. When the interviewees were asked, at the conclusion of the interview, whether they remembered answering similar pretrial risk assessment questions, only one interviewee remembered doing so, despite the fact they were all almost certainly asked them the first day of detention. She also mentioned that she was not aware of the purpose of the questioning, and assumed that the questions she answered while she was detained were meant to determine her eligibility for a bail bondsman. This is significant because it demonstrates that the

pretrial risk assessment is not being conducted in a manner that is transparent to the detained defendant, which increases the defendant's risk of self-incrimination. Interestingly, in the other interview group, defense attorney #2 explained that this situation commonly occurs because defendants do not have an attorney present when they are asked these questions and they are either ignorant of how their answers might be used against them, or they are too preoccupied with complying with authority, so they simply offer answers without considering the consequences.

Discussion

Measuring the VPRAI in three distinct ways is the only way to determine its effectiveness. The first way is to consider how professional stakeholders who use the VPRAI view its utility. The second way is to consider how its use is furthering Virginia's criminal justice reform goals. The third way is to consider if it has any major flaws that would make it an ineffective tool to measure risk.

Effectiveness of its Utility

First, data from the professional stakeholder group provides evidence that the VPRAI is an effective tool for criminal justice professionals because of its utility. All of the professionals I interviewed considered the VPRAI to be a useful tool for their own purposes and as a means for communicating with other professional stakeholders. For example, the judge related that the VPRAI pretrial report was an important and helpful component in his release decisions because it summarizes everything he needs to consider at a bond hearing, which allows for a speedy but thorough review. Similarly, the prosecutor stated that the VPRAI pretrial report helps him make bond recommendations to the judge. Additionally, the Virginia Department of Criminal Justice

Services official, whose job entails the oversight of the pretrial services budget, mentioned that Praxis recommendations help conserve resources by targeting expenditures to the individuals who need them most, and it even details the manner in which the resources should be used—drug testing, trial reminders, check-ins--in order to maximize pretrial success rates. Further, both defense attorneys mentioned that the VPRAI pretrial report provides them with a helpful summary of their client's history. Finally, both pretrial officers stated that the VPRAI helps them calculate objective pretrial release and detention decisions. Based on testimony evidence from the professionals whose work involves the VPRAI, it is indeed an effective pretrial tool when measured by the *utility* it provides to criminal justice professionals. However, this does not establish that the VPRAI is a comprehensively effective tool.

Effectiveness to Further Reform Goals

Virginia's criminal justice reform efforts include lowering pretrial detention rates and eliminating the use of cash bonds. It is believed that the VPRAI will help further these two goals (Herring, 2018; Virginia Department of Criminal Justice Services, 2013), but does the evidence support it? In order to determine if the VPRAI is an effective tool for lowering pretrial detention rates and eliminating the use of cash bonds, we can consider the testimony evidence from the former defendant group, analyze statistics on pretrial detention in Virginia from the Vera Institute for Justice, and note findings on Virginia's use of cash bond from the Virginia Crime Commission.

Data from the former defendant group shows that the VPRAI is not being used early enough in the pretrial process to lower pretrial detentions. All interviewees in this group stated that they had been detained pretrial for at least a day, one for three days. However, at their bond hearings, all but one of them were determined by the VPRAI, and the judge, to be of low risk and

they were released. Had the risk assessment been conducted at the magistrate level, these defendants would have been identified as low-risk from the start, and likely never detained before their trial. Therefore, in order to truly stop unnecessary pretrial detentions, the VPRAI must be used earlier on in the process, during the magistrate's initial detention decision.

To be fair, this group of former defendants does not represent the whole; however, data from the Vera Institute for Justice (2019) shows that pretrial detention in Virginia has not been lowered by the use of the VPRAI. In fact, since its implementation, the number of detained pretrial defendants has increased. When the VPRAI was implemented in 2005, there were almost 12,000 individuals detained pretrial in Virginia. The most recent figures available show that, by 2015, there were over 13,000 individuals detained in Virginia before their trial (Vera 2019). I assert that the reason for this increase, and the reason for the former defendant group's initial detentions, was not due to the *use* of the VPRAI, but rather due to the fact that the VPRAI is *not* being used at the magistrate level. In order for the VPRAI to be used as an effective tool to lower pretrial detention rates, it *must* be used at the time the initial pretrial detention decision is made.

