Trial-Lawyer Leaders in Court Change Institutions Forcing the Use of Tests and Equations So That Challenged Ones Become Successfully Healthy Thus Safeguarding Schools and Workplaces from the High-Risk Homicidal, Mass-Murdering and Sex-Offending

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Abstract

Annual U.S. violence expense = $3.46 trillion (12.5% GDP). Insurance mass-murder/sex-offending payouts range from $3M-$1.1B. The U.S. Catholic Church has 24/194 (13%) pedophilia-bankrupt dioceses. Using 4-machine learning tests-equations, 7-high-risk predictors are—(1) addiction-alcoholism, (2) antisocial-behavior, (3) deception, (4) depression, (5) paranoia, (6) schizophrenic-thinking, (7) violence-potential—found in 212 studies (320,051 persons); in anticipating violent behavior, 4 tests-equations have 97% impressive predictive accuracy, ASP (Ask Standard Predictor, 2010), BASC (Behavior Assessment System Children, 1992), CAPI (Child Abuse Potential Inventory, 1986), MMPI-2/A (1992). Using tests-equations, over 16-years, insurance-leaders targeted 255,806 high-risk youth with cost-effective, (ROI=$6.42 for every dollar spent) jobs, anger-training, mentors, showing substantially 1,070 less homicides ("Chicago Summer-1 program"). This proves tests-equations with interventions work. Trial lawyer leaders using tests-equations with interventions motivate institutional change by increasing homicide, mass-murder, sex-offending settlements-awards to $10-$100B leading insurance professionals to modify liability contracts mandating continuing professional education in test-equation use, thus lowering premiums, bankruptcies.

Keywords: machine-learning, tests-equations, payouts, challenged, homicidal, mass-murderer, sex-offending, development, trial-lawyers, insurance-brokers, ASP, BASC, CAPI, MMPI

1. Introduction

Many do not know that the toll of violence is a staggering figure, namely $1 out of every $8 spent by taxpayers or businesses. This burden results in higher food prices linked to violence and lower home values in crime ridden areas. The expense has more effects including lowering worker efficiency, business profits, new job openings, and persuading new potential companies to look elsewhere for opportunity because of the negative influence of violence.

Countless persons have personal connections among their family, relative, peers, or coworkers to homicide, mass-murder or sex-offense victims. The fallout from these violent events goes above these personal connections, affecting everyone through higher insurance premiums and greater taxes. However, to address this great economic and personal expense, a

new, remarkable solution has emerged, tests and equations.

Table 1a. Seven Characteristics of 320,051 High-Risk Persons in 212 Studies Over 90 Years

s	Tests-Equations	# of Studies	# of Persons	Calendar Years		Characteristics
Homicidal-Violent-Prone	MMPI, MMPI-2, MMPI-A	44	21,130	1949-2014	65	Antisocial behavior, deception, depression, paranoia, schizophrenic thinking
Overdosing-Substance-Abusing	MMPI, MMPI-2, MMPI-A	21	66,839	1984-2017	43	Addiction-alcoholism, antisocial behavior, deception, depression, paranoia, schizophrenic thinking
Sex-Offending	MMPI, MMPI-2, MMPI-A	45	9,832	1971-2018	47	Antisocial behavior, deception, depression, paranoia, schizophrenic thinking
Suicide-Completers	MMPI, MMPI-2, MMPI-A	31	30,634	1958-2014	64	Antisocial behavior, deception, depression, paranoia, schizophrenic thinking
Delinquents (Teens)	Ask Standard Predictor (ASP)	13	31,486	1932-2013	81	Violence potential
Criminals (Adults)	Ask Standard Predictor (ASP	57	160,130	1923-2013	90	Violence potential
Total		212	320,051		90	Addiction-alcoholism, antisocial behavior, deception, depression, paranoia, schizophrenic thinking, violence potential

For 90-years, we have known the seven characteristics of high-risk individuals listed in 212 studies of 320,051 persons using tests-equations as measured with the Ask Standard Predictor (ASP) and Minnesota Multiphasic Personality Test (MMPI). See Table 1a.

Homicidal-Overdosing-Sex-Offending-Suicidal: There are 141 studies on the MMPI, MMPI-2/A of 128,435 homicidal, serial or mass-murdering, violent prone, overdosing-substance-abusing, sex-offending, and suicide-completers, in five countries, and two continents, over nearly a century (1923 to 2017) [Zagar, et al., 2019]. There was a consistent pattern of addiction-alcoholism, antisocial behavior, deception, depression, paranoia, schizophrenic thinking and violence potential.

Homicidal, Serial or Mass-Murdering: Among 21,130 homicidal, serial killing, and violent offenders, in 44 studies, over 65 years, there was antisocial behavior, deception, depression, paranoia, and schizophrenic thinking. Convenience and random samples range from 19 to 2,272 female, male, controls, prisoners, soldiers, students, workers, assaulters, death-row inmates, murderers, robbers, serial killers, sex-offenders, and thieves (Fry, 1949; Clark, 1952; Smith, 1955; Rosen & Mink, 1961; Lawton and Kleban, 1965; Jacobson and Wirt, 1968; Davis & Sines, 1971; Persons and Marks, 1971; Sutker and Moan, 1973; Panton, 1976; Megargee, 1977; Rader, 1977; Sutker, Allain, and Geyer, 1978; Megargee and Bohn, 1979; Quinsey, Arnold and Pruesse, 1980; Jones, Beidleman, and Fowler, 1981; Holcomb and Anderson, 1983; Holcomb, Adams, Ponder, and Anderson, 1984; Holcomb and Adams, 1985; Holcomb, Adams, and Ponder, 1985; Guy, Platt, Zwerling, and Bullock, 1985; Ingram, Marchioni, Hill, Caraveo-Ramos, and McNeil, 1985; Cornell, Miller, and Benedick, 1988; Pavelka, 1986; Kalichman, 1988a; Kalichman , 1988b; Wasiliw, Grossman, Haywood, and Cavanaugh, 1988; Carmin, Wallbrown, Ownby, and Barnett, 1989; Biro, Vuckovic, and Djuric, 1992; Shea and McKee, 1996; Graham, 2000; McKee, Shea, Mogy, and Holder, 2001; Megargee, Carbonell, Bohn, and Sliger, 2001; Pennuto, 2004; Megargee 2006; Megargee, 2008; Craig, 2008; Romo, 2009; Spaans Barendregt Muller de Beurs Nijman and Rinne, 2009; Pennuto, 2010; Grover, 2011; Zagar and Grove, 2010; Zagar, Kovach, Basile, Grove, Hughes, et al., 2013; Culhane, Hildebrand, Walker, & Gray, 2014; Brad, Coupland, & Oliver, 2014).

Overdosing-substance-abusing: Within 22 studies of 66,839 overdosing-substance-abusing teens and adults, there is addiction-alcoholism, antisocial behavior, deception, depression, paranoia and schizophrenic thinking. Convenience and random samples range from 50 to 32,000 female, male, addicts, alcoholics, controls, prisoners, students, and workers (Wolfson and Erbaugh, 1984; Gottesman and Prescott, 1989; Craig and Olson, 1990; Gartner, Graham, and Archer,

1992; Basham, 1992; Weed, Butcher, McKenna, and Ben-Porath, 1992; Svanum and Ehrmann, 1992; Greene, Weed, Butcher, Arrendondo, and Davis, 1992; Svanum and Ehrmann, 1993; Svanum, McGrew, and Ehrmann, 1994; Weed, Butcher, and Williams, 1994; Stein, Graham, Ben-Porath, and McNulty, 1999; Miccuci, 2002; Craig, 2005; Stein and Graham, 2005; Miller, Shields, and Canfield, 2007; Clements and Heinz, 2010; Polimeni, Moore, and Gruenert, 2010; Zagar and Grove, 2010; Zagar, Kovach, Basile, Grove, Hughes, Busch, Zablocki, Osnowitz, Neuhengen, Liu, and Zagar, 2013; Dragisic, Dickov, Dickov, and Mijatovic, 2015; Dragisic, Jovanovic, Dickov, Bugarski, Ivetic, and Miskovic, 2017).

Sex-offending: There are 45 studies of 9,832 sex-offending teens and adults over 48 years with antisocial behavior, deception, depression, paranoia and schizophrenic thinking. Convenience and random samples range from 13 to 1,200 female, male, assaulters, controls, exposers, internet sex-offenders, molesters, murderers, nonviolent, patients, prisoners, rapists, sex-offenders, violent-prone, and volunteers (Carroll and Fuller, 1971; McCreary, 1975; Rader, 1977; Armentrout and Haure, 1978; Panton, 1978; Anderson, Kunce, and Riche, 1979; Quinsey, Arnold, and Pruesse, 1980; Kalichman, 1981; Lanyon and Lutz, 1984; Hall, Maiuro, Vitaliano, and Proctor, 1986; Erickson, Luxenberg, Walbek, and Seely, 1987; Levin and Stava, 1987; Walters, 1987; Kalichman, Craig, Shealy, Taylor, Szymanowski and McKee, 1989; Kalichman, Szmanowski, McKee, Taylor, and Craig, 1989; Hall, 1989; O'Connor, 1990; Duthie and McIvor, 1990; Langevin, Wright, and Handy, 1990; Miner, Marques, Day, and Nelson, 1990; Kalichman, 1990; Kalichman, Shealy, and Craig, 1990; Kalichman, 1991; Kalichman and Henderson, 1991; Shealy, Kalichman, Henderson, Szymanowski, and McGee, 1991; Hall, Graham, and Shepherd, 1991; Kalichman, Dwyer, Henderson, and Hoffman, 1992; Lanyon, 1993; Wilson, 1994; Heersink and Strassburg, 1995; Losada-Paisley, 1998; Watkins, 2000; Briley, 2001; Geer, Becker, Gray, and Krauss, 2001; Pietrulewicz, 2006; Looney, 2007; Nademin, 2009; Tomak, Weschler, Ghahramanlou-Holloway, Virden, Elicia, and Nademin, 2009; Coxe and Holmes, 2009; Tomak, Wechsler, Ghahramanlou-Holloway, Veden, and Nademin, 2009; Busch, Zagar, Grove, Hughes, Arbit, Bussell, and Bartikowski, 2009; Davis and Archer, 2010; Zagar and Grove, 2010; Grover, 2011; Zagar, Kovach, Basile, Grove, Hughes, et al., 2013; Oliver, Coupland, and Kurtenbach, 2018).

Suicidal: In 31 studies, with 30,634 suicide-completers, attempters, and ideational, over 57 years, there is antisocial behavior, deception, depression, paranoia and schizophrenic thinking. Convenience and random samples range from 9-575 of controls, patients, prisoners, students, veterans and workers (Simon and Gilberstadt, 1958; Faberow and DeVries, 1967; Ravensborg and Foss, 1969; Lester, 1970; Poeldinger, Gehring, and Blaser, 1973; Leonard, 1974; Clopton and Jones, 1975; Tarter, Templer, and Perley, 1975; Pallis and Birtchnell, 1977; Leonard, 1977; Clopton and Baucom, 1979; Clopton, Pallis, and Birtchnell, 1979; Johnson, Lall, Bongar, and Norland, 1979; Sendbuehler, Kincel, Nemeth, and Oertel, 1979; Jones, Heidleman, and Fowler, 1981; Waters, Sendbuehler, Kineel, Boodoosingh, and Marchenko, 1982; Clopton, Post, and Larde, 1983; Watson, Klett, Walters, and Laughlin, 1983; Watson, Klett, Walters, and Vassar, 1984; Spirito, Faust, Myers, and Bechtel, 1988; Sepaher, Bongar, and Greene, 1999; Archer and Slesinger, 1999; Johnson, Bongar, Lall, and Borland, 1999; Glassmire, Stolberg, Greene, and Bongar, 2001; Daigle, 2004; Friedman, Archer, and Handel, 2005; Zagar and Grove, 2010; Romeo, Balducci, Quintarelli, Perbellini, et al., 2013; Pompili, Rihmer, Akiskal, Innamorati, Iliceto, Akiskal, Lester, Narciso, Ferracuti, Tatarelli, De Pisa, and Girardi, 2008; Zagar, Kovach, Basile, Grove, Hughes, et al., 2013; Pompili, Innamorati, Di Vittorio, Baratta, Massotti, Badaracco, Wond, Lester, Yip, Girardi, and Amore, 2014).

Teen Offenders: In 13 studies of 31,486 teen offenders from1932-2013 over 81 years there is violence potential (Monachesi, 1932; Jenkins, et al., 1942; Jenkins, et al., 1942; Weeks, 1943; Glueck and Glueck, 1950; Simon, 1956; U.S. Navy, 1959; McClintock, 1961; Mannheim et al., 1955; Wenk, et al., 1972; Kandel, et al., 1989; Zagar and Grove, 2010; Zagar, et al., 2013).

Adult Offenders: In 57 studies of 160,130 adult prisoners from 1923-2013 over 90 years there is violence potential (Warner, 1923; Borden, 1928; Burgess, 1928; Burgess, 1929a; Burgess, 1929b; Vold, 1930; Vold, 1931; Tibbits, 1931; Monachesi, 1932; Van Vechten, 1933; Vold, 1935; Redden, 1939; U.S. Attorney General, 1939; Gillin, 1943; Hakeem, 1948; Ohlin and Duncan, 1949; Ohlin, 1951; Glaser, 1962; Metzner and Weil, 1963; Babst and Mannering, 1965; Vikert and Zahnd, 1965; Carney, 1967; Ward, 1968; Walker and McCabe, 1973; Carlson, 1973; Challenger, 1974; Hoffman and Beck, 1974; Ferguson, et al., 1975; Quinsey, et al., 1975; Hoffman and Beck, 1976; Nuttall, 1977; Gottfredson, et al., 1978; Hoffman and Beck, 1980; Soothill, et al., 1980; Greenwood, 1982; Holland, et al., 1982; Nuffield, 1962; Hoffman, 1983; Steadman, 1983; Bonta and Motiuk, 1985; Goldkamp and Gottfredson, 1985; Andrews, et al., 1986; Goldkamp, et al., 1988; Gottfredson and Gottfredson, 1988; Klassen and O'Connor, 1988; Jones and Goldkamp, 1991; Harris, et al., 1993; Bonta, et al., 1996; Quinsey, et al., 1998; Kassenbaum, et al., 2001; Zagar and Grove, 2010; Zagar. et al., 2013).

Limitations: Despite threats to the construct, external, internal, and statistical conclusion validity, the same pattern of seven characteristics of high-risk persons consistently exists across different persons, places and things (tests-equations),

namely addiction-alcoholism, antisocial behavior, deception, depression, paranoia, schizophrenic thinking and violence potential in 212 studies of 320,051 over 90 years. Tests-equations are consistently more objective, reliable, sensitive, specific and valid in discovering high-risk persons. Despite the 40,320 deceptive presentations on the MMPI in a Poisson's distribution (8x7x6x5x4x3x2), and the 1,000 mental illnesses on the International Classification of Diseases, many persist in not using tests-equations in finding high-risk persons. No human can possibly memorize 40,320,000 deceptive illness presentation tests-equations. Human judgment at 46% cannot compete with 97-98% objective, reliable, sensitive, specific, valid tests-equations in finding high-risk individuals.

