A disposition matrix is a tool designed to structure decisions about the most appropriate level of supervision and custody for adjudicated youth at the time of case disposition. Through the use of disposition matrices, judicial and probation officers are able to make more informed decisions that enhance practices and policies for safer communities and more successful youth. This approach allows for the allocation of resources to where they will be most efficient and effective.

A disposition matrix organizes sanctions and programs by risk level and offense severity. It places youth along a continuum of disposition options, typically including secure out-of-home placements, placement alternative programs, probation, intensive services like multisystemic therapy, and other community options.

Disposition matrices leverage valid risk assessments. Research has shown that a valid risk assessment instrument accurately classifies people into groups based on a set of characteristics, or risk factors, in order to identify cases most likely to be involved in future offending. The classification levels then show differential reentry rates at the various risk levels. Youth classified as low risk are typically placed in community or diversion programs with minimal supervision or are diverted from the system entirely. For youth classified as moderate risk, more structured community programs while under probation supervision may be appropriate. Youth classified as high risk may receive intensive probation supervision with appropriate alternative-to-placement services or may be placed out of the home.

**Informed Decision Making**

A disposition matrix brings a greater degree of consistency, reliability, and equity to the assessment and decision-making process. Once an agency has implemented an accurate and objective disposition matrix, decision makers have access to relevant youth information, disposition options, and corresponding disposition decision recommendations. This ensures that youth with similar characteristics will have similar and appropriate decisions made at their case dispositions.

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1 For more information on validity, see the handout titled “Understanding Validity of Risk Assessment Instruments,” or this document: http://www.nccdglobal.org/sites/default/files/publication_pdf/fire_study_results_graphs.pdf
Research has shown that disposition matrices lead to a more efficient use of dispositional resources and improved outcomes (e.g., lower reentry) by matching dispositions to the specific types of youth for which they were designed.

**Data and Analysis**

The second and possibly less obvious purpose of a disposition matrix is to give agencies a platform from which to evaluate the practice of disposition in their jurisdiction by collecting accurate data on each youth, the disposition recommendation, and the actual disposition decision. This information allows for comparisons of trends over time, across units, and according to local goals and objectives.

**Example**

In the following example, the disposition matrix outlines the recommendations for each combination of risk and current offense. One simple analysis can compare how frequently each disposition type occurred for each risk level. A similar analysis could compare dispositions by offense type or by offense type and risk level.

**Table 1: Disposition Matrix Risk Level**

<table>
<thead>
<tr>
<th>Offense</th>
<th>High</th>
<th>Medium</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Violent</td>
<td>Level 3</td>
<td>Level 2</td>
<td>Level 2</td>
</tr>
<tr>
<td>Serious</td>
<td>Level 2</td>
<td>Level 1</td>
<td>Level 1</td>
</tr>
<tr>
<td>Minor</td>
<td>Level 2</td>
<td>Level 1</td>
<td>Level 1</td>
</tr>
</tbody>
</table>

**Table 2: Disposition Analysis Risk Level**

<table>
<thead>
<tr>
<th>Disposition</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 3</td>
<td>65%</td>
<td>31%</td>
<td>3%</td>
</tr>
<tr>
<td>Level 2</td>
<td>27%</td>
<td>47%</td>
<td>26%</td>
</tr>
<tr>
<td>Level 1</td>
<td>7%</td>
<td>23%</td>
<td>70%</td>
</tr>
</tbody>
</table>

The comparison between the disposition recommendation and actual disposition decision can help identify patterns in practice and reasons for these patterns. These data allow agencies to analyze youth classification distributions, examine outcomes by classification, understand dispositions and reoffending by risk, and see the relationship between disposition decision and reentry. This information is key to validating and revising the disposition matrix over time.

For more information, please contact research@nccdglobal.org; visit our website, www.nccdglobal.org; or call (800) 306-6223.
Disposition Matrices: Design, Development, and Use

**Design**

Disposition matrices focus on the intersection of the current offense and the youth’s risk level. This focus helps to inform disposition options and decisions, and helps to collect and understand valuable practice data. To capture every possible combination of offense, risk level, and sometimes service needs as well, the matrix structure comprises many different classification cells, each of which captures a different balance of the characteristics and recommends a corresponding disposition decision.