Data from the former defendants' group also provides evidence that the VPRAI is not being used to further efforts to eliminate the use of cash bonds. Recall that the VPRAI never recommends cash bond as a condition for release, yet all of the former defendants who were granted pretrial release had to pay a cash bond. Although this group is not a representative sample of the whole, the trend is confirmed by a study from the Virginia Crime Commission (2018), which found that in 2017, 62% of Virginia's pretrial detainees who were granted release with some level of pretrial supervision were also ordered to post a cash bond. This finding makes it clear that, although the VPRAI never recommends the use of cash bonds, they are still frequently used in conjunction with the non-monetary release conditions recommended by

Praxis. Using the VPRAI in conjunction with cash bonds will not lower incarceration rates, instead it will keep lower-income defendants unnecessarily detained. If the VPRAI is to be used to help eliminate cash bond practices, then judicial officials must heed the VPRAI's release recommendations--and stop imposing monetary release conditions.

Based on the testimony evidence from former pretrial defendants and statistics from Vera and the Virginia Crime Commission, the VPRAI is not being used as an effective tool for helping further criminal justice reform goals. It has the potential to help lower incarcerations rates and eliminate bail reform, but to contribute to these efforts it must be used earlier on by the magistrate, and not in conjunction with cash bonds.

Effectiveness to Measure Risk

The final measure of effectiveness requires that the VPRAI be examined to uncover any flaws that would make it an ineffective tool to measure risk. In order to determine this precisely, a validation study would have to be conducted, which cannot be done until the VPRAI is opened up for independent inquiry. However, we *can* analyze the qualitative data gathered in this study and existing literature to identify potential problems with how the VPRAI measures risk.

Findings from this research cannot adequately establish whether the VPRAI is an effective tool to measure risk. However, this research does offer anecdotal evidence that illustrates, in some cases, the VPRAI has not produced risk scores that align with common sense or legal requirements. For example, consider the two misdemeanor cases that were compared previously, these serve as examples on how the VPRAI can assign risk scores that do not align with common sense. Recall that the violent offender was given the same risk score as the non-violent offender. Additionally, the DUI case mentioned previously serves as an example of how

the VPRAI can fail to measure risk according to legal requirements. Recall that the risk score aligned with a recommendation to release, which was contrary to legal requirements.

This research also offers anecdotal evidence that in some cases the VPRAI does not adequately measure risk for drug and alcohol offenses. For example, interviews with professional stakeholders revealed that they are concerned with how poorly the VPRAI considers risk for drug charges and DUIs. Both the judge and a defense attorney expressed frustration that in drug cases the VPRAI does not consider the risk individuals pose to themselves. Additionally, the prosecutor expressed frustration that in DUI cases the VPRAI does not consider the risk individuals pose to themselves, nor does it adequately calculate the danger they pose to society. Together, these findings gleaned from interviews with professional stakeholders, suggest that in many ways the VPRAI falls short of perfectly measuring risk.

An analysis of the existing literature on RAIs can also help identify potential problems with how the VPRAI measures risk. Literature mentioned previously on RAIs establishes that some factors are a poor measure of risk for certain groups. With this in mind, a careful review of Luminosity's race and gender-neutral study on the VPRAI reveals that two factors in particular were not a good measure of risk for people of color or women. "Two or more violent convictions" and "length of residency" were poor measures of risk because they tended to produce risk scores that were too high for members of these groups (Danner, VanNostrand & Spruance, 2016). While the "length of residency" factor was eventually dropped from the VPRAI algorithm the "two or more violent convictions" factor remains. This suggests that the VPRAI may not be adequately calculating risk for people of color or women because it still considers this faulty risk factor. If true, this flaw would make in an ineffective tool to measure

risk. However, no concrete conclusions on the VPRAI's effectiveness at measuring risk can be made until the VPRAI is opened for independent inquiry and validation.