Tests-Equations: Over the past 40-years, technology has advanced with computer-based, machine learning tests and equations. These tests-equations can find and identify persons at risk of committing violent acts before they occur—before homicide, mass murder, or sex offenses cost money, lives and injured. As these violent cases continue to rise, there is hope. Trial lawyer leaders can demand higher settlements and awards in the tens of billions. Insurance brokers and companies can make institutional changes by requiring ongoing worker training in the use of tests and equations and adapting professional liability contracts to mandate their use. Real-life use of tests and equations over 16-years with the "Chicago summer one program," targeting 255,806 high-risk youth, prove the practical impact of jobs, mentors and anger management, by diverting these persons from violence (1,070 homicides prevented) saving both lives and money. Tests and equations paired with cost-beneficial interventions offer hope for a positive, safer world. Basic examples illustrating the use of tests and equations with cost-beneficial diversions, available for 40-100 years, are presented, to provide insight for trial lawyers to reconstruct homicides, mass-murders and sex-offenses showing judges and juries how professionals should have predicted and prevented the loss of life, money and health in homicides, mass-murders, and sex-offenses. This way trial-lawyer leaders can raise the number of liable professionals who had contact with the high-risk challenged, who committed the offense(s) and raise the settlement-awards to tens of billions to hundreds of billions for the homicide, mass-murder or sex-offender victim's families.

2. We Lose $3.36T to Predictable-Preventable Increasing Violence

In Figure 1, there is a comprehensive breakdown of the nine annual costs associated with violence. The smallest among these is the injury due to firearms, totaling $0.29 billion as documented by Patel and Taylor in 2011. An alarming statistic is that home values drop 4% after a killing as reported by Maximo in 2014. Considering the median home cost of $426,056 [Redfin, 2011], this is a stunning $17,042 lowering in home value. Extrapolating this to the 144 million U.S. homes [Bassett, 2023], the collective cost is a staggering $1.454 billion. The detrimental effects of violence with two new businesses failing to open in locations marked by a homicide, shown in Washington, D.C. [Irvin-Erickson, Gurvis, Mohr, and Bai, 2017]. Factoring in an average small business salary of $69,301 [Southern Bank Company, 2023] and an estimated loss of 80 salaries per homicide [Winter, 2021], the total income loss accumulates to an astonishing $59.79 billion. The potential earnings of the owners of these unrealized businesses add up to a nationwide aggregate production loss of 2%. This results in a $7.82 billion loss when applied to the total production value of $391,049,856,000 [Anderson, 2023]. Direct victim costs are an amazing estimate of $15 billion [Miller, Cohen and Wiersma, 1996] which include many out-of-pocket expenses for medical bills, property loss, reduced productivity, and losses such as traffic jams and processing insurance claims costs. The ripple effects of violence extend to household food prices with a 6% rise per homicide or violent event [Singleton, Winata, Adams, McLafferty, Sheehan, and Zenk, 2002]. This amounts to a yearly loss of $558 per homicide or violent event. When this 6% is multiplied by the average home food expense of $9,300 [Bennett, 2023]. Extrapolating this to 129,931,000 U.S. homes [Hussock, 2022], the cumulative loss soars to a staggering $72.501498B. On an institutional level, the annual government expense of violence, to cover the local, state, and federal expense of courts, prisons, and police, reach a substantial $266B [Urban Institute, 2021]. On a broader scale, the U.S. and other countries collectively lose 11% of GDP to violence, constituting the largest expense [Rozo, 2018]. When all these costs are tallied, the cumulative loss mounts to a shocking $3.36 trillion. These mind-boggling costs underscore that the predictable and preventable violence is a wake-up call to taxpayers, businesses and countless victims and injured affected by homicide, mass-murder and sex-offending. This is the foundation for trial-lawyer leaders to reconstruct with age-specific risks, tests and equations to discover these age-specific risks with 97% impressive precision, which then allow and permit professionals in targeting cost-beneficial interventions, which could have prevented the tragedy and thus award the trial lawyers and victims and families settlement-award liability. Trial-lawyers can broaden the net of culpable professionals, who should have used tests and equations with cost-beneficial diversions available for 40-100 years driving up the settlement-awards to tens to hundreds of billions. This would result in insurance brokers and companies' bankruptcies and losses to changing professional liability contracts to mandate use of tests and equations with diversions and continuing professional education for work, much like compulsory worker safety, sexual harassment and abuse reporting now in use.
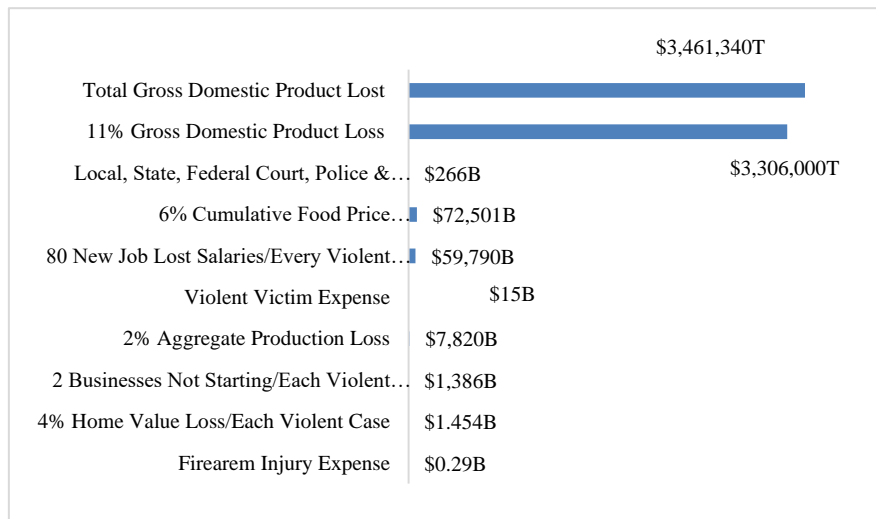
Figure 1. U.S. Violence Lowers GDP 12.5%, $3.46T Yearly Costing $1 in every $8

3. 767 Mass-Murderer (3+Dead; 1936-2023) Reasons to Motivate Trial-Lawyers for Change

In Figure 2, there is the steady growth of mass-murders from 1936 to 2023 in an upward-opening, parabola third degree curve (adding an x^3 term to a parabolic model) with a total of 787 (Zagar et al., 2022; Statistica, 2024).
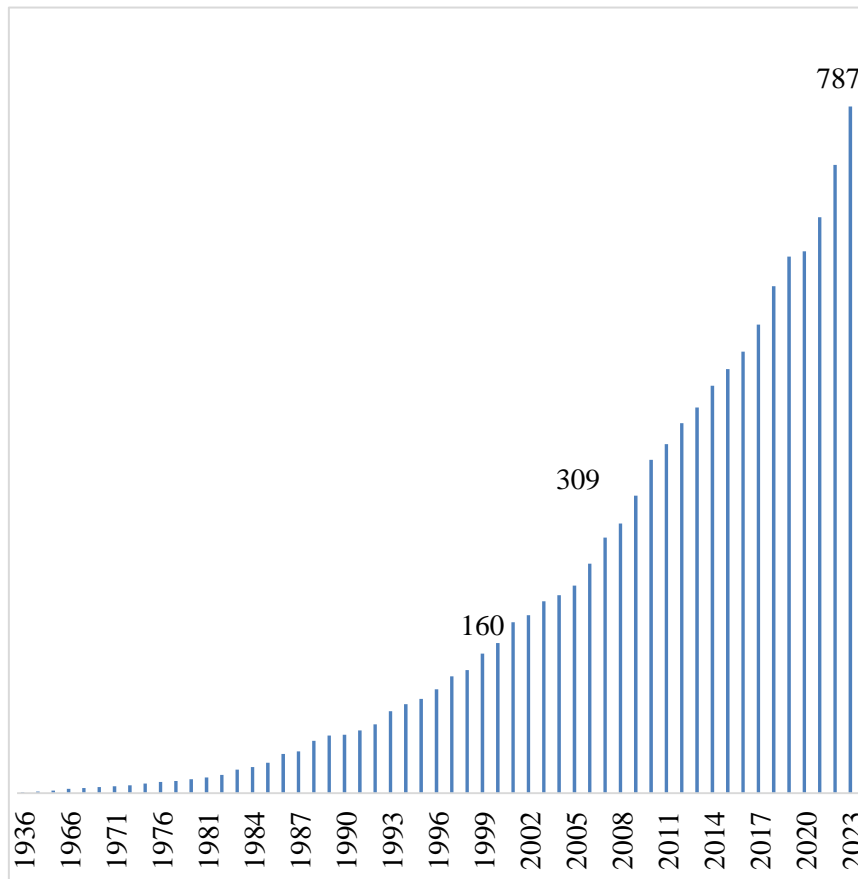

Figure 2. Growing Annual Mass-Murderers from 1936 to 2023

4. Mass-Murder Can Cost $800M with 130% More Indirect Costs Totaling $1.88B

At the lower end, tragic events have significant financial liabilities. In the case of the 2015 Pulse Nightclub massacre in Orlando, Florida, 49-lives are lost, 53 are injured, which results in 102-total victims. The GoFundMe process raises $10,000,000 for the affected families (Ray, M. (2016). Similarly, the 2006 mass murder at an El Paso, Texas Walmart by Pat Crusius, results in 23-dead and 22-injured, and a culpability of $5,500,000 for the victims' families (Roush, 2013). The 1999 shooting at Klebold-Harris, Columbine High School incident has 13-die and 20- injured incurring a burden of $3,000,000 for the parents and the school district (Brockwell, 2019). The 1989 Standard Press shooting in Louisville, Kentucky, leave 8-dead and 12-injured, involving a $20,000,000 disbursement from Eli Lily (Prozac) attributable to medication (Kindy, 2023). In the 2023 Michigan State University spree-shooting, there are 3-dead and 5-wounded, with a $15,000,000 lawsuit in process (Taylor, 2023). The 2007 Virginia Tech University mass-murder of 33-deaths and 17-injured leads to a $48,000,000 government obligation for a selectively mute, depressed student (Tikkanen, 2023). In the 2012 Sandy Hook Connecticut School mass-murder of 26-lost lives and 2-injured, Remington Rifle and 4-insurance companies face bankruptcy, resulting in a $73,000,000 judgement for gun-advertising negligence (Ray, 2024). The 2015 U.S. Department of Justice disburse $88,000,000 indebtedness for the Charleston, South Carolina AME Church mass-murder of 9-lives and 1-injured (Voice of America News, 2021). The Broward County Parkland Florida Douglas High mass-murder in 2018 of 17-dead and 34-injured incur a $153,000,000 obligation (Associated Press, 2024). The 2017 U.S. Department of Justice and U.S. Air Force settlement for the Sutherland Springs, Texas First Baptist Church mass murder amounts to $144,500,000 accountability for 26-dead and 22- injured; the military did not relay to the government justice section, the discharge (domestic wife, son assault, death threats, smuggling guns) record [Wikipedia, 2024]. The largest liability is the 2017-MGM-Resorts, Mandalay-Bay, Las Vegas, $800,000,000-payout for 60-dead, 867-injured, and 4,400-victims' families with $1.88B indirect costs (Wikipedia, 2024). These death and injured victim's expenses provide ample motivation for institutional change by trial-lawyers increasing settlement awards one to two digits higher. Later, insurance-brokers can change liability contracts in order to demand professional continuing education in the use of tests-equations and diversions lowering premiums and bankruptcies making it safer in schools and workplaces because the current ways miss 61% of high-risk persons, whereas tests-equations have a hit-rate of 97-98%.
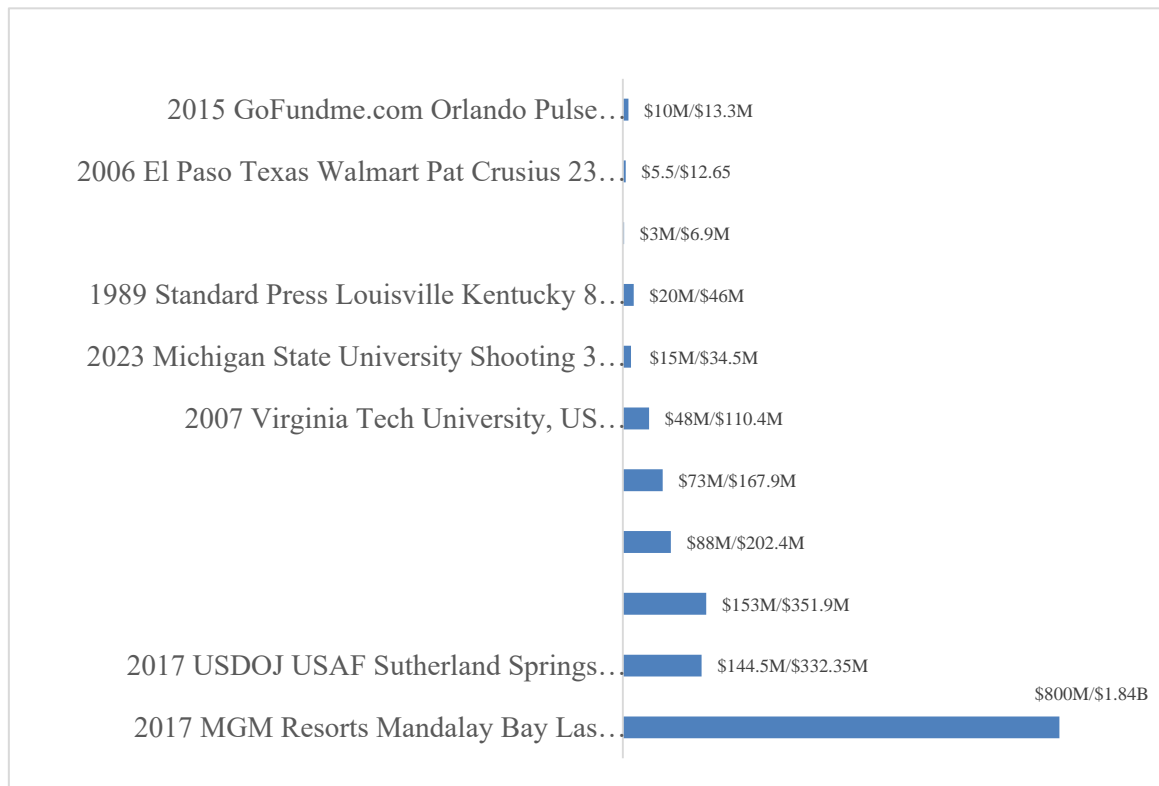

Figure 3. Mass-Murder Payouts $3M-$800M (Millions) +130% Lost Profits ($6.9M-$1.84B)

5.1 Total Number of Sex Offenders: Low Reporting Levels with Registered Reoffending

The annual estimated count of U.S. sex offenders in the United States varies because of 50-different data collection systems with a range from 606,816 to 786,838 and 33% continuing to molest and rape. However, the "true" number of sex offenders is likely higher; there are other estimates of 1-2% of the U.S. population, totaling 3.319 million to 6.628 million sex offenders (Ackerman, 2015; Gabriele, 2023).