Disposition matrices typically have two axes to determine classification cells. One axis represents the seriousness of the current offense (higher or lower). The other axis represents the youth’s risk level and likelihood of future offending (higher or lower). Together, these two axes can structure dispositional decision making.

**Development**

Disposition matrices are developed through a consensus-building process that involves judges and other hearing officers, agency leaders, attorneys, and a wide range of other stakeholders. This leadership group helps shape how current offense information should be structured and how risk levels should be represented, which together determine the different classification cells and disposition recommendations.

The composition of current offense classes and their levels of seriousness should be determined by local policy makers and follow local statutes. Offense classes are typically placed along the left axis of the matrix.

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**What Is a Disposition Matrix?**

A disposition matrix is a tool designed to structure decisions about the most appropriate level of supervision and custody for an adjudicated youth at the time of case disposition. Through the use of matrices, judicial officers are able to make more informed decisions that enhance practices and policies for safer communities and more successful youth. Disposition matrix examples are provided on page 3. Disposition matrices ensure consistent decision making, are based in evidence and data, and ultimately allow for the allocation of resources to where they are most needed, efficient, and effective.
Unlike the current offense seriousness axis, which is grounded in policy and consensus, risk levels are grounded in data and research. Risk items with statistical relationships to reoffending are combined to classify youth according to their overall likelihood of future offending. To be most effective, risk assessment validity should be examined regularly with local data. Risk levels are typically placed along the upper axis of the matrix.

Once the axes are labeled with the appropriate current offenses and risk level categories, the disposition matrix cells can be labeled with the different combinations of current offense class and risk level. Typically, local policy objectives drive the disposition recommendations that are applied to each classification cell. That way, each jurisdiction can locally determine how their available dispositional options will be categorized based on their resources and level of restrictiveness.

**Use**

In practice, for each youth pending disposition, the user of the matrix would identify the cell that corresponds to the youth’s current offense and risk level. The disposition matrix acts as an agreed-upon starting place for disposition decisions; but, if unique circumstances have not been captured adequately, a different disposition decision can apply.

This design allows disposition matrices to help ensure decision making is consistent, data-informed, and evidence-based. Disposition matrices help guide decisions, allow for more effective practice evaluation, and are powerful tools for helping systems achieve their goals.

The following examples are actual disposition matrices used in jurisdictions throughout the country.
### Disposition Matrix: Example 1

<table>
<thead>
<tr>
<th>Type of Offense</th>
<th>Risk Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td>Violent Felonies</td>
<td>Youth Treatment Center Commitment to Department of Youth Services</td>
</tr>
<tr>
<td>Person Felonies</td>
<td>Residential Placement Youth Treatment Center Commitment to Department of Youth Services</td>
</tr>
<tr>
<td>All Other Felonies</td>
<td>Probation Alternative to Probation</td>
</tr>
<tr>
<td>Misdemeanors</td>
<td>Community Services Community Monitoring</td>
</tr>
</tbody>
</table>

### Disposition Matrix: Example 2

<table>
<thead>
<tr>
<th>Most Serious Current Offense</th>
<th>Risk Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td>Class I: Most serious violent felony offenses (e.g., murder, rape, armed robbery, etc.)</td>
<td>Out-of-home placement</td>
</tr>
<tr>
<td>Class II: Other felony offenses against the person (e.g., felony weapon and felony drug distribution)</td>
<td>Out-of-home placement or alternative to placement</td>
</tr>
<tr>
<td>Class III: Felony property and public order offenses</td>
<td>Alternative to placement or level 3 probation</td>
</tr>
<tr>
<td>Class IV: Misdemeanor offenses</td>
<td>Level 1 or 2 probation</td>
</tr>
</tbody>
</table>

1 Sanctions here means restitution or other low-level sanctions as defined by the court.

For more information, please contact research@nccdglobal.org; visit our website, www.nccdglobal.org; or call (800) 306-6223.
Data Analysis for System Improvement

The National Council on Crime and Delinquency (NCCD) works with child welfare, juvenile justice, adult criminal justice, education, and adult protective service agencies to help them use their data in support of broad system improvement efforts. Our analysts go beyond the numbers to work collaboratively with agency decision makers and staff, helping to improve long-term outcomes including safety and well-being.

Why Do We Need Data Analysis?
Data can tell us about what we are doing, how well we are doing it, the impact we are making, and opportunities for system improvement. NCCD’s data analysis services focus on actionable, useful results that can help guide an agency to more effectively serve the people who come into contact with it.