Conclusion and Policy Recommendations

The VPRAI could be an effective tool to further criminal justice reform efforts in Virginia if it were used earlier on in the pretrial process, not used in conjunction with cash bond, and open to independent inquiry. An effort to modify the VPRAI would be worthwhile because it seems to be an effective tool for criminal justice professionals and if perfected it would help them accurately sort low-risk defendants for release and high-risk defendants for pretrial detention. Professional stakeholders viewed the VPRAI as very useful, and cited clear examples of how it helps them in their work. It simplifies decision making, helps direct resources, and provides valuable information in a summarized format. However, the VPRAI falls short of being effective in two important ways. First, at the present time, the VPRAI is not effectively contributing to reform efforts because it is not being used early enough in the pretrial process to avoid detentions, and it is being used in conjunction with cash bonds. Additionally, it is impossible to prove that the VPRAI is an effective tool to measure risk because it is not open to independent inquiry. Although the VPRAI falls short of being an all-around effective tool, I conclude that with some modifications the VPRAI could help further criminal justice reform efforts and produce unbiased risk assessments. Below I propose several policy modifications that could improve the use of the VPRAI as a tool to lower incarceration rates, eliminate cash bond, and produce unbiased pretrial detention decisions.

Policy Recommendations

The first policy recommendation is for the VPRAI to be used at the magistrate level. The VPRAI can help magistrates more accurately identify who needs to be detained. This change could help eliminate unnecessary pretrial detentions and in turn lower incarceration rates. Other criminal justice professionals already appreciate the VPRAI's utility and likely magistrates would readily adopt it too.

Additionally, this policy modification has a small price tag that would be offset by pretrial detention reduction. While there would be a cost associated with training magistrates on the VPRAI and additional pretrial officers would be needed to conduct round-the-clock investigations, there should not be any additional costs associated with the change. In fact, overall this modification would result in cost savings because using the VPRAI at the magistrate level would help to lower unnecessary pretrial incarcerations from the beginning of the pretrial process.

The second policy recommendation is to eliminate the practice of cash bonds through state legislation. So far, the VPRAI has not been used to further this reform goal, therefore the practice must be ended through legislation. This would force judicial officials to solely rely on the Praxis recommendation for pretrial services. These services are beneficial to pretrial defendants because they increase the likelihood that they will show up for trial and remain on good behavior. The practice of cash bond offers no such support.

Further, this policy recommendation has more challenges than the first. For example, the bail bond industry will fight against the change. Legislators will have to overcome the industry's influence. Moreover, the financial consequences associated with cash bond elimination should be

studied. However, it is beyond the scope of this research to calculate how the elimination of cash bond might impact the finances of the Commonwealth, or to formulate a plan to pass legislation.

Finally, independent studies must be conducted on the VPRAI in order to ensure that it is producing unbiased risk calculations and accurate release recommendations. We cannot rely on a for-profit company to find flaws with its own algorithm. Independent researchers would not shy away from finding and disclosing shortcomings, and this would improve the VPRAI by highlighting areas in need of correction and providing some much needed pressure on Luminosity to make changes. More importantly, independent inquiry is needed because professional stakeholders and the public must have a reliable account of the outcomes produced by the VPRAI. Until there is an independent validation study, we cannot be certain that accurate data is being used to detain individuals.

Together these three policy recommendations could improve the pretrial process and promote pretrial justice. If the VPRAI were improved through independent research and used at the magistrate level--without cash bond--it would be an all-around effective tool to further Virginia's pretrial reform efforts. These policy modifications would help criminal justice professionals accurately identify defendants for detention based on risk and lower costly detentions. Further, these improvements would ensure that pretrial justice in Virginia is equal for all and not exacerbating preexisting criminal justice biases through the use of inaccurate algorithms or flawed data.