As we delve further into the details later, it becomes evident that the success rate for individuals facing challenges in this regard ranges from 3% to 50%. For both business owners and citizen taxpayers, the only avenue for reducing the numbers and associated payouts lies in institutional changes using tests and equations with diversions. This includes alterations in trial lawyers' increased settlements and awards, as well as modifications to insurance brokers' liability contracts, accompanied by mandatory professional continuing education in the use of tests and equations with cost-beneficial interventions. Until this happens, violence will continue rising.
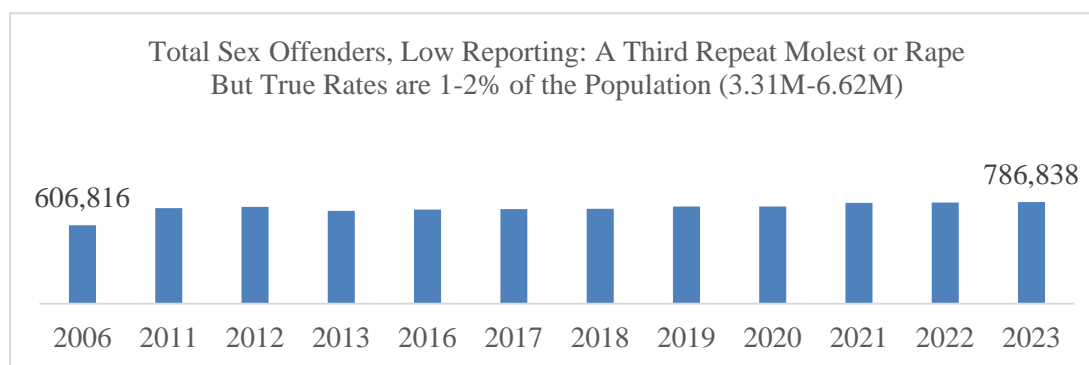

Figure 4. U.S. Sex Offender Estimates 2006-2023

5.2 Sex Offender Expense/Case Can Be $1.1B with Added Indirect Expense = $2.53B

Many legal cases spanning years and involving different businesses, churches, colleges, schools and workplaces have huge costs that impact taxes, insurance premiums and profits. In 2011, the Carla Ingraham vs. UBS Financial case, the vice-president Jay DeGoler is fired after a sex complaint with a $11,050,000 disbursement for 1-victim (Bolado, 2012). The 2007 Sanders vs. Madison Square Garden case involves Isaih Thomas and Stephon Marbury incurring a $11,500,000 obligation from a sexual complaint with 1-victim (Sandomir, 2007). In 2016, the U.S.A. Gymnastics and U.S. Olympic and Paralympics case against Nassar, M.D. results in a substantial $380,000,000 owed, addressing 180-victim's grievances (Kelly, Contreras, and Doring, 2021). In 2023, Eric Uller of the Santa Monica Police Activities League Volunteer leads to a $229,800,000 compensation distributed among 105-victims (Santa Monica Daily, 2023). The 2007 Heidi Lynch vs. the San Diego Roman Catholic Diocese has a $198,000,000 debt distributed to 44-victims (Rowe, 2017). There is the 2013 Penn State University case of a $109,700,000 payout for Jerry Sandusky's 26-victims (Drape, 2013). The 2022 San Jose Dartmouth Middle School band teacher Neipp led to a $102,500,000 recompense with an additional $245,550,000 in indirect costs (Winton, 2022). The 2012 case of Chopourian vs. Catholic Healthcare, Mercy General Hospital, results in a $169,000,000 renumeration for 1- victim (Memmott, 2012). The 2011 Ashley Alford vs. Aarons Furniture Rent Inc., involves supervisor Moore, led to a $95,000,000 burden for 1-victim (Reuters, 2011). In 2016, the Carlson vs. Roger Ailes case of Fox CEO, it's directors and insurers incur a $90,000,000 duty for 1-victim (Arthur, 2021). The 2010 Los Angeles Department of Children and Family Services vs. F.M. Ward case involves a $45,400,000 accountability for molestation, rape, and abuse suffered by 1-victim (City News Service, 2021). Steven W. vs. Private Westerly School in Long Beach, California, results in a $23,500,000 obligation with 1-victim (Ruiz, 2018). The 2020 Saint Cloud, Minnesota Diocese case saw a $22,500,000 disbursement for 41-priests' 70-victims (Staff reporters, 2020). The 2017 Harvey and Bob Weinstein and Company case, involves over 24- women victims, including Gwyneth Paltrow and Ashley Judd, leading to a $18.75M compensation (Barnes, 2017). The 2018 Lucy Chi et al. vs. University Southern California, Tyndall M.D., resulted in a monumental $1,100,000,000 payout for 710-female victims with an additional $2,530,000,000 in indirect costs (Hamilton and Ryan, 2021).
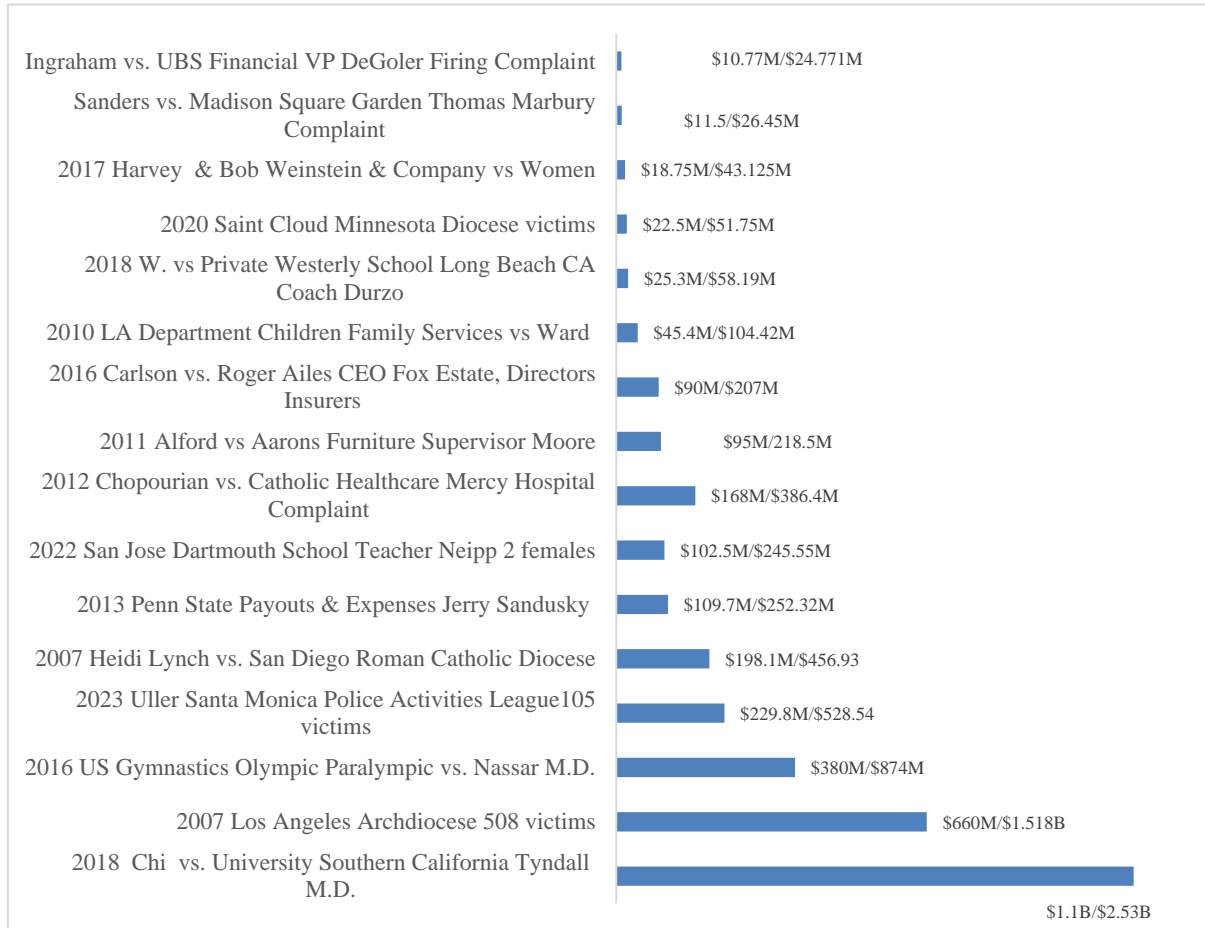
Figure 5. Sex-offending Payouts $1M-$1.1B (Millions) +130% Lost Profit ($2.3M-$2.53B)

6. 24 Bankrupt U.S. Roman Catholic Dioceses Due to No Use of Tests and Equations

The financial effects of pedophilia scandals within the corporate U.S. Roman Catholic Church leads to significant losses, causing 24 out of 194-dioceses to declare bankruptcy (McKeowan, 2023) which makes up 13% of the total, accompanied by 18-bankruptcies among religious organizations. There is a projection that all dioceses face bankruptcy by the year 2144 (Zagar et al., 2016). To deal with these challenges, popes, bishops, and other authorities within the church have not used tests and equations despite repeated requests to do so. This enables trial lawyers to make use of the situation by increasing settlements and awards. Simultaneously, insurance brokers could bring about institutional changes by modifying liability contracts demanding use of tests-equations along with changes in human resource policies. This change would include a mandate for professional continuing education on the use of tests and equations, coupled with improvements in human resources practices aimed at lowering premiums and bankruptcies. See Figure 6.
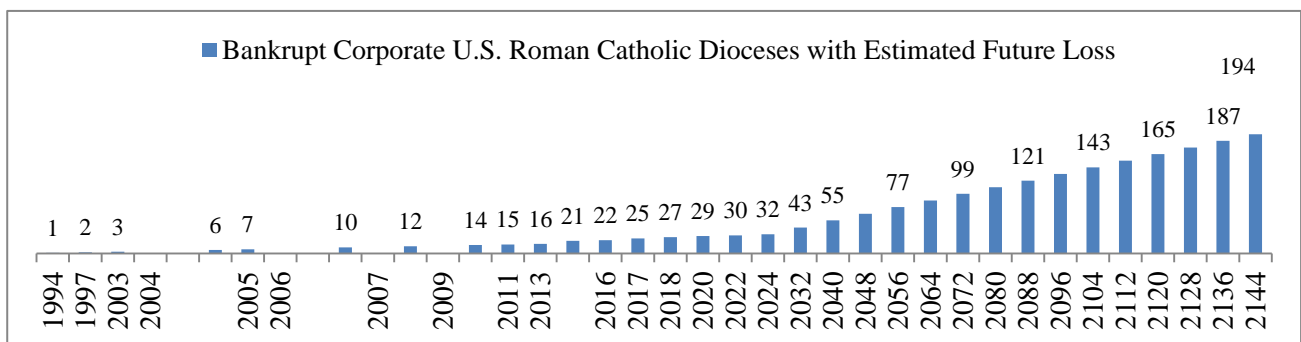

Figure 6. 2024 24 Bankrupt Dioceses with 194 Catholic Dioceses Broke: 2144 (Zagar, *et al.*, 2016)

7. Low Treatment Success (3%-50%) and 39%Current Ways Finding Risk Cause Rising Violence

According to a 20-Year Kaplan-Meier Survival Curve, the treatment success rates change across different high-risk, challenged persons is low, 3-55%. For genocide or mass-murder, the success rate is 3%. Homicidal have a success rate of 17%. Suicide completion has a success rate of 20%. Deviant-psychopathic and non-deviant, psychopathic sex-offenders both have a success rate of 10%. Non-deviant-non-psychopathic sex-offenders have a higher success rate of 50%. Deviant-non-psychopathic sex-offenders have a success rate of 55%. Mixed molesters-rapists exhibit an 18% success rate. Rapists show a 30% success rate. Child molesters have a success rate of 45% (Rice and Harris, 1997; Dutta et al., 2007; Bjornaas et al., 2008; Soothill et al., 2008; DeLisi, Ruelas, and Kruse, 2019; Binswanger, Nguyen, Morenoff, Xu, and Harding, 2020; Miller, Swedler, Lawrence, Bina, Ian, et al., 2020; Tammes, 2022). Would anyone go to a business that provided such a low success rate? Undoubtedly the customer would search for another solution.
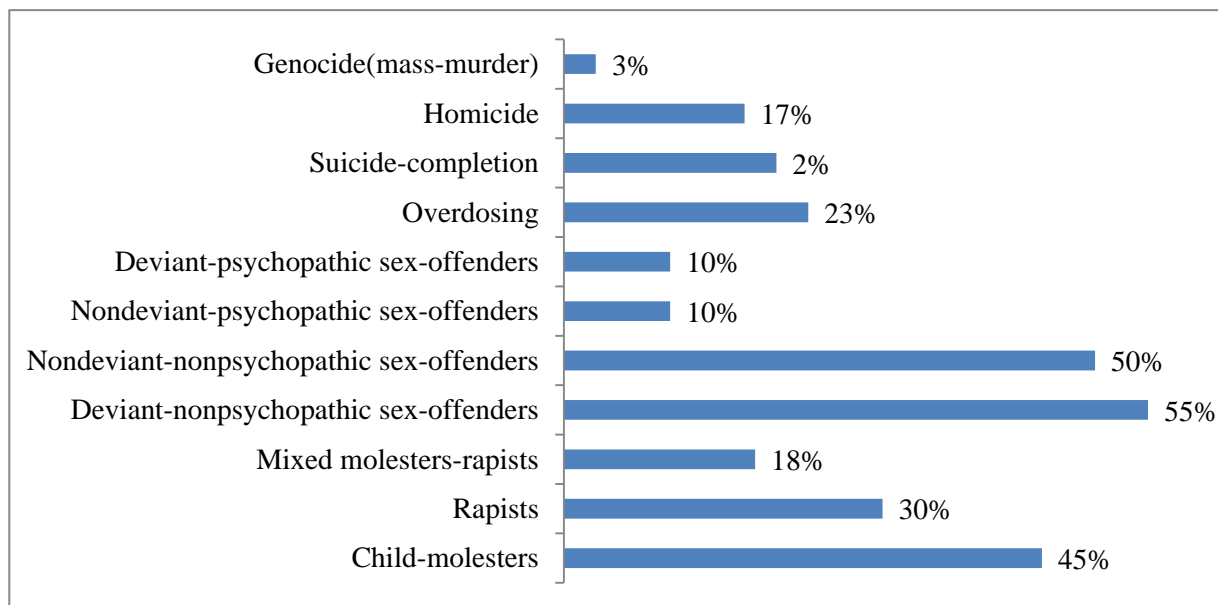

Figure 7. 3-55% Challenged Person Success Rates: 20-Year Kaplan-Maier Survival Curves

7.1 95% of Professional Believe 39% Human Error is Better Than 97% Tests-Equations

The current methods for finding high-risk, challenged (homicidal, mass-murdering, sex-offending) combined give an accuracy of 39% hit rate with a background-credit check, 25% with interview judgment, and 46% with medical examination. In contrast, the computer tests and equations have a hit rate or astonishing 70%-98% accuracy in anticipating violence. The Psynetix 16 Ask Standard Predictor of Mass Murder Behavior or Self-Report, applicable to individuals aged 2-88 years, boasts a precision of 70% or AUC/ROC=.70. The Ask Standard Predictor Violence Potential Youth Behavior or Self-Report (1 month-18 years) demonstrates a remarkable 91% precision or AUC/ROC=.91, while the Ask Standard Predictor Violence Potential Adult Behavior or Self-Report (18-90 years) excels with a 99% precision or AUC/ ROC=.99. Upon replication the ASP is 97%. For infants, children, teens, and young adults, the Behavior Assessment School Children Parent Teacher Self-Report achieves a 97% sensitivity-specificity or AUC/ROC=.97. The Child Abuse Potential Inventory (18-90 years) attains a high accuracy rate of 98% or AUC/ROC=.98. The Minnesota Multiphasic Personality Inventory Adolescent Version (14-18 years) exhibits a precision of 96% or AUC/ROC=.96, and the Minnesota Multiphasic Personality Inventory Second Edition (18-90 years) reaches a remarkable 97% accuracy or AUC/ROC=.97. The Ask Standard Predictor Youth + Behavior Assessment School Children or MMPI-A: 7-point violence achieves a 97% sensitivity-specificity or AUC/ROC=.97. Similarly, the Ask Standard Predictor Adult + MMPI-2: 7-point violence profile boasts a hit rate of 97% or AUC/ROC=.97.