How Does Data Analysis Work?
NCCD helps our clients answer their questions with the data they already have. We create practical analyses that respond to agency needs. Our analysts also provide technical assistance and consulting to support ongoing accountability and quality improvement processes, illuminate agency decision structures and service populations, and improve practice to achieve strategic goals.

Data Analysis Services
We use powerful data and analytics tools, along with expert knowledge, to develop key practice insights that can be leveraged into better outcomes for children, youth, families, and adults. Our training, technical assistance, and manage-by-data consulting services include the following.

- **SafeMeasure**: User-friendly, web-based, near real-time agency data monitoring to support day-to-day practice
- **Routine management reports**: Information for managers to assess current practice and support implementation fidelity

NCCD promotes just and equitable social systems for individuals, families, and communities through research, public policy, and practice.
• *Ad hoc analytics reports*: On-demand, customized reports to answer specific questions posed by funders and administrators

• *Decision-support and classification assessment*: Data-driven development, implementation, and evaluation of assessments that identify who to serve and how to target resources to the clients that most need them

• *Predictive analytics*: Data insights into better decisions, appropriate services, and better outcomes

• *Workload analysis*: Prescriptive studies, analysis, and tools for budgeting and resource allocation

• *Forecasting*: Population estimates of system clients for budgeting and resource allocation

• *Data integration*: Consulting on data sharing and system integration strategies

For more information about data analysis for system improvement, contact Dr. Jesse Russell, Director of Research–Madison, at jurcell@nccdglobal.org or (800) 306-6223.
Risk Assessment for Targeting Resources and Interventions

Use and Purpose
Risk assessment is a decision-support process to help juvenile justice systems identify the system-involved youth on whom they should focus. It helps to answer “who?” questions based on identifying which youth are most likely, on a statistical basis, to later reenter the juvenile justice system.¹

Risk assessment also helps answer the “who not?” question. Given all the youth who are referred to the system, which youth are unlikely to reenter the juvenile justice system? For these youth, interventions can actually increase their risk of reentry.

Allocate Resources for Impact
Because risk assessment helps structure decision points around which youth to focus on, it allows juvenile justice systems to allocate resources to where they are most needed, and to target interventions to where they have the most potential to prevent future system reentry of youth. Risk assessment is a core practice to promote safer communities and more successful youth.

What It Is Not
Risk assessment does not say much about “why?” questions. It does not suggest why some youth are more likely to get in trouble again or why some youth are more likely to reenter the juvenile justice system later. These are good research questions but not questions the risk assessment addresses.

In addition, risk assessment does not say much about “how?” questions. Risk assessment gives an indication of which youth to worry about but not which interventions are most appropriate or what kind of service plan should be adopted for a particular youth.

Once the risk assessment answers the “who” question by identifying a young person’s likelihood of reentering the system, systems should develop individualized case plans. These case plans should be informed by the young person’s risk score; his/her strengths and ambitions; input from family members; and the available local resources, including but not limited to positive youth development approaches aimed at building stronger prosocial attachments and

¹ Reentry refers to a youth’s return to the juvenile justice system, such as at intake.
therapeutic interventions like multisystemic therapy, family functional therapy, and cognitive behavioral therapy.

In developing plans, it is important to keep in mind that young people who pose a low risk should, on the whole, receive limited or court-ordered interventions. Out-of-home placement should be reserved for youth who score high risk and for whom no other viable community-based alternative is available.

“Who is most likely to reenter the juvenile justice system?”

“Who meets our eligibility criteria for programmatic interventions?”

“To whom should we allocate our limited resources?”

Method

Risk assessments are most commonly actuarial tools, similar to those used to set car insurance rates. Using available data, rigorous statistical analysis, and predictive analytics approaches, the factors most associated with juvenile justice system reentry are identified. It is important that local data and practices are incorporated into the process. Youth with more risk factors score higher, and youth with fewer risk factors score lower. Thresholds then classify youth according to low, moderate, or high risk.

Risk assessment instruments must be evaluated against set criteria to ensure that they function appropriately.

These testing criteria are:

- Validity, to test for accuracy;
- Reliability, to test for consistency;
- Equity, to test for fairness; and
- Utility, to test for how useful the instrument is in practice.