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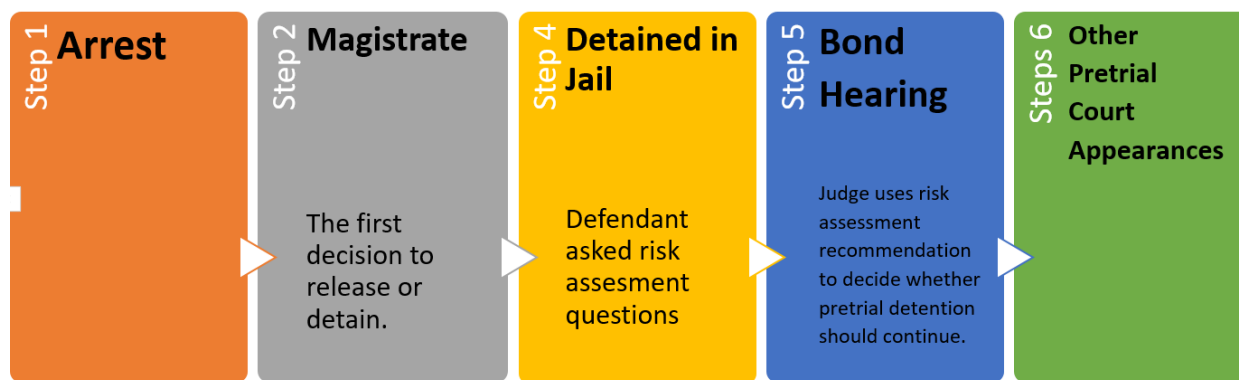
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Pretrial Process in Virginia

Table 1

Pretrial Process for Many Defendants in Virginia



Professional Stakeholders' Answers Organized by Theme

Table 2

Professional Stakeholder Identified by Role	Benefits	Challenges	Consequences	Suggested Improvements	Generally Supports Use of VPRAI and Praxis	Concerns on bias outcomes
DCJS Official	<p>It is evidenced- based and validated</p> <p>Provides an objective measure of risk, roots out subjective bias</p> <p>Risk assessment instruments can further the goal of cash bond elimination</p> <p>Praxis can save resources by identifying those who do not need pretrial services or detention</p> <p>Praxis can mitigate FTA risk</p>	<p>Too much restriction can be harmful, we must be making correct decisions</p> <p>33 pretrial services agencies to monitor</p>	<p>Need to keep monitoring and studying outcomes</p>	<p>Factoring conviction is better than factoring in arrest</p> <p>Make process faster</p> <p>Consider the PSA RAI when contemplating improvements</p> <p>Keep studying and improving</p> <p>Consider replacing recommendation to detain with the word "caution"</p> <p>Consider domestic violence and mental health</p> <p>Be more precise on what we mean by "public safety"</p> <p>Provide professional education</p>	Yes	Should be mindful
Judge	<p>Very important and helpful component in release decisions</p> <p>Condenses lots of important information for quick review</p> <p>Neutral party doing assessment</p>	<p>Hard to quantify human behavior</p> <p>Judges must be mindful of unwise release recommendations</p>	<p>Pretrial services has become good at assessing people and highlighting discrepancies</p> <p>Allows for good collaboration between judge</p>	<p>For drug abuse we must consider the risk of release to the <i>person</i>.</p>	Yes	No

	Praxis helps keep released defendants out of trouble		and pretrial services			
Prosecutor	Helpful for bond recommendation Good measure of FTA	Must aid bond decision, not control Human discretion is still needed Must have good pretrial agency, they are not all the same Not good measure of someone committing another crime	Tool sometimes recommends improper release	Include factors for DWI, nature of offense,	Yes	No
Defense Attorney 1	Good informational tool for all parties at bond hearing	Magistrates don't use the risk assessment tool. They consider recommendations from arresting officers.	Geared more for prosecutor's benefit than defendants Doesn't consider mitigating factors	Consider time in community Distinguish between property and violent crime Include substance abuse <i>treatment history</i>	Yes	No
Defense Attorney 2	Provides helpful summary of defendant's history It's a confidential document	Uncertainty concerning how recommendations are calculated Judge often overrides release recommendations	Increases defendant's risk of self-incrimination	Training needs to be offered to attorneys The more its studied, the more we can learn how to improve it Differentiate between types of criminal convictions & charges Differentiate between types of violent crimes Consider risk to self in drug cases Should not consider employment status	Yes	No