In summary, machine-learning, internet-based tests and equation prove to be cost-effective, objective, reliable, sensitive, specific, and valid, offering an outstanding 97% accuracy and precision in identifying at-risk individuals (Meehl, 1954; Sepajak,1983; Milner, 1986; Butcher, et al., 1989, a, b; Lidz, 1993; Monahan, 1996; Grove and Meehl, 1996; Rice, Harris, and Quinsey, 1996; Quinsey, et al. 1998; Zagar, Zagar, Arbit, Bartikowski, Busch, et al., 2009; Zagar and Grove,

2010; Zagar, Kovach, Basile, Grove, Hughes, Busch, Zablocki, Osnowitz, Neuhegen, Liu, and Zagar, 2013; Kamphaus and Reynolds, 2015, a, b; Zagar, Zagar, Zagar, Busch, Garbarino, Ferrari, et al., 2016; Zagar, et al., 2019; Zagar, et al., 2022 a, b, c; Garbarino, Zagar, et al., 2022; Zagar, et al., 2023). Only 5% of professionals (attorneys, executives, human resources, judges, physicians, principals, presidents, psychiatrists, psychologists, teachers, social workers, therapists) when polled at national and international conferences by the coauthors that use tests-equations universally with high-risk or most they have to deal with.
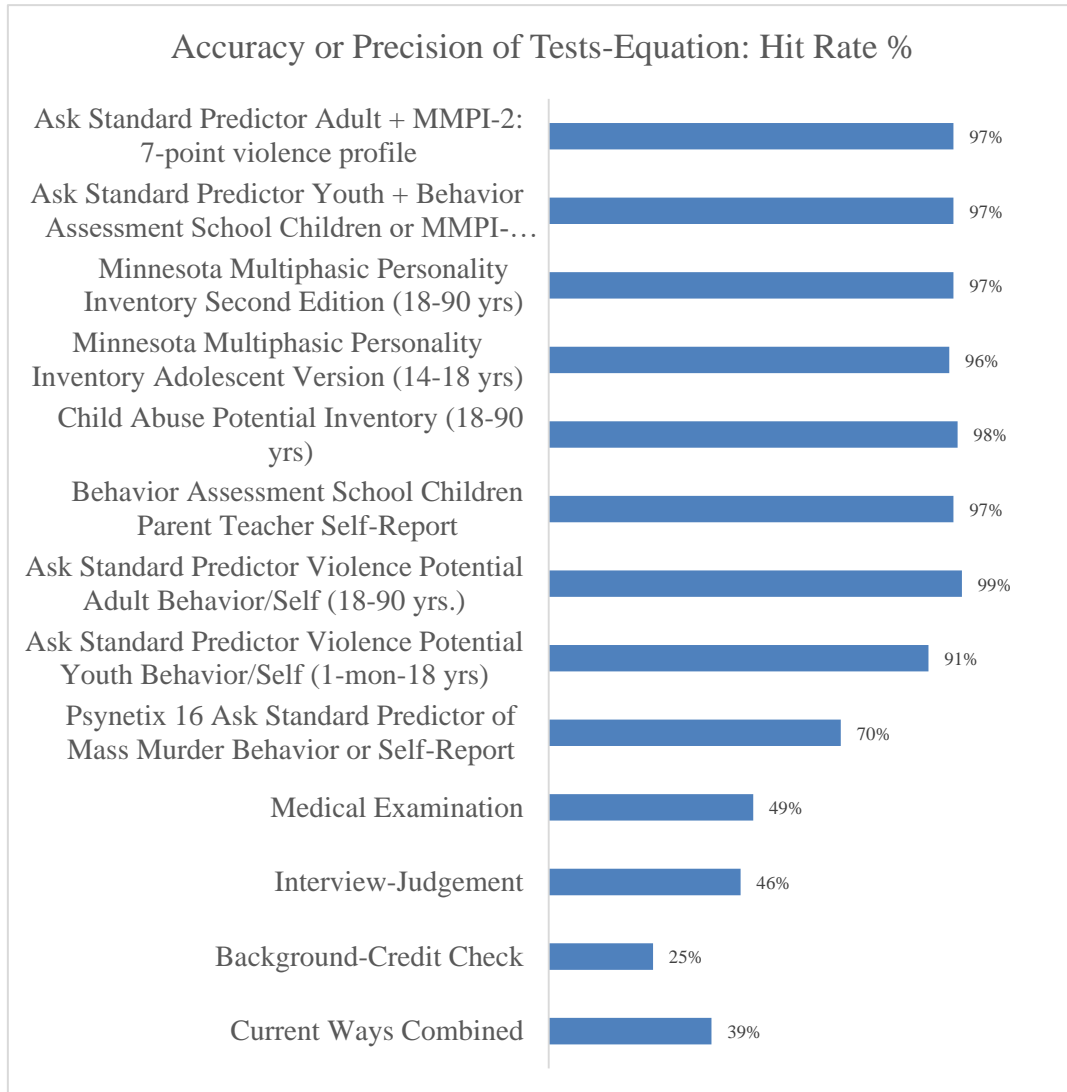

Accuracy or Precision of Tests-Equation: Hit Rate %

Category	Hit Rate
Ask Standard Predictor Adult + MMPI-2: 7-point violence profile	97%
Ask Standard Predictor Youth + Behavior Assessment School Children or MMPI-…	97%
Minnesota Multiphasic Personality Inventory Second Edition (18-90 yrs)	97%
Minnesota Multiphasic Personality Inventory Adolescent Version (14-18 yrs)	96%
Child Abuse Potential Inventory (18-90 yrs)	98%
Behavior Assessment School Children Parent Teacher Self-Report	97%
Ask Standard Predictor Violence Potential Adult Behavior/Self (18-90 yrs.)	99%
Ask Standard Predictor Violence Potential Youth Behavior/Self (1-mon-18 yrs)	91%
Psynetix 16 Ask Standard Predictor of Mass Murder Behavior or Self-Report	70%
Medical Examination	49%
Interview-Judgement	46%
Background-Credit Check	25%
Current Ways Combined	39%

Figure 8. Percentile (%) Finding Challenged Persons: Current 39% vs. Tests-Equations 97%

8. Insurance CEO: Chicago Summer 1 Program: 255,806 Targeted, Diverted Saving 1,070

In the city of Chicago, a teen diversion program, initially named "Culture of Calm" and funded by the U.S. Department of Justice ($78M), later rebranded as "Chicago Summer 1 program," is currently supported by the insurance Public Safety Fund. This program employs a targeted approach, utilizing an equation to identify the highest-risk youth, and directs resources such as jobs, mentors, and anger management training to approximately 255,806 individuals. Over a span of 16 years, this initiative has proven successful in saving 1,070 lives by preventing homicides, as documented by Zagar et al. (2013, 2016, 2019) (refer to Table 1b). The impact of the program extends beyond reducing homicides, as evidenced by a 56% reduction in nonviolent offenders within the Cook County jails. Additionally, the release of 6,800 federal prisoners by U.S. President Obama, either through commutation or pardon, further emphasizes the benefits of employing evidence-based, peer-reviewed, and scientifically replicated equations to target at-risk individuals. These real-life situations serve as tangible proof of the value of the tests-equations approach when combined with cost-beneficial interventions. Figure 8 illustrates the cumulative impact on challenged youth over the 16 years of "Chicago Summer 1," with the program overseen by the Allstate CEO. This involvement is notable, given that Allstate, State Farm, and Liberty

Mutual, are the major insurers responsible for most personal injury and workers compensation claims in Illinois, and they direct and fund the program. Figure 9 provides a visual representation of the cumulative prevention of challenged victims (homicides) over the same 16-year period. Omitted are the number of assaults and other violent crimes that are prevented. The program's success underscores the significance of evidence-based strategies in addressing and mitigating the impact of youth violence in urban settings by targeting with tests-equations and then applying what works.

Table 1b. 16-years: Chicago "Summer 1" program 255,806 youth saving 1,070 homicides

| Year		Program	# Youth	# High Schools	Lives Saved	Mayor	Sponsor
2009	1	Culture of Calm	250	6	29	Daley	OJJDP
2010	2	Culture of Calm	1,700	38	28	Daley	OJJDP
2011	3	Culture of Calm	1,700	38	28	Daley	OJJDP
2012	4	Culture of Calm	1,200	32	12	Daley	OJJDP
2012	5	Summer 1	1,634	13	27	Emanuel	Private Insurance
2013	6	Summer 1	5,216	42	86	Emanuel	Private Insurance
2014	7	Summer 1	22,500	160	86	Emanuel	Private Insurance
2015	8	Summer 1	24,679	160	86	Emanuel	Private Insurance
2016	9	Summer 1	25,000	160	86	Emanuel	Private Insurance
2017	10	Summer 1	31,151	160	86	Emanuel	Private Insurance
2018	11	Summer 1	32,223	160	86	Emanuel	Private Insurance
2019	12	Summer 1	31,553	160	86	Lightfoot	Private Insurance
2020	13	Summer 1	20,000	160	86	Lightfoot	Private Insurance
2021	14	Summer 1	24,000	160	86	Lightfoot	Private Insurance
2022	15	Summer 1	33,000	160	86	Lightfoot	Private Insurance
2023	16	Summer 1	33,000	160	86	Johnson	Private Insurance
Total			255,806	160	1070	@$1M/life	Value=$1.070B
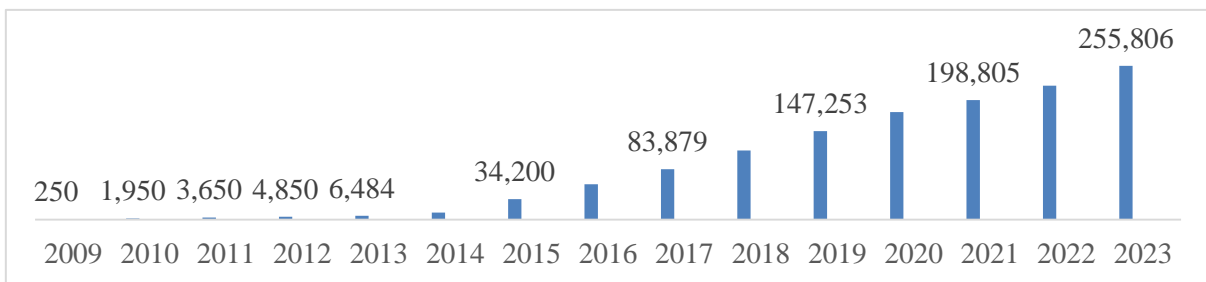
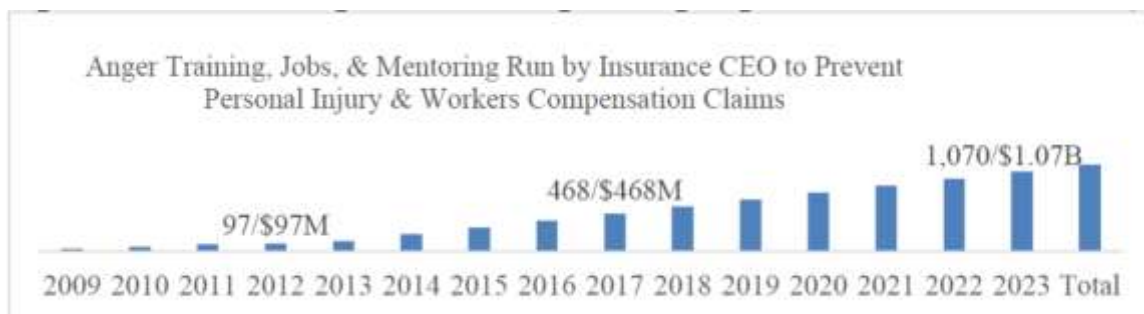Figure 9. 255,806 Chicago "Summer 1" Youth Diverted with Jobs, Mentors, Anger Training

Figure 10. 16-Year Chicago Summer 1 Program Targeting Diverted Saved 1,070 Lives ($1.07B)

In Table 2, there is an outline of Erikson's (1994) emotional stages, Kohlberg's (1981) moral stages, and Piaget's (1962) cognitive stages. Erikson's stages cover trust vs. mistrust (0-1.5 years), freedom vs. shame-doubt (1.5-3 years), initiative vs. guilt (3-5 years), industry vs. inferiority (6-11 years), identity vs. confusion (7-18 years), intimacy vs. isolation (19-40 years), generativity vs. stagnation (41-65 years), and integrity vs. despair (66 years and older). Kohlberg's moral stages encompass obedience vs. punishment, self-interest, conformity and interpersonal accord, authority and social order, social context, and universal principles. Piaget's cognitive stages include sensorimotor (0-2 years), preoperational (3-7 years), concrete operational (8-11 years), and formal operational (12 years and older).

Youth Risks: The 14 youth risks for homicide, sex offending, and violence-prone behavior, identified by Zagar and Grove (2010) based on 1,127 youth with a 91% accuracy from 1 month to 17 years and 11 months, are age-specific. Infancy risks include court contact (resulting from parental abuse or neglect), male gender, alcohol and drug abuse (including fetal exposure), violent family members, orphanhood, single-parent or step-parent family composition, alcohol abuse alone, drug abuse alone, the significant risk of family member physical and/or sexual abuse, and epilepsy or seizures.