Practice and Impact

Risk assessment works as a decision support—not to shape decisions a particular way but to ensure that decision makers are more likely to “get it right.” Research has demonstrated that decisions lead to better outcomes when they are structured. Individual decision makers still maintain discretion to use professional judgment and consider the uniqueness of each individual youth.

For more information, please contact research@nccdgobal.org; visit our website, www.nccdgobal.org; or call (800) 306-6223.
Understanding Validity of Risk Assessment Instruments

While the abstract concept of validity makes sense, actual testing for validity can be challenging. Because validity exists on a continuum, with degrees of less and more valid, we think of some tools as being more valid than others. This means that a test to determine which tools are most or least valid can be useful.

Validity can be assessed quite simply by looking at a graph depicting how often the tool gets different measures right. In the measuring cup example, we could chart how much flour our one-cup scoop actually gives us. If the measuring cup is valid, then we can expect that most of the time, the one-cup scoop will actually give us one cup of flour. But if the factory that made those measuring cups needs maintenance or the machines need recalibration, then the cups might be off. If your measuring cups aren’t valid, the cake you’re trying to bake is likely not to turn out how you hope.

What Is Validity?

Validity in general refers to how well an assessment, instrument, or test actually measures the thing it is supposed to be measuring. For example, a measuring cup is generally a good way to measure flour for a cake recipe; you can trust that the amount of flour measured by a measuring cup comes pretty close to a true cup.
The one-cup measure from Factory 1 tends to hold one actual cup of flour, while the one-cup measure from Factory 2 tends to hold less than a cup. The half-cup and quarter-cup measures from Factory 2 also are off. Further, the half-cup does not appear to be very different from the one-cup, holding similar amounts of flour. This chart, without any statistical measure of validity, makes it clear that the measuring cups from Factory 1 are more valid than the measuring cups from Factory 2.

Similarly, if we examine two risk assessment instruments, we can look at reentry rates by risk level. In the table below, we can compare the accuracy of classifications made by Instrument 1 (in blue) to the accuracy of classifications made by Instrument 2 (in orange).

![Risk Assessment Chart](chart.png)

Just as it was with the measuring cup factories, it is with the risk assessments. Instrument 1, in this example, shows clear steps up from low risk to moderate risk to high risk. Each level represents a marked increase in reentry rates. Instrument 2, on the other hand, shows a step up from low risk to moderate risk, but then actually decreases from moderate risk to high risk. (Even for the more valid risk assessments, some low-risk cases reenter and most high-risk cases do not.) This chart, without any statistical measure of validity, makes it clear that the risk levels from Instrument 1 are more valid than the risk levels from Instrument 2.

More rigorous approaches to statistically measuring validity utilize the receiver operating characteristic (ROC) or the area under the ROC curve (AUC). The ROC describes how often a tool produces a correct result. The AUC is one way to summarize the ROC as a single measure and represents the percentage of randomly drawn pairs for which the test correctly classifies both cases. Other measures, such as the Dispersion Index for Risk, have sought to improve the ability to differentiate between better- and worse-performing tools. Overreliance on any single measure to describe validity, though, can be problematic. Simple graphical depictions of reentry rates by risk level can help to confirm the validity of risk assessment instruments.

It also is worth noting that the accuracy of risk-level classification is not the same as prediction. The goal of a risk assessment is to guide an agency’s choice regarding how to allocate resources and target interventions. For more information on the use of risk assessments, please see “Risk Assessment for Targeting Resources and Interventions.”

In addition, validity is not the only indicator of a good risk assessment. For more information on the other indicators, please see “Risk Assessment Evaluation.”

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1 Reentry refers to a youth’s return to the juvenile justice system, such as at intake.

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Creating a Stakeholder Group

**What:** A stakeholder is any person (or group of people) who is interested in or affected by the decision being made.

**Why:** Having a stakeholder group enables everyone to clearly understand the big picture. A stakeholder group makes sure that different people's concerns are heard and their needs are served. A decision that incorporates the feedback of a stakeholder group may be more acceptable to different groups of people and implemented with greater fidelity and less resistance. A stakeholder group can help:

- Ensure transparency in decision making;
- Create a decision-making process that is centered around stakeholder consensus and less biased;
- Build implementation capacity by proactively troubleshooting implementation issues; and
- Promote relationship building and collaboration.