				Consider mitigating factors such as community ties		
Virginia Delegate & Public Defender	<p>Takes subjectivity out of decision making-process.</p> <p>Praxis can help ensure defendants are successful on pretrial release.</p> <p>Safer decisions made based on risk and not on how much money someone can pay</p>	<p>Magistrate's pretrial decisions must be overcome, excessive bond often initially imposed.</p> <p>Pretrial officers do not consistently follow Praxis recommendation.</p> <p>FTA is easier to predict than whether someone will break the law</p>	Increase likelihood of pretrial detention for minorities due to over policing.	<p>Count FTAs only if they are actual convictions</p> <p>Mitigating factors to consider: mental illness, time in community, children in school</p> <p>Praxis could include text messaging as a pretrial services method</p>	Yes	Yes
Pretrial Officer 1	<p>helped move risk assessments from subjective to objective</p> <p>Furthers goal to eliminate cash bond</p> <p>Improves public safety and appearance rates</p>	<p>Crime Commission just catching up on VPRAI</p> <p>We have to remember detention should be a last resort</p>	None	Keep studying and tweaking as needed	Yes	No
Pretrial Officer 2	<p>Allows pretrial services to objectively calculate risk and recommend bond</p> <p>It's evidence-based and validated</p>	Hard to factor in mental health issues	Release of low-risk defendants lowers their risk of recidivism, and makes them less likely to plead	<p>Consider weighing drug use differently depending on type of drug</p> <p>Improve constituency awareness of VPRAI</p> <p>Keep studying and improving as needed</p>	Yes	No

Chart for Initial Calculation

Table 3

Risk Factor	Points
Active community criminal justice supervision	2
Charge is felony drug, felony theft, or felony fraud	3
Pending charge(s)	2
Criminal history	2
Two or more failure to appear	1
Two or more violent convictions	1
Unemployed at time of arrest	1
History of drug abuse	2
Total Possible Score	14

Source: Virginia Department of Criminal Justice Services. 2018. *VPRAI Manual*.

Chart for Secondary Calculation

Table 4

The defendant's total score on the VPRAI will identify their level of risk.

VPRAI-R Score	Risk Level
0 - 2	Level 1
3 - 4	Level 2
5 - 6	Level 3
7 - 8	Level 4
9 - 10	Level 5
11 - 14	Level 6

Source: Virginia Department of Criminal Justice Services. 2018. *VPRAI Manual*.

Praxis Chart to Calculate Detention Recommendation and Steps for Risk Mitigation

Table 5

Source: Virginia Department of Criminal Justice Services. 2018. *VPRAI Manual*.

Risk Level	Recommendation	VPRAI: Charge Category				
		Non-Violent Misd.	Driving Under the Influence	Non-Violent Felony	Violent Misd.	Violent Felony or Firearm
Level 1	Bail Status	Release	Release	Release	Release	Release
	Pretrial Supervision	No	No	No	No	Level II
	Special Conditions	No	No	No	No	As Needed
Level 2	Bail Status	Release	Release	Release	Release	Release
	Pretrial Supervision	No	Monitor	Monitor	Monitor	Level III
	Special Conditions	No	No	No	No	As Needed
Level 3	Bail Status	Release	Release	Release	Release	Detain
	Pretrial Supervision	Monitor	Monitor	Level I	Level I	No
	Special Conditions	No	No	No	As Needed	N/A
Level 4	Bail Status	Release	Release	Release	Release	Detain
	Pretrial Supervision	Level I	Level I	Level II	Level II	No
	Special Conditions	No	As Needed	As Needed	As Needed	N/A
Level 5	Bail Status	Release	Release	Release	Detain	Detain
	Pretrial Supervision	Level II	Level II	Level III	No	No
	Special Conditions	As Needed	As Needed	As Needed	N/A	N/A
Level 6	Bail Status	Detain	Detain	Detain	Detain	Detain
	Pretrial Supervision	No	No	No	No	No
	Special Conditions	N/A	N/A	N/A	N/A	N/A