Table 2. Development of Risk, Age-Specific Tests-Equations, Diversion, Services, Case Law

Risk/ Diversion/Service/Law								
Erickson (1994) social emotional stages	0-1.5 years Trust v Mistrust	1.5-3 years Freedom vs Shame-doubt	3-5 years Initiative vs. guiltt	6-11 years Industry vs. Inferiority	7-18 years Identity vs. Confusion	19-40 years Intimacy vs. Isolation	41-65 yrs. Generativity v Stagnation	66+ years Integrity v. Despair
Kohlberg (1981) moral stages	Obedience vs punishment	Self-interest	Conformity interpersonal accord	Authority social order	Social context	Universal principals	Universal principals	Universal principals
Piaget (1962) cognitive stages	0-2 years sensorimotor	3-7 years preoperational	3-7 years preoperational	8-11 years concrete operational	12 years + formal operational	12 years + formal operational	12 years + formal operational	12 years + formal operational
Garbarino, Zagar, et al., 2022 Risks	**Infant** (*.2 small, .5 medium, .7 large, 1.7 huge*)	**Early child** risks with effect size	**Child** risks with effect size	**Adolescent** risk effect size	**Late teen** with effect size	**Early adult** risk with effect size	**Adult** risk with effect size	**Elder** risk with effect size
Youth Killer/Sex-Offender 14 Risks *N*=1,127 *a*=.61 *AUC/ROC*=.91 Zagar & Grove, 2020	Court-contact 0.54 Male- gender 0.63 Alcohol-&-drug-abuse 0.52 (fetal exposure) Violent-family 0.83 Orphan-1-step parent family 0.72 Alcohol abuse (fetal exposure) 0. 41, Drug Abuse (fetal exposure) 0.44 Physical &/or sexual abuse 1.17 Epilepsy 0.98	Add poor social maturity 1.21 Low-decision-making 1.59 Illnesses 0.57	Add underachievement 0.57, Truant, suspended, expelled 0.33					
Adult Killer/Sex-Offender 11 Risks *N*=1,595 *a*=.61 *AUC/ROC*=.99 Zagar & Grove, 2020	Same as youth: Court-contact 0.54 Male gender 0.63 Alcohol-&-drug-abuse 0.52 (includes fetal exposure) Violent- family 0.83	Same as youth: Low-decision-making 1.59 Illnesses 0.57	Same as youth: Under-Achievement 0.57		Antisocial personality 0.25	Poverty 0.50 Not working .30 Hyperactivity (ADHD) .25		
16 **Mass- Murderer** Risks *N*=1,273 *a*=.88 *AUC/ROC*=.70 Zagar et al., 2022, a, b, c, Garbarino, Zagar, et al., 2022 Psynetix.com 16 questions *a*=.88 (N=1,253) AUC/ ROC=.7.04-2 yrs.-89 yrs.	Elicited concern (i.e. low decision making) 0.89 **Male gender (dead male victim) 1.08**	Same as infant	Suicidal (i.e. illnesses) 0.85 Threatening (i.e. poor social maturity) 0.58 Student status (i.e. underachievement) 0.8	Criminal misconduct (i.e. court contact) 0.69, **Homicidal (i.e. violent family) 1.44**	Stressful life event (i.e. not working) 0.76 **Random violence (i.e. abused physically sexually) 1.08**	Grievance 0.76 Person-school-work-target 0.62 **Planning 1.32 Revenge 1.03** Gun access 0.75 School 0.8. **leaking intent 1.09**	Same early adult	Same as early adult

	I	II	III	IV	V	VI / VII		
Profile 7-Point Violence (95 yrs. 212 studies 320,051 persons *N*=125 *AUC/ROC*=.7-.9 ASP + MMPI-2/A, Psynetix 16 Zagar, et al., 2019	I. Deception [L, F, MMPI-2/A] (i.e., low decision making, elicited concern)	II. Antisocial behavior [Pd MMPI2/A] (i.e. court contacts, criminal misconduct)	III. Depression [D, MMPI-2/A] (i.e. illness, suicidal) Threatening	IV. Violence potential [ASP-youth ASP-adult, (i.e. homicidal, violent family) V. Addiction-alcoholism [AAS, ACK, MMPI2/A]	VI. Schizophrenic thinking [MMPI-2/A] (i.e. random violence (i.e. abused physically sexually, random violence) 0.00 [CAPI]	VII. Paranoia [Pa, MMPI2A] (i.e. grievance 0.00 revenge 0.00)		
Tests & equations: BASC parent (*N*=1,700, *a*=.5, *AUC/ROC*=.8), self (*N*=900, *a*=.5, *AUC/ROC*=.8) Teacher (*a*=.5. *AUC/ROC*=.8, *N*=1,800) Kamphaus & Reynolds (2015 a, b) (2-25yrs) Psynetix.com 16 questions *a*=.88 (N=1,253) AUC/ROC=.7.04- Mean age =32.62, SD=17.61. R=2-88 yrs.)	ASP-youth 1 month -17 years 11 months 30 days) [2010, *a*=.6, *AUC/ROC*=.91, *N*=1,272] BASC infant parent teacher rating (2-5 yrs.) [1992]	ASP-youth (1 month-17 years 11 months 30 days) [2010, *N*=1,272] BASC child self (6-7 yrs.) parent teacher rating (8-11 yrs.) [1992]	ASP-youth (1 month-17 years 11 months, 30 days) [2010, *N*=1,272] BASC child parent teacher (8-11 yrs.) [1992]	ASP youth (1 month-17 years 11 months 30 days) BASC teen self, parent teacher 12-21 yrs.) [1992] MMPI-A [Butcher et al., 1989, *N*=1,620, *a*=.8]	ASP-youth (1 month-17 yrs. 11 mon. 30 days) BASC teen self, parent teacher 12-21 years MMPI-A (14-17) [Butcher, et al., 1989, *N*=1,620, *AUC*=.85]	ASP-adult (18-90 yrs.) [2010, *N*=1,595, *a*=.6, *AUC/ROC*=.99] [N= 236, *R*=18=51.5 years, AUC/ROC=.97 Zagar, et al. 2013] CAPI (18-90 yrs.) [1986, N= 4,939, *a*=.6 Milner, (1986) *AUC/ROC*= .98] MMPI-2 (18-90 yrs.) [1992, *N*=2,600, *a*=.8, *AUC/ROC*=.84]	Same early adult	Same as early adult
Diversions Zagar et al. 2013.	Poor 3-4 yr. old infant training	Nurse family child training	Nurse family parent training	Interagency coordination Diversion program Aggression training	Functional family training, Foster multi-dimensional training Teen courts	Cognitive behavior therapy, Job training Community drug education High school education	Same early adult	Same early adult
***ROI* return on investment** Washington Policy Institute (2006) Zagar et al., 2013	20.57	17.59	2.64	25.03, 21.24, 16.34	13.69, 11.2, 9.83	98.09, 17.92, 14.09, 10.90	Same as early adult	Same as early adult
ADA 94-142 IDEA Title IX, Title XI, state &federal mandated school diversions Zagar et al., 2013	Early childhood Head Start full day preschool parent training occupational physical speech therapy	Head Start kindergarten full day preschool occupational physical speech therapy	Elementary special education occupational physical speech social work, psychologist therapy	Jr. high special education occupational physical speech social work psychologist therapy	High special education occupational physical speech social work psychologist therapy	College disability accommodations counseling		
Case Law Affirming Computer Tests & equations Pope, Butcher & Seelan, 2006	Tarasoff vs regents CA duty to warn, 250 federal state appellate cases *MMPI in court* SSI disability state disability law mental health law school law personal injury	Tarasoff vs regents CA duty to warn 250 federal state appellate cases *MMPI in court* SSI disability state disability mental health school personal injury law	Tarasoff vs regents CA duty to warn, 250 federal state appellate cases *MMPI in court* SSI disability state disability mental health school personal injury law	Tarasoff vs regents CA duty to warn, 250 federal state appellate cases *MMPI in court* SSI disability state disability mental health personal injury	Tarasoff vs duty to warn, 250 federal state appellate cases *MMPI in court* SSI disability state disability mental health school personal injury law	Tarasoff, vs regents CA duty to warn, 250 federal state appellate cases *MMPI in court* SSI disability state disability mental health school law personal injury law	Same as early adult	Same as early adult

In early childhood, the prominent risks are social immaturity (low adaptive behavior) and executive dysfunction or poor decision-making in the frontal lobes. Middle childhood risks include underachievement with poor school grades, truancy, suspension, or expulsion.

Adult Risks: The 11 adult risks for homicide, sex offending, and violence-prone behavior, identified by Zagar and Grove (2010) based on 1,595 adults with a 99% accuracy from 18 to 89 years and 11 months, are also age-specific and share some similarities with youth risks. Infancy risks encompass court contact (parental or later as a child-youth-adult), male gender, alcohol and drug abuse (fetal exposure or later as child-teen-adult), and violent family members. Early childhood risks include significant executive dysfunction or poor decision-making in the frontal lobes and illnesses (such as ear infections, fractures, head injuries, etc.). Middle childhood risks include underachievement with poor school grades. Adolescence risks involve antisocial personality. Adulthood risks encompass poverty or low socioeconomic status, unemployment or not working, and hyperactivity or attention-deficit-hyperactivity-disorder (ADHD).

Mass-Murder Risks: A set of 16 questions to identify mass murderers, developed by Zagar et al. (2022), based on a sample of 1,253,630 spree shooters collected from media-military-police records spanning from 1936 to 2021, with 623 matched

control-normal persons (survey-monkey), achieves an accuracy of 70% or an AUC/ROC=.70. The risks span an age range from 2 to 89 years, with an average age of 32.62 years (standard deviation: 17.61). Infancy risks include elicited concern of others (indicating low decision-making) and the significant risk of a deceased male victim (indicating male gender). Middle childhood risks include suicidal behavior, threatening others, and student status. Late childhood risks encompass criminal misconduct and the significant risk of homicidal behavior. In adolescence, risks involve stressful life events and the significant risk of random violence. Adulthood risks include grievances, planning-preparation for mass murder, revenge, leaking intent to kill many, access to guns and weapons, and a school location. Figures 8 and 9 provide a visual representation of the cumulative impact on challenged youth and the prevention of challenged victims (homicides) over a 16-year period.

7. Point-Violence-Profile

The "7-Point Violence Profile," drawing from 90 years of research in 212 studies involving 320,051 individuals, demonstrates an accuracy of 70-90% within a sample of 125, with an AUC/ROC of .7-.9. Utilizing the Ask Standard Predictor and the Minnesota Multiphasic Personality Inventory (Zagar et al., 2019), this profile identifies age-specific risks across various life stages. In infancy, risks include addiction-alcoholism, whether through fetal exposure or later in life as a child-teen-adult. Early childhood introduces the risk of deception, akin to low decision-making and elicited concern. Middle childhood presents the risk of antisocial behavior, similar to court contacts and criminal misconduct. Later childhood sees the emergence of depression, mirroring risks associated with illness, suicidal behavior, and threatening behaviors. Teen years are marked by violence potential, measured with the Ask Standard Predictor and reflecting prior risks such as homicidal behavior and violent family members. Early adulthood reintroduces the risk of addiction-alcoholism, resembling previous risks for alcohol-and-drug abuse, alcohol abuse alone, and drug abuse alone. Middle adulthood is associated with schizophrenic thinking, akin to prior risks of random violence or family member physical and/or sexual abuse. Late adulthood carries the risk of paranoia or suspicious thinking towards others, correlating with experiences of physical or sexual abuse, random violence, grievances, revenge, and similar factors. Computer tests and equations provide a mechanical report, comparing self-reported and observed behavior with tens of thousands to millions of data points on these age-specific risks.

Tests-Equations to Find Risks: To measure these risks, four computer tests-equations—ASP, BASC, CAPI, and MMPI—are applied in an age-specific manner. Here are the statistics for these tests and equations.

BASC: *The BASC parent-rating* has a norming sample of 1,700 with an internal consistency (α) of .5, an accuracy of 80% or AUC/ROC of .8. The BASC self-report standardization sample of 900 has an internal consistency of α=.5, a precision of 80%, or AUC/ROC of .80. The BASC teacher rating is based on a sample of 1,800 with an internal consistency (α) of .5 and a sensitivity-specificity of 80% or AUC/ROC of .8. This covers an age range from 2 to 25 years and 11 months (Kamphaus & Reynolds, 2015 a, b).

BASC Infants: The BASC infant parent and teacher rating spans an age range from 2 to 5 years.

BASC Children: BASC child self-report covers 6-7 years, and parent and teacher ratings cover 8-11 years.

BASC Adolescent: BASC adolescent includes self-report, parent, and teacher ratings for ages 12-21 years.

BASC College Personality: BASC college is a self-report for ages 18-25 years.

Psynetix.com 16-Mass-Murder Questions: The 16 questions, based on a norming sample of 1,253, have an internal consistency (α) of .88, an accuracy of 70% or AUC/ROC of .7.04. The average age is 32.62 years with a standard deviation of 17.61 years, ranging from 2 to 88 years and 11 months.

Ask Standard Predictor Youth (ASP-Youth): This test has a self-report and a behavior-rating with an internal consistency (α) of .6. It boasts an accuracy of 91% or AUC/ROC of .91 based on a sample of 1,272. It spans from 1 month to 17 years and 11 months and can be used for risk patterns in infancy, early, middle, and late childhood, and adolescence.

Minnesota Multiphasic Personality Inventory Adolescent (MMPI-A): A self-report computer test by Butcher et al. (1989) on a norm sample of 1,620, with an internal consistency (α) of .8. It is used from 12 to 18 years with a precision of 86% or AUC/ROC of .86. It can be used for late childhood and adolescent risks.

Ask Standard Predictor Adult (ASP-Adult): This test has a self-report and a behavior-rating, both of which must be used due to deception. ASP-adult covers ages 18 to 90 with an internal consistency (α) of .6. It boasts an impressive accuracy of 99% or AUC/ROC of .99 based on a sample of 1,595. It can be used for risk patterns in early, middle, and late adulthood. The ASP adult or youth versions are available in English, Italian, Polish, and Spanish.

Ask Standard Predictor Youth or Adult (ASP-Youth/Adult) and Minnesota Multiphasic Personality Inventory Adolescent/Second MMPI-A/2: These are used in combination to test for the 7-point violence profile based on a sample of 236 with an age range of 18-51.5 years, achieving an accuracy of 97% or AUC/ROC of .97 (Zagar et al., 2013). There are samples of 74 teens and adults with the 7-point violence profile comparing normal, homicidal, and mass-murderers, with an accuracy of 97% (Zagar et al., 2022 a, b, c; Garbarino, Zagar et al., 2022).

Minnesota Multiphasic Personality Inventory Second MMPI-2: This self-report test by Butcher et al. (1992) is based on a sample of 2,600, with an internal consistency (α) of .8 and a sensitivity-specificity of 84% or AUC/ROC of .84. It has 19,000 studies and 250 federal and state appellate cases attesting to its objectivity, reliability, sensitivity, specificity, and validity (Pope, Butcher, and Seelan, 2006). The MMPI is available in 155 languages.

Child Abuse Potential Inventory (CAPI): This is either a self-report or a behavior rating of questions from 18 to 90 years, based on a sample of 4,939 with an internal consistency (α) of .6 and an accuracy of 98% or AUC/ROC of .98. It is available in five languages (Milner, 1986).

9. A 100-Year Progress: Challenged Persons Descriptors: Stairs to Success, & Case Law

Over a century since the first juvenile court was founded in Chicago, Cook County, (1899) few use tests-equations with cost-beneficial, effective diversions. These work superbly when paired with tests-equations. The efficacy of various interventions is evident in the Return on Investment (ROI) for challenged persons' progress. Infant training yields an ROI of $20.57 for every dollar spent, while child training demonstrates an ROI of $17.59. Interagency cooperation results in an ROI of $25.06, and diversion programs show a return of $21.24. Aggression training, functional family therapy, and foster care dimensional training yield ROIs of $16.34, $13.69, and $11.20, respectively. Teen courts, cognitive behavior therapy, job training, drug education, and obtaining a high school diploma contribute ROIs of $9.83, $98.09, $17.92, $14.09, and $10.90, respectively.