**How:** The first step is to compile a list of potential stakeholders. These include decision makers, people who are interested in the decision, and people who will be affected by the decision. The goal is to bring a diverse group of stakeholders to the table with different experiences, perspectives, and expertise. The more involved stakeholders are in the thinking process, the more likely they will be engaged in creating the outcomes. Think about the following questions.

- Do the stakeholders represent a wide range of perspectives, experiences, and roles relevant to the decision at hand?
- Do the stakeholders reflect diversity in terms of race, ethnicity, age, socioeconomic status, education, or other important characteristics that are critical for the initiative to be successful?
• Who can spread positive messages about the value of this decision, and can they be included in the stakeholder group?

• Who are the critics of this decision, and can they be included in the stakeholder group?

• Are there additional organizations and/or individuals who should be included that have not been identified?

Once potential stakeholders have been identified, it is important to communicate roles and expectations to all of the group members. Next steps can include the following.

• Plan an initial stakeholder meeting that is informative, interactive, and facilitated in a way that promotes open dialogue among the stakeholders.

• Call each stakeholder to invite him or her to the meeting.

• Send a follow-up email to each stakeholder with the logistics and purpose of the meeting.

Keeping stakeholders involved after the initial meeting is essential. Collaboration with stakeholders should be part of the long-term plan to achieve successful outcomes for all involved.

For more information, please contact research@nccdglobal.org; visit our website, www.nccdglobal.org; or call (800) 306-6223.
Juvenile Justice Work at NCCD

The National Council on Crime and Delinquency (NCCD) works to improve outcomes for our society’s most at-risk individuals, including youth involved in the juvenile justice system. Toward this goal, NCCD engages with and provides solutions for caseworkers, probation officers, courts, families, law enforcement agencies, schools, and community-based organizations.

NCCD helps our clients answer their questions with the data they already have. These solutions typically involve the use of data and analytics to lead system improvement efforts. Our analysts go beyond the numbers to collaborate with agency decision makers and staff, helping them to improve long-term outcomes including youth well-being and community safety. Our analysts also provide technical assistance and consulting to support ongoing accountability and quality improvement processes, illuminate agency decision structures and service populations, and improve practice to achieve strategic goals.

The Structured Decision Making® Model for Juvenile Justice

The Structured Decision Making® (SDM) model for juvenile justice is an evidence- and research-based system that identifies the key points in the life of a juvenile justice case and uses structured assessments that are valid, reliable, equitable, and useful. The model includes the following:

- **Detention screening instruments** identify the likelihood of a youth committing a future offense during a specific and short period of time: before the adjudication hearing. This information helps determine whether a youth should be considered while a youth awaits an initial custody hearing.

- **Actuarial risk assessments** structure decision points, helping agencies know where to allocate resources and target interventions. NCCD works with jurisdictions to design and implement actuarial risk assessment instruments to help make decisions about juvenile cases following adjudication. These decisions involve determining the disposition of a case and whether a youth can be safely diverted from the juvenile justice system.

- **A disposition matrix** is used to promote consistency and equity in dispositional recommendations according to the severity of the current offense and risk of future offending. This ensures that youth in similar situations will have similar and appropriate decisions at their case disposition.

- Once appropriate sanctions and programs have been determined, **post-disposition decisions and case management tools** are used to inform ongoing supervision and decisions relevant to the care and well-being of juvenile justice system-involved youth. Examples of post-disposition decisions and case management tools can include the following: a **response matrix**, which guides probation and/or parole officers on available rewards and sanctions for youth currently being supervised in the community; and a **custody and housing assessment** that helps staff decide how to
group youth to ensure the protection of all detained youth and helps to alert staff to any special needs youth may have.

**The Juvenile Assessment and Intervention System™ (JAIS)**

NCCD also supports the implementation and use of JAIS™ throughout the United States. A supervision strategy model that weaves together a risk assessment and a strength and needs assessment, JAIS is designed as a one-on-one interview with youth that focuses on the underlying motivation for illegal behavior. JAIS provides information on the risk of both violence and general recidivism, priority needs of youth, and specific supervision strategies based on youth characteristics. It alerts officers/case managers to behaviors, attitudes, and problems they will likely encounter with each youth, allowing them to adopt a proactive stance with youth. JAIS provides concrete supervision strategies, and recommends programs and interventions most likely to produce success.

For more information on NCCD’s juvenile justice work, contact Kathy Park, NCCD’s vice president, at kpark@nccdglobal.org. or (800) 306-6223.