Analysis of Answers from Former Defendants

Table 6

Former Defendant(FD) Identified by Number and Most Serious Charge	Risk Score*	Was Released Before Trial	VPRAI Recommendation Followed?	Recalls Answering Pretrial Questions	Cash Bail a Condition of Release	Pretrial Services a Condition of Release	Number of Days Detained Before Trial	Praxis Recommendation Followed?*	Hardships Related to Pretrial Detention
FD1 Felony Theft	9	Yes	Yes	Yes	Yes	Yes	1	Yes	Job Loss, Financial Problems, Housing Loss, Inability to care for child
FD2 Violent Misdemeanor	0	Yes	Yes	No	Yes	No	1	Yes	Financial hardship
FD3 Non-Violent Misdemeanor	0	Yes	Yes	No	Yes	No	1	Yes	Inability to provide for child, Financial hardship
FD4 Felony Theft	9	Yes	Yes	No	Yes	Yes	3	Yes	Job loss, Financial hardship
FD5 1 st time Misdemeanor DUI >0.15%	0	No	No- law required mandatory time	No	N/A	N/A	2	No	Financial hardship

Appendix

List of Interviewees from the Professional Stakeholder Group

1. Virginia Delegate and public defender, Jennifer Carroll Foy
2. Stafford County Commonwealth Attorney, Eric Olsen
3. Fredericksburg area defense attorney #1, confidentiality requested
4. Fredericksburg area defense attorney #2, Stacey Garcia
5. Rappahannock Regional Jail Pretrial Services officer #1, confidentiality requested
6. Rappahannock Regional Jail Pretrial Services officer #2, confidentiality requested
7. Stafford County judge, J. Bruce Strickland
8. Virginia Department of Criminal Justice Services official, confidentiality requested

Professional stakeholders who declined to be interviewed:

1. Virginia State Crime Commission Executive Director, Kristen J. Howard
2. Old Dominion University professor and co-author of Luminosity's VPRAI validation study,
Monna Danner

Appendix

Interview Questions for Professional Stakeholder Group

Question 1: How do pretrial risk assessments, or pretrial risk assessment tools, impact your work?

Question 2: Do you believe the use of the Virginia Pretrial Risk Assessment Instrument (VPRAI), and related Praxis risk recommendation instrument improves justice in Virginia? Why or why not?

Question 3: Do you have any concerns about the implementation, use, or outcomes produced by VPRAI or Praxis?

Question 4: To your knowledge, have other professionals brought up concerns about VPRAI, Praxis or similar risk calculation and mitigation instruments? What are those concerns?

Questions 5: Do you believe that the 8 pretrial risk factors collected for VPRAI are good measures of risk? Why or why not?

For reference, the 8 factors are, at the time of arrest, the individual:

1. Is on active community criminal justice supervision
2. Currently being charged for felony drug, theft, or fraud
3. Has a pending charge
4. Has one or more adult criminal convictions
5. Has two or more failures to appear
6. Has two or more violent convictions
7. Is unemployed

8. Has a history of drug abuse

Question 6: In your opinion, what other factors should be used to determine whether a pretrial defendant would show up for court and remain on good behavior?

Question 7: Are you aware of any concerns that the VPRAI or Praxis may be unintentionally biased against groups of people or in some other way flawed?

Question 8: Has the use of VPRAI and Praxis made Virginia safer?