Legal Framework and Mandates: Federal and state laws mandate the provision of services under acts such as the American Disability Act, 94-142, IDEA, Title IX and XI, and state and federal school diversions (Zagar et al., 2013). These laws encompass a spectrum of services, including early childhood Head Start full-day preschool, parent training, occupational and physical therapy, speech therapy, elementary full-day preschool with occupational, physical, speech therapy, and social work. Additionally, psychotherapy (cognitive behavior approach) is involved in junior high and high school special education, covering occupational, physical, speech, social work, and psychotherapy. Services extend to college, technical, graduate, professional, law, medical, and nursing schools, encompassing disability accommodations and counseling.

Legal Affirmation and Case Law: The validation of computer tests and equations is reinforced by case law, as detailed in Pope, Butcher & Seelan, 2006, which cites 250 federal and state cases. Notable cases include Tarasoff vs. Regents CA, establishing a duty to warn, and cases within the realms of social security, disability, mental health, school, personal injury, and workers' compensation codes. These legal precedents solidify the importance and acceptance of computer-based assessments in various domains, providing a robust foundation for the implementation of these tools in diverse legal contexts. Next will be three case studies to show how tests-equations help find high-risk persons, a homicidal, a sex-offender and a mass-murderer.
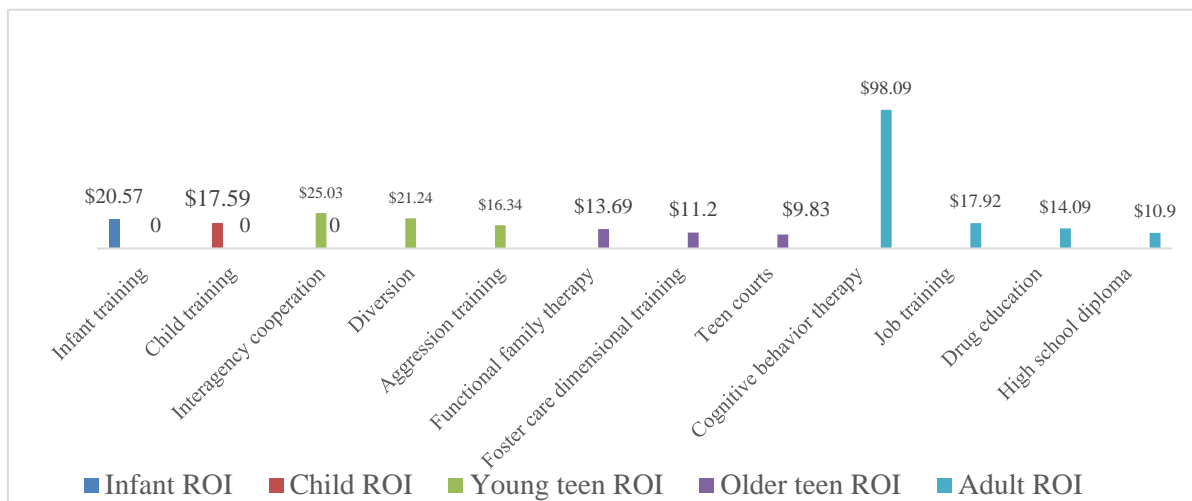

Figure 11. Cost-Beneficial, Effective Return on Investment Diversions

Case 1: Homicidal Offender: In the first case involving a homicidal offender, numerous risks and predictors were evident. Despite the availability of age-specific risks, tests-equations, and diversions throughout infancy, early, middle, and late childhood, adolescence, and adulthood, those responsible—parents, family members, physicians, teachers, principals, child advocacy groups (both private and government), police, courts, judges, lawyers, extended family, neighbors, gun manufacturers, gun shop owners, and others—chose to rely on their human judgment, overlooking warning signs and failing to utilize tests-equations. The tragic outcome of the homicide underscores the importance of holding all individuals accountable financially. Those with a duty to warn and provide mandated school, health, and mental health services should be financially liable, encouraging the adoption of tests-equations and cost-effective diversions. Trial lawyers investigating such cases can demonstrate that available risks, tests-equations, and diversions over the past 40-95 years were not applied to predict and prevent the loss of lives and injuries to victims. Holding professionals accountable along the developmental trajectory of an offender can prompt changes in liability contracts within the insurance industry, fostering mandatory continuing professional education and ultimately reducing premiums.

Table 3. Data Driven Homicide with Risks, Tests-Equations, Diversions, Return on Investment

CASE 1. Risk//Diversion/Service/ Law	0-2 years	3-7 years	4-7 years	8-11 years	12-17 years	18-40 years	41-65 years	66+ years
Garbarino, Zagar, et al., 2022 Risks	Infant (.2 small, .5 medium, .7 large, 1.7 huge)	Early risks child risks with effect size	Child risks with effect size	Adolescent risk effect size	Late teen with effect size	Early adult risk with effect size	Adult risk with effect size	Elder risk with effect size
Youth Killer/Sex-Offender 14 Risks N=1,127 a=.61 AUC/ROC=.91 Zagar & Grove, 2020	Court-contact 0.54 Male- gender 0.63 Alcohol-&- drug-abuse 0.52 (fetal exposure) Violent family 0.83 Orphan -1-step parent family 0.72 Alcohol abuse abuse (fetal exposed) Drug Abuse (fetal exposed) Physical sexual abuse 1.17 Epilepsy 0.98	Add poor social maturity 1.21 Low-decision- making 1.59 Illnesses 0.57	Add Under- Achievement 0.57 Truant, suspended, expelled 0.33	Add Alcohol & Drug Abuse 0.52, Alcohol abuse 0.41 Drug abuse 0.44				
CASE 1: A Midwestern Person Who Murders & Convicted of Homicide	Has fetal polysubstance exposure, abused and neglected first by dad jailed for murder, addicted mom, foster home grandmom, seizures	Socially immature low decision-making, ear infections, asthma jaundice, influenza, head injuries, stitches fractured bones	Underachieving in math, reading spelling, poor grades, stuttering, absent from school, truant, suspended for fighting, expel from 1 school moves new school neighborhood	Starts using alcohol, smoking marijuana, snorting cocaine, access to fentanyl ASP Youth Behavior rating & self-report	Kills a neighbor over a stolen item shooting him with a gun obtained from a local gang member			
Tests-Equations	ASP Youth behavior rating & self-report BASC-infant parent and teacher rating	ASP Youth behavior rating & self-report BASC-child parent, self-report and teacher rating	ASP Youth behavior rating & self-report BASC-child parent, self-report and teacher rating	BASC adolescent parent self-report teacher	ASP Youth Behavior Rating Self-Report BASC adolescent parent self-report teacher MMPI-Adolescent Version	ASP-Adult Behavior Rating, Self-Report BASC-college personality test, Child Abuse Potential Inventory, MMPI-Second Edition	ASP-Adult Behavior Rating, Self-Report BASC-college personality test, Child Abuse Potential Inventory, MMPI-Second Edition	ASP-Adult Behavior Rating, Self-Report BASC-college personality Child Abuse Potential Inventory, MMPI-2
Diversions Zagar et al. 2013, Washington Policy Institute (2006)	Poor 3-4 yr. old infant training	Nurse family child training	Nurse family parent training	Interagency coordination Diversion program Aggression training	Functional family training, Foster multi-dimensional training Teen courts	Cognitive behavior therapy, Job training, Community drug training High school education	Same early adult	Same early adult
ROI return on investment Washington Policy Institute (2006) Zagar et al., 2013	20.57	17.59	2.64	25.03, 21.24, 16.34	13.69, 11.2, 9.83	98.09, 17.92, 14.09, 10.90	Same as early adult	Same as early adult

Case 2: Sex Offender: In the second case involving a sex offender, multiple entities that could have provided assistance—including physicians, government and private child custody agencies, elementary and high school staff, principals, teachers, social workers, speech, occupational, and physical therapists, psychologists, parents, extended family members, police, neighbors, ministers, rabbis, sheiks, monks, priests, gun shop owners, gun manufacturers, and others—should be held financially accountable. By neglecting to employ tests-equations and implement diversions, the opportunity to predict and prevent this individual from becoming a societal burden was missed. The age-specific risks, tests-equations, and diversions available from infancy through various life stages were not appropriately applied, leading to the unnecessary societal expense. Trial lawyers investigating cases of homicide, mass murder, or sex offenses can build a compelling case, showcasing that the available resources over the past 40-95 years were not utilized to predict and prevent harm. Holding responsible parties accountable along the developmental journey of an offender can prompt insurance-broker changes in liability contracts, emphasizing the importance of mandatory continuing professional education and contributing to a reduction in premiums.

Table 4. Data Driven Sex Offending Risks Tests-Equations Diversions Return on Investment

CASE 2								
Risk//Diversion/Service/ Law	**0-2 years**	**3-7 years**	**4-7 years**	**8-11 years**	**12-17 years**	**18-40 years**	**41-65 years**	**66+ years**
Garbarino, Zagar, et al., 2022 Risks	Infant (*.2 small, .5 medium, .7 large, 1.7 huge*)	Early risks child risks with effect size	Child risks with effect size	Adolescent risk effect size	Late teen with effect size	Early adult risk with effect size	Adult risk with effect size	Elder risk with effect size
Adult Killer/Sex-Offender 11 Risks $N = 1,5957$ $a=.62$ $AUC/ROC= .99$ **Zager and Grove, 2010**	Same as youth: Court-contact 0.54 Male gender 0.63 Alcohol-&- drug-abuse 0.52 (includes fetal exposure) Violent-family 0.83	Same as youth: Low-decision-making 1.59 Illnesses 0.57	Same as youth: Under-Achievement 0.57		Antisocial personality 0.25	Poverty 0.50 Not working .30 Hyperactivity (ADHD) .25		
A Serial Sex Offender Convicted Jailed with Life Sentence for Molesting, Raping Many Victims	Abused, neglected parental court contact, male, fetal polysubstance exposure, homicidal uncle, assaulter brother, post-birth jaundice, asthma	Poor decision making in school, fighting, ear infections, head injuries from falls, fractured bones, hepatitis, burned, poisoned, perinatal complications, hyperactive, seizures	Low grades, math, reading, spelling underachievement	Hospitalized in a psychiatric facility three times for weeks to a month	Stealing from stores, Robbing neighbors, Car theft, sexually harassing boys and girls	Poor, unemployed, attention deficit, molests children while babysitting, molests girlfriend's children by another man, rapes a woman coming home from work, rapes and nearly kills another female		
Tests-Equations	ASP Youth behavior rating & self-report BASC-infant parent and teacher rating	ASP Youth behavior rating & self-report BASC-child parent, self-report and teacher rating	ASP Youth behavior rating & self-report BASC-child parent, self-report and teacher rating	BASC adolescent parent self-report teacher	ASP Youth Behavior Rating Self-Report BASC adolescent parent self-report teacher MMPI-Adolescent Version	ASP-Adult Behavior Rating, Self-Report BASC-college personality test, Child Abuse Potential Inventory, MMPI-Second Edition	ASP-Adult Behavior Rating, Self-Report BASC-college personality test, Child Abuse Potential Inventory, MMPI-Second Edition	ASP-Adult Behavior Rating, Self-Report BASC-college personality Child Abuse Potential Inventory, MMPI-2
Diversions Zagar et al. 2013, Washington Policy Institute (2006)	Poor 3-4 yr. old infant training	Nurse family child training	Nurse family parent training	Interagency coordination Diversion program Aggression training	Functional family training, Foster multi-dimensional training Teen courts	Cognitive behavior therapy, Job training, Community drug training High school education	Same early adult	Same early adult
***ROI* return on investment** Washington Policy Institute (2006) Zagar et al., 2013	20.57	17.59	2.64	25.03, 21.24, 16.34	13.69, 11.2, 9.83	98.09, 17.92, 14.09, 10.90	Same as early adult	Same as early adult

Case 3: Tragic Consequences of Untreated Mental Health Issues in a Mass-Murderer

In the third case, a distressed and bullied female worker, grappling with psychotic tendencies, tragically resorted to violence, ultimately shooting and killing others. Despite being on medication and having received treatment, this individual exhibited psychotic ruminations and hallucinations. Having a history of military service and dysfunctionality, she was never subjected to scientific tests-equations, contributing to ongoing challenges at work, including inattention, poor concentration, falling behind, and financial struggles that affected her ability to meet essential needs such as rent and taxes. Faced with the threat of income garnishment, her concerns about guns and explosives were evident to those around her. This individual displayed various warning signs, including homicidal tendencies, experiencing a stressful life event, having access to weapons, planning and preparing for violence, harboring a revenge motive, leaking intent, holding a personal grievance against her employer due to financial issues, threatening others, and having dead male victims—all indicative of many predictors of mass murder.

Unfortunately, despite the multitude of red flags, this person never underwent tests-equations, and her parents, who provided the firearm, denied any mental health issues. Numerous individuals and entities, including physicians, government and private child custody agencies, elementary and high school staff for special education services, parents, extended family members, police, military personnel, neighbors, unsecured office owners without metal detectors, human resources, security personnel, gun shop owners, gun manufacturers, and others, failed to utilize tests-equations to detect addiction-alcoholism, antisocial behavior, deception, depression, paranoia, schizophrenic thinking, and violence potential—all elements of the 7-point violence profile. Financial accountability is crucial for those who could have intervened but neglected to employ tests-equations and diversions. Holding these professionals and entities accountable would incentivize the utilization of tests-equations and diversions, ultimately preventing the increased costs for businesses and higher taxes for citizen taxpayers. The solution lies in the adoption of tests-equations and cost-beneficial, cost-effective diversions, which, despite being available for a century, have been overlooked, resulting in countless victims and substantial financial expenses over the past half-century.

Table 5. Data Driven Case Mass Murderer: Risks, Tests, Diversions, ROIs

3: Risk//Diversion/Service/Law	0-2 years	3-7 years	4-7 years	8-11 years	12-17 years	18-40 years	41-65 years	66+ years
Garbarino, Zagar, et al., 2022 Risks	Infant (*.2 small, .5 medium, .7 large, 1.7 huge*)	Early risks child risks with effect size	Child risks with effect size	Adolescent risk effect size	Late teen with effect size	Early adult risk with effect size	Adult risk with effect size	Elder risk with effect size
Mass murderer shoots up a school located in a mall making it a school workplace case	Female elicited concern of family, extended family, peers, teachers Person showed low decision making and executive dysfunction of frontal lobes	Underachieving learning disability hyperactivity fetal polysubstance exposure ear infections asthma behavior emotional issues head injuries	Depressed suicidal threats attempt medications threatening others poor social maturity low grades in math reading spelling	Arrested for shoplifting, threatened to kill others, threw eggs at cars, shot a BB gun at people, places, Abusive, violent family members	With low skills can't find teenage work, randomly fighting others, abused physically, bullied in school, home, neighborhood, randomly violent	Angry, grieving at parents, school peers, teachers, revengeful because unsuccessful, no special education services, parents refusing physician workup despite hallucinations	Buys a gun, begin planning posting messages online about intention to shoot others Angry at others for no diversion	
Tests-Equations	ASP Youth behavior rating & self-report BASC-infant parent and teacher rating	ASP Youth behavior rating & self-report BASC-child parent, self-report and teacher rating	ASP Youth behavior rating & self-report BASC-child parent, self-report and teacher rating	BASC adolescent parent self-report teacher	ASP Youth Behavior Rating Self-Report BASC adolescent parent self-report teacher MMPI-Adolescent Version	ASP-Adult Behavior Rating, Self-Report BASC-college personality test, Child Abuse Potential Inventory, MMPI-Second Edition	ASP-Adult Behavior Self-BASC-college personality CAPI, MMPI-2	ASP-Adult Behavior, Self-BASC-college personality CAPI, MMPI-2
Diversions Zagar et al. 2013, Washington Policy Institute (2006)	Poor 3-4 yr. old infant training	Nurse family child training	Nurse family parent training	Interagency coordination Diversion program Aggression training	Functional family training, Foster multi-dimensional training Teen courts	Cognitive behavior therapy, Job training, Community drug training High school education	Same early adult	Same early adult
ROI return on investment Washington Policy Institute (2006) Zagar et al., 2013	20.57	17.59	2.64	25.03, 21.24, 16.34	13.69, 11.2, 9.83	98.09, 17.92, 14.09, 10.90	Same as early adult	Same as early adult
Profile 7-Point Violence (95 yrs. 212 studies 320051 persons *N*=125 *AUC/ROC*=.7-.9 ASP + MMPI-2/A Zagar, et al., 2019	I. Deception [L, F, MMPI-2/A] (i.e., low decision making, elicited concern)	II. Antisocial behavior [Pd MMPI2/A] (i.e. court contacts, criminal misconduct)	III. Depression [D, MMPI-2/A] (i.e. illness, suicidal) Threatening	IV. Violence potential [ASP-youth ASP-adult, (i.e. homicidal, violent family) Addiction-alcoholism [AAS, ACK, MMPI-2/A]	VI. Schizophrenic thinking [MMPI-2/A] (i.e. random violence) V. (i.e. abused physically sexually, random violence) 0.00 [CAPI]	VII. Paranoia [Pa, MMPI2A] (i.e. grievance 0.00 revenge 0.00)		

|								
Computer tests & equations BASC parent (N=1,700, a=.5, AUC/ROC=.8), self (N=900, a=.5, AUC/ROC=.8) Teacher (a=/5. AUC/ROC=.8, N=1,800) Kamphaus & Reynolds (2015 a, b) Psynetix.com 16 questions a=.88 (N=1,253, Mean age=32.62, SD=17.61. R=2-88 yrs.) AUC/ROC=.7.04	ASP-youth 1 month -17 years 11 months 30 days) [2010, a=.6, AUC/ROC=.91, N=1,272] BASC infant parent teacher rating (2-5 yrs.) [1992]	ASP-youth (1 month-17 years 11 months 30 days) [2010, N=1,272 yrs.) parent teacher rating (8-11 yrs.) [1992]	ASP-youth (1 month-17 years 11 months, 30 days) [2010, N=1,272] BASC child parent teacher rating (8-11 yrs.) [1992]	ASP youth (1 month-17 years 11 months 30 days) BASC teen self, parent teacher 12-21 yrs.) [1992] MMPI-A [Butcher et al., 1989, N=1,620, a=.8]	ASP-youth (1 month-17 yrs. 11 mon. 30 days) BASC teen self, parent teacher 12-21 years MMPI-A (14-17) [Butcher, et al., 1989, N=1,620, AUC=.85]	ASP-adult (18-90 yrs.) [2010, N=1,595, a=.6, AUC/ROC=.99] [N=236, R=18-51.5 years, AUC/ROC=.97 Zagar, et al. 2013] CAPI (18-90 yrs.) [1986, N=4,939, a=.6 Milner, (1986) AUC/ROC=.98] MMPI-2 (18-90 yrs.) [1992, N=2,600, a=.8, AUC/ROC=.84]	Same early adult	Same as early adult
Diversions Zagar et al. 2013, Washington Policy Institute (2006)	Poor 3-4 yr. old infant training	Nurse family child training	Nurse family parent training	Interagency coordination Diversion program Aggression training	Functional family training, Foster multi-dimensional training Teen courts	Cognitive behavior therapy, Job training Community drug High school education	Same early adult	Same early adult
ROI return on investment Washington Policy Institute (2006) Zagar et al., 2013	20.57	17.59	2.64	25.03, 21.24, 16.34	13.69, 11.2, 9.83	98.09, 17.92, 14.09, 10.90	Same as early adult	Same as early adult
ADA 94-142 IDEA Title IX, Title XI, state &federal mandated school diversions Zagar et al., 2013	Early childhood Head Start full day preschool parent training occupational physical speech therapy	Head Start kindergarten full day preschool occupational physical speech therapy	Elementary special education occupational physical speech social work, psychologist therapy	Jr. high special education occupational physical speech social work psychologist therapy	High special education occupational physical speech social work psychologist therapy	College disability accommodations counseling		
Case Law Affirming Computer Tests & equations Pope, Butcher & Seelan, 2006	Tarasoff vs regents CA duty to warn, 250 federal state appellate cases *MMPI in court* SSI disability mental health school personal injury	Tarasoff vs regents CA duty to warn 250 federal state appellate cases *MMPI in court* SSI disability mental health school personal injury law	Tarasoff vs regents CA duty to warn, 250 federal state appellate cases *MMPI in court* SSI disability mental health school, personal injury law	Tarasoff vs regents CA state appellate cases *MMPI in court* SSI disability mental health school, personal injury	Tarasoff vs duty to warn, 250 federal state appellate cases *MMPI in court* SSI mental health school personal injury workers compensation law	Tarasoff, vs regents CA duty to warn, 250 federal state appellate cases *MMPI in court* SSI mental health school personal injury workers compensation law	Same as early adult	Same as early adult
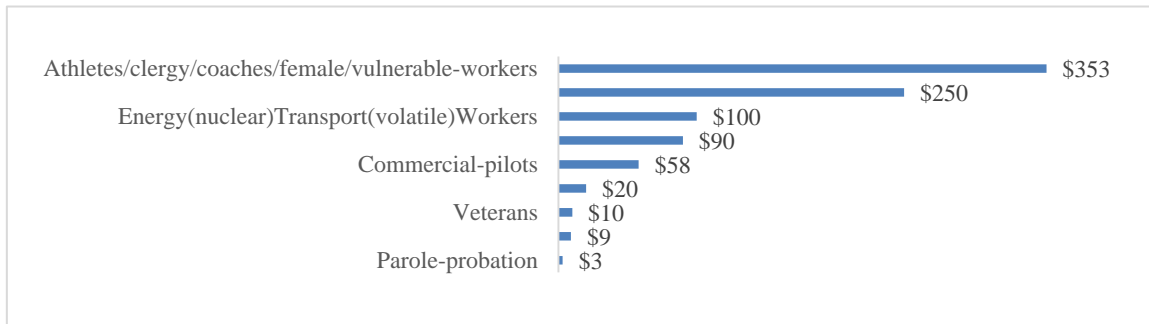
Figure 12. Return on Investment for U.S. Test-Equations Use in Various Sectors Appendix A

The return-on-investment has a R=$3-$323 when tests-equations are used on prisoners, workers in various sectors, abused and vulnerable.
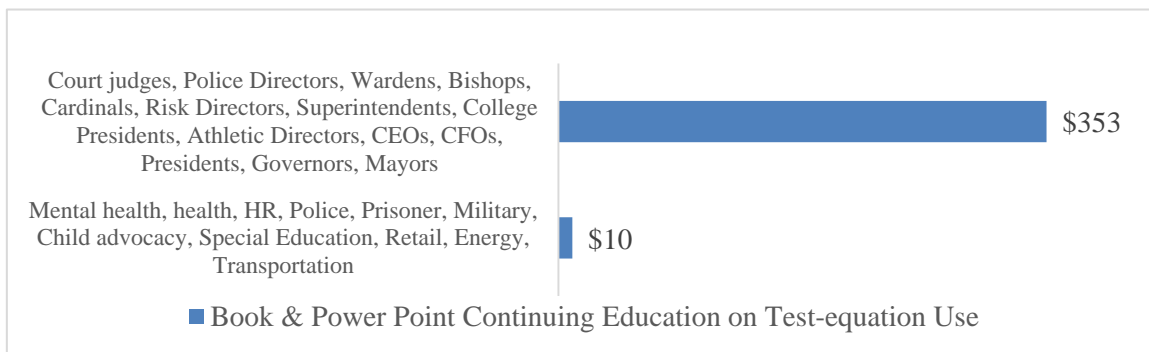

Figure 13. U.S. and World # Customers for Books-Continuing Education Power-Points Appendix B

Investing in mental and physical health, human resources, police, prisons, military, child advocacy, special education, retail, energy, and transportation through books and continuing education on tests-equations yields a substantial return on investment. Specifically, there is a $10 return on investment for each dollar spent in these sectors. Notably, court judges, police directors, wardens, bishops, cardinals, risk directors, superintendents, college presidents, athletic directors, CEOs, CFOs, presidents, governors, and mayors can realize an even more substantial return on investment, amounting to $353:1 when utilizing books and continuing education on machine-learning, tests-equations. This investment eventually leads to support for liability contracts, emphasizing the far-reaching benefits of incorporating these resources across various professional domains.

U.S. & World Test-equation Customers

World: 1,874,208,232

United States: 234,276,029

Test-equation Customers in Millions-Billions
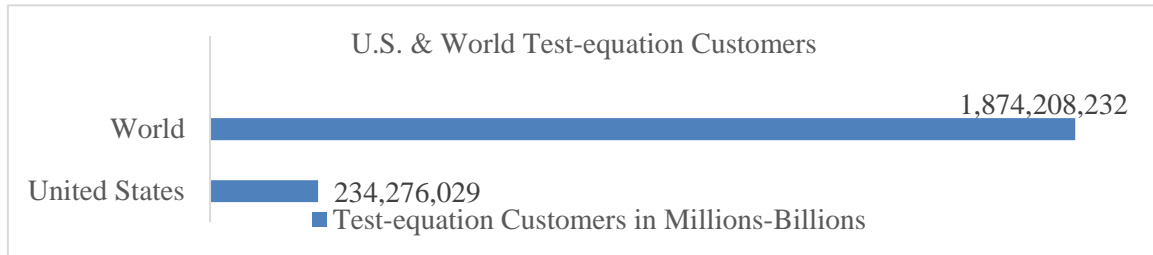
Figure 14. # U.S. & World Test Subjects for Tests-Equations Appendix A

Data are consistent with 234M US and 1.874B World persons benefiting from tests-equations to find challenged.

Book-Power-Point-Continuing Education Customers Potentially Mandated by Insurance Liability Contracts

World: 24,851,432

United States: 3,106,429

Book-Power-Point-Mandated-Continuing-Education-Like-Current-Abuse-Reporting-Sexual-Harrassment-Work-Safety-Training
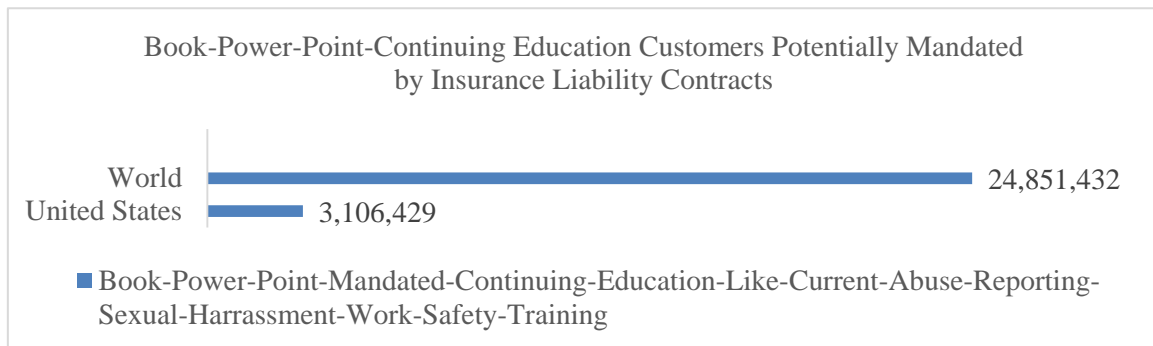
Figure 15. # U.S. & World Customers for Books-Power-Point Continuing Education See Appendix B

In sum, there are 3.1M US and 24.85M global persons who are subject to benefit from books, continuing education through the use of machine learning tests-equations which could be mandated by liability contracts.

10. Conclusion and Recommendations for Trial Lawyers, Insurance Broker and Insurers

The financial impact on business owners and taxpayer-citizens is stark, involving $1 out of every $8 being spent. The widespread acknowledgment of the prevalence of mass murders and sex offenders among business owners and taxpayers calls for the revisions of century-old solutions, namely the addition of tests-equations with diversions which are cost-beneficial, cost-effective. Trial lawyers play a pivotal role in effecting such change by securing larger payouts, compelling the adoption of these solutions in elementary, high school, and college/university technical schools. Simultaneously, this initiative aims to elevate the benefits for insurance brokers and companies, prompting a shift in professional liability contracts with mandatory continuing education.

Comparable training models already exist for abuse reporting, sexual harassment, and workplace safety, making the adoption of these solutions feasible. The current state of affairs, with a lack of economic incentives for change across various sectors such as courts, police, prisons, education, energy, health-mental-health, military, nonprofit-religious, police, and transportation, underscores the need for intervention. To be sure, the number of dead and injured workers has not stimulated change. Indeed, after three decades of appeals, leadership in these sectors has shown little economic motivation to change, as evidenced by the above. The responsibility for fostering a safer world now rests in the hands of trial attorneys and insurance brokers. Peer-reviewed scientific data and the wealth of over 250 federal and state appellate cases provide the foundation for trial lawyers to advocate for change. It is crucial to recognize that the status quo, with its toll on the lives of workers, is unsustainable. Businesses and taxpayers are increasingly unwilling to bear such higher

costs without a tangible shift toward a safer and more secure operating environment.

Acknowledgement

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Appendix A. Workers to test B. Workers to Give New Liability Contracts Continuing Ed

Sectors	Number	*ROI*	Reference
Total World Vulnerable	1874208232		
Total US Vulnerable	234,276,029		
Law enforcement[10,26]	1,200,000	20-110	Fyfe & Kane,2005; Wikipedia,2023
Veterans[16]	19,349,382	10-100	(U.S. Department of Veterans Affairs, 2021; Wikipedia, 2023)
Prisoners (inmates, parole probation)[11,12]	6,700,000	3-20	Teplin, 1994; U.S. Bureau Justice Statistics, 2013; U.S. Department Veterans Affairs, 2021
Nonprofit religious clergy[8,9]	4,000,000	250-323	Virginia, 1998; Knox *et al.* 2000; Teplin, 1994; U.S. Bureau of Justice Statistics, 2013
High-risk health workers[19, 20, 21, 22, 23,24]	191,387	20-110	Statista, 2018; KFF, 2018; Speech Therapists, 2018; Physical Therapists, 2018; Occupational Therapists, 2018; APA, 2018
Emergency room visits[17]	136,300,000	10+	Weiss, *et al.*, 2014
Psychiatric hospitalized[17]	31,500	10+	Weiss, *et al..*, 2014
Special education pupils[27]	7,200,000	10+	National Center Education Statistics, 2022
College students who accessed mental health service[53]	100,736	10+	Center for Collegiate Mental Health, 2021; National Center for Education Statistics, 2022.
Total military[1, 3,4,5,6,7]	3,600,000	90-110	Otto and Webber, 2013; U.S. Department of Defense, 2007, 2008, 2009, 2009b; U.S. Department of Sexual Assault Prevention and Response, 2007
Military recruits[3,4,5,6,7]	200,000	90-110	U.S. Department of Defense, 2007, 2008, 2009, 2009b; U.S. Department of Sexual Assault Prevention and Response, 2007

Air Force pilots[1]	6,025	9-58	Otto and Webber, 2013; U.S. Department of Defense (2007, 2008, 2009, 2009b; U.S. Department of Sexual Assault Prevention and Response, 2007
National guard recruits[3,4,5,7]	196,000	90-110	U.S. Department of Defense, 2007, 2008, 2009, 2009b; Otto & Webber, 2013
High school students who accessed mental health[54]	4,200,000	10+	Office of Population Affairs, 2017
High school athletes[28]	8,000,000	10+	National College Student Association, 2023
Elite college[29] and high school athletes[28]	570,000	10+	Aussie Athlete Agency, 2023
Professional athletes[30]	12,320	10+	U.S. Bureau Labor Statistics, 2022
Public school teachers[31]	3,100,000	10+	Education Week, 2023
Private School teachers[32]	532,922	10+	National Centre for Education Statistics, 2016
Adoptee parents[33]	115,353	10+	Koh, Hanlon, Daughtery and Lindner, 2019
Custody &foster parents[34]	213,964	10+	Annie E. Casey Foundation, 2022
Airline + private pilots[1]	615,000	9-58	Otto and Webber, 2013
Bus, Rail, Volatile truck drivers+port workers [13, 14,]	4,500,000	10-100	Terry, 2011; Zaloshnaja *et al.*, 2000
Coal workers[35,]	59,456	20-90	Interoperability in Business Information Systems World, 2022
Nuclear power workers[2]	400,000	20-90	U.S. Nuclear Regulatory Commission, 2013
Oil drilling & gas extraction workers[36]	48,610	20-90	Interoperability in Business Information Systems World, 2023
Petroleum refinery workers[37]	95,533	20-90	Interoperability in Business Information Systems World, 2022
Natural gas workers[38]	118,549	20-90	Interoperability in Business Information Systems World, 2023
Gasoline workers[39]	161,382	20-90	Interoperability in Business Information Systems World, 2022
Electricity-utility workers[40]	987,605	20-90	Interoperability in Business Information Systems World, 2022
Communication equipment, switchboard and telephone operators[41]	77,880	20-90	First Hand, 2023
Internet workers[42]	280,089	20-90	Interoperability in Business Information Systems World, 2022
Solar power workers[43]	255,037	20-90	Lewis, 2022
Voltaic workers[44]	16,420	20-90	U.S. Bureau of Labor Statistics, 2021
Mail + delivery workers[45]	643,167	10+	Wikipedia, 2023

Private couriers, local and mail delivery workers[45, 46]	1,199,750	10+	Interoperability in Business Information Systems World, 2022
Retail workers; Target Home Depot Menards Walmart[47]	4,125,700	10+	U.S. Bureau of Labor Statistics, 2021
Workers using Employee Assistance Plans [48]	741,000	10+	Attridge, 2022
Disabled workers[49]	5,404,000	10+	Kessler Foundation, University of New Hampshire, 2022
Personal injury claimants[13]	2,000.000	10+	Terry, 2011
Workers' compensation claimants[15]	60,000	10+	Willingham *et al.*, 2000
Aging with mental health issues[50]	8,533,132	10+	Centers for Disease Control and Prevention, 2022
Physically abused victims[51]	10,000,000	250-323	National coalition against domestic violence, 2020
Sexually abused victims[18]	9,832	250-323	Federal Bureau of Investigation, 2018
Overdosing persons[18]	66,839	10+	Federal Bureau of Investigation, 2018
Suicide attempters[18]	30,634	10+	Federal Bureau of Investigation, 2018
Homicide victims families[18]	21,130	10+	Federal Bureau of Investigation, 2018
Mass murder victims' families [25]	1,833	10+	Bushard, 2022
Serial murder victims families[52]	+1,862	250-323	Indiana University Newsroom, 2013

Notes: (1) Markets and Returns on investment (ROIs) based on seven Illinois Institute Technology, Business School and Industrial Psychology Department, Loyola University Chicago Business School class student groups and Northwestern University Kellogg Business School, McCormick Engineering School, Farley Entrepreneurship graduate student groups supervised by Professors Michael Marasco, MBA, Robert Shaw, MBA, Alan Mead, PhD. (2) There are 370,000,000 English speakers in the EU out of 450 M which is close to the 335M US residents. Consequently, the EU market is equal to the US for the test. (3) Where English is the universal language, including the British Commonwealth's 54 voluntary countries, there is a population of 2,357,512,000, which is 7 times that of the US. As a result, the total world market is 8 times the size of the US population, or approximately 800%.

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Appendix B: Professionals Needing Continuing Education to Raise Business Profits by Lowering Violence.

Total world trainable professionals	24,851,432		
Total U.S. trainable professionals	3,106,429		
Groups	*Number*	*ROI*	*Reference*
Mental Health/ Hospitals:			
Clinical psychologists[5]	48,845	10+	Frederic, 2022
Hospital psychiatrists[6]	45,000	10+	Liu,2022
Emergency room physicians[7]	36,180	10+	Frederic, 2022
Industrial psychologists[2]	9,000	10+	LinkedIn, 2023
Hospital CEOs, CFOs, HRs, & MDs[3]	24,372	10+	Poretta, 2022
Psychiatric hospital CEOs, CFOs, HRs, MDs,[30]	60,652	10+	Interoperability in Business Information Systems World, 2023
Veterans' hospital CEOs, CFOs, HRs, MDs, psychiatric ward directors[31]	7,760	10+	Veteran Health Administration, 2023
American Legion directors[33]	10,000	10+	American Legion, 2023; Veteran Health Administration, 2023
Veterans of Foreign Wars directors[34]	6,000	10+	Veterans of Foreign Wars, 2023; American Legion, 2023
Disabled Veterans directors[37]	26	10+	Disabled AmericanVeterans,2023
Paralyzed Veterans director[38]	10,426	10+	Paralyzed Veterans America,2023
AMVETS director[39]	2,000	10+	AMVETS, 2023

Vietnam Veterans director[40]	1,400	10+	Veterans Organizations, 2023
100 other veterans' groups directors[40]	100	10+	Veterans Organizations, 2023
Medical school deans/presidents, Admission directors[41]	344	10+	The Medic Portal, 2023
Local health department directors[42]	3,489	10+	Wikipedia, 2023
Schools:			
School psychologists[8]	42,000	10+	U.S. Bureau Labor Statistics, 2022
School social workers[9]	700,000	10+	U.S. Bureau Labor Statistics, 2021
State education board directors[10]	50	10+	National Board of State Education Boards, 2022
School district superintendents[11]	7,194	10+	Zippia, 2022
School special education directors[12]	6,980	10+	Zippia, 2023
School principals[43]	130,026	10+	Vlasova, 2022
Teacher union presidents[44a&b]	52	10+	Flynn. 2022; Winkler *et al.*, 2012
Colleges			
University presidents, admissions directors, health clinic director[45]	18,000	10+	Bryant, 2021
Courts			
Federal judges[13] 94 in 12 districts	870	10-323	Wikipedia, 2022
Circuit court judges[14]	16,463	10-323	National Association of Women Judges, 2023
State appellate court judges[14]	1,315	10-323	National Association of Women Judges, 2023
State supreme court judges[15]	341	10-323	Wikipedia, 2023
Federal appellate court judges[16]	179	10-323	Wikipedia, 2023
Federal supreme court judges[16]	9	10-323	Wikipedia, 2023
Juvenile court judges[17]	6,759	10-323	Wikipedia, 2022
Trial lawyers[18]	6,784	10+	Zippia, 2022
Trial lawyers' association directors[19]	50	10+	Wikipedia, 2022
State local bar association presidents[20]	92	10+	Online Master of Legal Studies Programs, 2020
National trial lawyer associations[21]	192	10+	National Trial Lawyer Association, 2023
National bar associations[22]	11	10+	American Bar Association, 2023
Human resource managers[23]	166530	10+	US Bureau of Labor Statistics, 2021
Jail and Prison[s]			
Federal jail/prison wardens, correctional officers and personnel[24]	392600	10+	US Bureau Labor Statistics, 2021
State Parole/probation review board members[49]	2,525	10+	Wikipedia, 2023
Probation & parole review board members[50]	39,236	10+	Zippia, 2023
Police			
County sheriffs[25]	3,081	10+	NationalSheriffsAssociation,2015

State attorney generals[51]	503081	10+	Wikipedia, 2023
State police CFO, HR directors[52]	10,050	10+	Wikipedia, 2023
State governors[53]	50	10+	Wikipedia, 2023
County presidents[26]	3,143	10+	Wikipedia, 2022
State attorney generals[27]	50	10+	Wikipedia, 2022
City police department CEO or superintendents, CFO, HR, MD[54]	76,000	10+	Greenberg, 2016
Police union directors[55]	1,000	10+	National Association of Police Organizations, 2023
Police academy directors and admission directors and MD directors[56]	664	10+	Reaves, 2016
Military			
Defense secretary[57]	1	10+	Wikipedia, 2023
Joint chief of staff [58]	1	10+	Wikipedia, 2023
4-star generals[59]	620	10+	Wikipedia, 2023
Military base directors or CEOs, CFOs, HRs, MDs[60]	2,000	10+	Mathieson, 2021
National guard Army CEOs, CFOs, HRs, MDs[61]	200	10+	Wikipedia, 2023
National guard Air Force CEOs, CFOs, HRs, MDs[62]	200	10+	Wikipedia, 2023
Church, Mosque, Synagogue, Temple			
Nonprofit religious risk managers of nonprofit entities[28]	185,064	250-323	Interoperability in Business Information Systems World, 2022
Bishops and cardinals[29]	441	250-323	Schlumpf, 2019
Insurance			
Nonprofit risk managers, CFOs, CEOs, HRs, MDs[63]	800	10-323	Herman *et al.*, 2004
Top 10 insurance broker CEO, CFO, HR, MD[64]	400	10-323	Alliant, 2022
Insurance worker union director[65]	1	10-323	Wikipedia, 2023
Top 30 insurance CEO, CFO, HR, MD[66]	120	10-323	Haqqi, 2021
State workers compensation hearing officer directors (Illinois calls this insurance commissioner)[67]	50	10-323	U.S. Department of Labor, 2023
Retail			
Top 30 store CEO, CFO, HR, MD, security Walmart Target Home Depot Menards[68]	500	10	National Retail Federation, 2022
Retail store union directors[69]	1	10	United Grocery and Commercial Worker Union, 2023
Transport			
Airline CEO, CFO, HR, MD[70]	72	10+	Wikipedia, 2023

Top airline pilot flight attendant, air traffic controllers and air transport workers union[71]	4	10+	Jobmonkey, 2023
Top 10 MAIL: + delivery US Post Office, FedEx, DHL, UPS CEO CFO, HR, MD security[72]	50	10+	Clickpost, 2023
Top mail + delivery unions[73]	8	10+	FreightWaves, 2006
Energy			
Coal CEO, CFO, HR, MD[74]	40	10+	Zippia. 2023
Top coal union director[75]Coal CEO, CFO, HR, MD[74]	40	10+	Wikipedia, 2023
30 top electricity, utilities CEO CFO, HR, MD (50 states and different number in each)[76]	120	10+	Savenije, 2003
10 top natural gas distributor CEO, CFO, HR, MD (50 states different in each)[77]	40	10+	Bradley, 2018
Top natural gas union director[78]	1	10+	Carpenter, 2022
10 top natural gas producer CEO CFO HR, MD different ones[79]	40	10+	Oil and Gas Workers Association, 2023
10 top nuclear power CEO, CFO, HR, MD[80]	40	10+	US Energy Information Agency, 2023
Nuclear power plant union director[81]	1	10+	LIUNA, 2023
10 top oil CEO, CFO, HR, MD[79]	40	10+	Oil and Gas Workers Association, 2023
Top oil union director[79]	1	10+	Oil and Gas Workers Association, 2023
10 top petroleum CEO CFOHR MD[82]	40	10+	Sönnichsen, N. (2022
Top petroleum union director[79]	1	10+	Oil and Gas Workers Association, 2023
Top refinery union directors[84]	10	10+	United Steel Workers, 2023
10 top solar CEO, CFO, HR, MD[85]	40	10+	Kizer, 2022
Top solar union director[86]	1	10+	LIUNA, 2023
Top Voltaic union director[87]	1	10+	Wikipedia, 2023
10 top voltaic CEO, CFO, HR, MD[87]	40	10+	Wikipedia, 2023
Transportation			
10 top port CEO, CFO, HR, MD[88]:	40	10+	Logistics Management, 2020
Top port union directors[88]	30	10+	Logistics Management, 2020
10 top bus company CEO, CFO, HR, MD[89]	40	10+	Bus Bud, 2023
Top bus driver union director[90]	1	10+	Transport Union Workers, 2023
10 top train company CEO, CFO, HR, MD[91]	20	10+	Nattysmasher, 2019
Top train worker union director[92]	1	10+	Wikipedia, 2023
10 top volatile trucking co CEO, CFO, HR, MD[93]	40	10+	Inbound Logistics, 2022
Top volatile truck union director[94a&b]	2	10+	Teamsters, 2023
Firefighters			
Fire Department. academy, admission and health directors[96]	1,000	10+	Wikipedia, 2023

Fire Department CEO, CFO, HR, MD[95]	157,808	10+	National Fire Protection Association, 2023
Athletics			
Professional athletic organizations (baseball) CEO, CFO, HR, MD[104]	128	10+	Wikipedia, 2023
Basketball CEO, CFO, HR, MD[97]	120	10+	Wikipedia, 2023
Hockey CEO, CFO, HR, MD[97]	128	10+	Wikipedia, 2023
Football CEO, CFO, HR, MD[97]	128	10+	Wikipedia, 2023
Soccer CEO, CFO, HR, MD[97]	116	10+	Wikipedia, 2023
NCAA (College athletic: basketball, hockey, tennis golf, volleyball, football, soccer, track organization) CEO, CFO, HR, MD[98]	19,000	10+	Athlete Agency, 2023
NAI[99]	250	10+	National College Sports Association, 2002
NJCAA[100]	500	10+	National Junior College Athletic Association, 2023
High Schools Athletic Association[101]	51	10+	National Federation of State High School Associations, 2023
High School Athletic Coaches[101]	18,500	10+	National Federation of High School Associations, 2023
National college athletic group director[46]	18,500	10+	National Association of Collegiate Directors of Athletics, 2023
Scouting, Camps, Adoption			
Summer camp CEOs, CFOs, MDs[4]	45,000	10+	Sullivan, 2021
State Boy Scouts CEOs CFOs MDs[47]	150,000	10+	Boy Scouts of America, 2023
State Girl Scout CEOs CFOs MDs[48]	100,000	10+	Girl Scouts of America, 2023
Top 50 adoption agency directors[102]	3,000	10+	Nolo, 2023
Top 100 foster home agency directors[103]	26	10+	Knowledge Center, 2023
TV "*Criminal minds*" CBS[1]	5,730000	10+	Spangler, 2022
Movie "*Silence of lamb*"[35]	1,427,9992	10+	Internet Movie Database, 2023
Cartoon "*Simpson's takeoff*" Fox[36]	12,800,000	10+	ABC Medianet, 2009

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