Question 9: Do you believe that the use and implementation of VPRAI and Praxis must be studied further? Why? What could we learn? What should we learn?

Question 10: Thinking about pretrial risk assessment tools in general, are there any additional comments you would like to make?

Appendix

Interview Questions for Former Defendant Group

To begin, think about a time in your past in which you were arrested and waited in jail for a court appearance. Answer the following questions based off of that resolved incident.

In what year did the arrest take place? _____

Mark all the charges that applied to your arrest:

(Answers can be marked by either highlighting text, placing an “X” near the term, or writing a comment.)

- Violent Felony
- Violent Firearm
- Violent Misdemeanor
- Non-Violent Felony
- Driving Under the Influence
- Non-Violent Misdemeanor
- Failure to Appear
- Unsure

If Failure to Appear was a charge, please select the charge you were supposed to appear for:

- Violent Felony
- Violent Firearm
- Violent Misdemeanor
- Non-Violent Felony
- Driving Under the Influence

- Non-Violent Misdemeanor
- Unsure

Now, please answer the questions in the box below based on how you would have likely answered these same questions *at the time of your arrest*. (Answers can be marked by either highlighting text, placing an “X” near the term, or writing a comment.)

Question 1	At the time of arrest, were you on active criminal justice supervision?	Yes	No	I would not have known how to answer.	Other response or comment:
Question 2	Was your arrest for felony drug, felony theft, or felony fraud?	Yes	No	I would not have known how to answer.	Other response or comment:
Question 3	At the time of arrest, did you have any pending charges?	Yes	No	I would not have known how to answer.	Other response or comment:
Question 4	At the time of arrest, did you have <u>one or more</u> adult criminal convictions?	Yes	No	I would not have known how to answer.	Other response or comment:
Question 5	At the time of arrest, did you have <u>two or more</u> failures to appear?	Yes	No	I would not have known how to answer.	Other response or comment:
Question 6	At the time of arrest, did you have <u>two or more</u> violent convictions?	Yes	No	I would not have known how to answer.	Other response or comment:
Question 7	At the time of arrest, were you unemployed?	Yes	No	I would not have known how to answer.	Other response or comment:
Question 8	At the time of arrest, did you have a history of drug abuse?	Yes	No	I would not have known how to answer.	Other response or comment:

In the following sections, answers can be marked by either highlighting text, placing an “X” near the term, or writing a comment.

Question 9: When you were detained in jail, do you remember someone asking you similar questions to

Yes	No	Do not recall
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those listed above?

Question 10: Did a judge grant you pretrial release? (Pretrial release means you were allowed to leave jail before your trial.)

Yes	No	Unsure
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Question 11: Did you leave jail before your trial?

Yes, shortly after my release was allowed.	Yes, eventually, but only after a delay of more than two days.	No, I did not leave jail before my trial.
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Question 12: If you were given pretrial release, (allowed to leave jail before your trial), were there any terms associated?

No terms to comply with	Cash Bond	Released on own recognizance (signature)	Check in with Pretrial Services	Drug Test	Other:
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Question 13: If you were given pretrial release, were you able to meet the terms of your release?

Yes	No	Does Not Apply	Other:
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Question 13: Did being detained in jail before your trial cause you, or anyone you consider as close family, to suffer any hardship? Mark all that apply, and elaborate if you desire. Please do not include

hardships that came about while serving a sentence. Answers can be marked by either highlighting text, placing an “X” near the term, or writing a comment.

Hardships that affected you due to incarceration <u>before</u> trial:	Hardships that affected someone you would consider as close family, due to your incarceration <u>before</u> trial:
Financial problems Job loss Vehicle repossession Housing loss Physical health decline Mental health decline Inability to provide care for a child Inability to provide care for an adult School absences Lost custody of child Other, please feel free to elaborate:	Financial problems Job loss Vehicle repossession Housing loss Physical health decline Mental health decline Inability to provide care for a child Inability to provide care for an adult School absences Lost custody of child Other, please feel free to elaborate: