User Guide | Equity and Inclusion Assessment Tool (EIAT)

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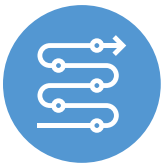
Definition

A tool that calculates the likelihood of transitioning from one stage of processing to the next in a given drug court, based on demographic characteristics.

Purpose

A 2010 resolution by the Board of Directors of the National Association of Drug Court Professionals (NADCP) directs drug courts to monitor whether unfair disparities that affect participants from racial and ethnic minorities exist in their programs and to take affirmative steps to ameliorate such disparities if they exist. The resolution places an affirmative obligation on drug courts to continually monitor whether minority participants have equal access to the program, receive equivalent services in the program, and successfully complete the program at rates equivalent to those of non-minorities. *Adult Drug Court Best Practice Standards: Volume I,* Standard II, (NADCP, 2013) provides further elaboration on this resolution, calling for drug courts to determine not only whether they have achieved equivalent access and retention for minority groups but also whether they have achieved equivalent treatment, incentives and sanctions, and dispositions in completing or failing to complete the drug court program. Further, both *Adult Drug Court Best Practice Standards: Volume I* and *Adult Drug Court Best Practice Standards: Volume II* (NADCP, 2013, 2015) direct adult drug courts to specifically determine whether equivalent access to drug court and equivalent retention in drug court exist among all ethnic, racial, and gender groups. The Equity and Inclusion Assessment Tool (EIAT) is designed to assist drug courts in making these determinations.



Method

The EIAT tracks a referral cohort as it progresses through the different stages of drug court processing: referral, admission, and discharge. To examine the fairness of the referral process, the tool compares the demographics (age, race, ethnicity, gender, and sexual orientation) of offenders arrested for drug court-eligible offenses (or a suitable proxy, as explained below) to the demographic characteristics of defendants referred to the drug court program. To examine the fairness of the admission process, the tool compares the probability that a referral will be admitted among demographic groups. To examine whether equivalent retention in drug court has been achieved, the tool compares the probability of successfully completing the drug court program among demographic groups.

- **Referral:** Referrals are disaggregated by race, ethnicity, gender, sexual orientation, and age, and the percentages are compared to the percentages of *drug court-eligible arrests,* if available. Using drug court-eligible arrests within a specific jurisdiction is the most precise way to gauge the proportion of individuals referred to the drug court, though such a precise statistic is often not available. Later we describe different information sources and strategies that can be used for this comparison.

- **Admission:** The number of referrals who are admitted is divided by the total number of referrals, disaggregated by the demographic characteristic of interest. Such a percentage can be interpreted as the probability that a referral in that specific demographic category will be admitted. The probabilities are then compared by demographic category to determine if there are any differences that merit attention.

FIGURE 1: Admission Rate Calculation

$$\text{Admission Rate} = \frac{\text{Number of Individuals Admitted}}{\text{Number of Individuals Referred}} * 100$$

- **Discharge:** The number of referral cohort members who are admitted and successfully complete (graduate from) the program is divided by the total number of the referral cohort who were admitted to the program, disaggregated by demographic characteristics. These probabilities are then compared by demographic category to determine if there are any differences that merit attention.

FIGURE 2: Graduation Rate Calculation

$$\text{Graduation Rate} = \frac{\text{Number of Individuals Successfully Completed}}{\text{Number of Individuals Admitted}} * 100$$

STEP 1:
Compile Arrest Data

There are a few ways to locate general and specific demographic breakdowns of arrest statistics for the jurisdiction a drug court is responsible for serving. The Bureau of Justice Statistics (BJS) created a tool, the BJS Arrest Data Analysis Tool, that displays annual arrest data by arresting agency using data from the Uniform Crime Report (UCR). The Federal Bureau of Investigation collects the UCR data from law enforcement agencies, which are asked to report data in accordance with the uniform crime definitions. The UCR program publishes the most commonly requested data on its website. The BJS Arrest Data Analysis Tool provides arrest data that is reported annually from 1980 through the most recent year available—2014 as of this writing. When using this tool, a drug court may have to aggregate data from multiple agencies to form a complete number of arrests for its jurisdiction.

The ideal arrest statistic a drug court would want to gather is the number of arrests that would be eligible for drug court admission. However, arrest statistics released by the UCR program are not aggregated at this level of detail. The offense category "Drug Abuse Violations" is the best available proxy statistic, though it obviously excludes arrests for many offenses (e.g., larceny) that are eligible for most drug courts. If your local police departments are not reporting data to the UCR, or not reporting data for the entire 12-month reporting period, you will have to look elsewhere for arrest data.

State police departments and your local police or sheriff's department are another resource for gaining access to arrest statistics. Depending on your state, the agency to contact to receive these statistics will vary. Police departments may have an information services division, a records management department, a Freedom of Information Act officer, or an outside stakeholder that can be contacted about retrieving specific arrest statistics. If your drug court program has already established a relationship with a law enforcement agency, this liaison can be a great resource for identifying the appropriate contact.

Another potential resource is your state's Statistical Analysis Center (SAC). Visit the website of the Justice Research and Statistics Association to identify the location, website, and point of contact for your state's SAC. All states, except North Carolina and Texas, have a SAC. SACs are involved in a variety of criminal justice and policy-related research areas. Some may even provide statistics of interest on their website. For example, Florida's SAC, located under the Florida Department of Law Enforcement, provides drug arrest statistics by county on its website.

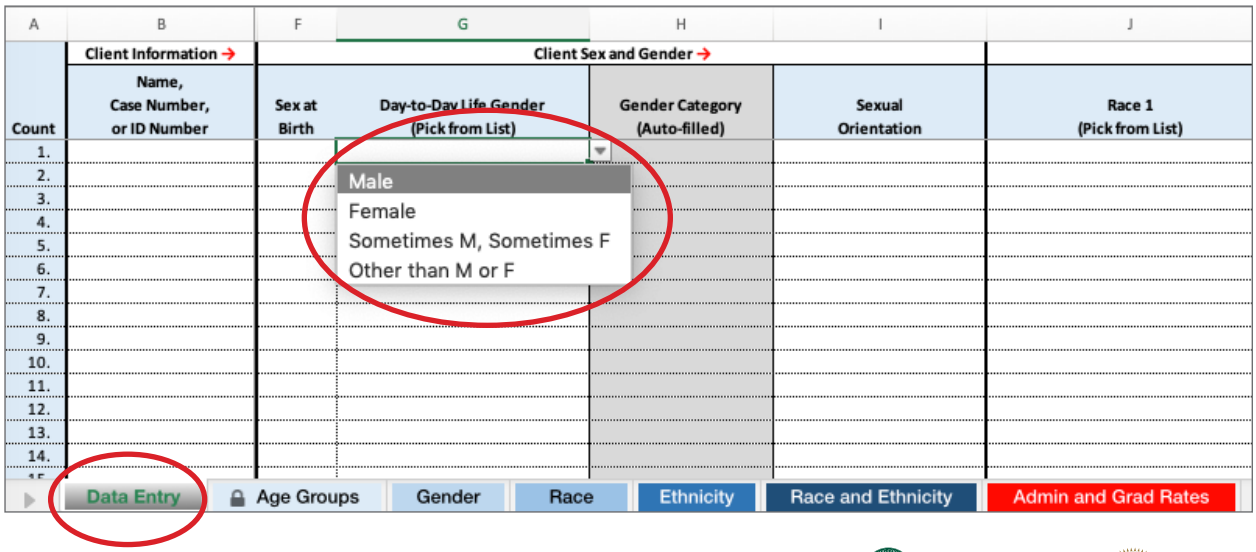
National estimates from the UCR and BJS data of age, gender, race, and ethnicity have already been provided in the EIAT. Once jurisdictional arrest statistics are obtained, these can be entered at the bottom of the appropriate tab of the EIAT, along with the source of the information. Upon entry of these statistics, the charts will update to display the information to allow for a more concise comparison with the referral cohort.

STEP 2:
Enter Referral Cohort Data

The EIAT's Data Entry tab (below) guides you through the process of entering the referral cohort data. This step requires the entry of each client's case or ID number, date of birth, date of referral, gender, sexual orientation, race, and ethnicity. The referral cohort will provide the basis for comparisons to determine if there are disparities in the rate of admission for referrals, disaggregated by demographic categories. A referral cohort consists of all clients referred to the drug court during a predetermined time period, usually three to six months.

The tool is currently set up to allow 350 drug court referral and admission entries; the predetermined time period for defining cohorts should be decided based on this limit. If you have 350 or fewer referrals during a year, we recommend semiannual or annual cohorts. For example, suppose your court received 150 referrals during 2016, with 60 referrals during January through June and 90 during July through December. You could split those referrals into two six-month cohorts, with cohort A consisting of the 60 referrals from the January through June period and cohort B consisting of the 90 referrals for the July through December period. Once you have determined the best time interval for your referral cohorts, you should adhere to that decision. This provides the best means to compare successive referral cohorts to look for trends in the referral, admission, and completion processes of your drug court.

To make data entry simpler, useful tools have been built into the Data Entry tab. Drop-down menus (below) are provided, as well as prepopulated fields based on previous data entry. For example, a client's age in years will be calculated upon entry of date of birth and referral date. Please note that **all dates must be entered manually**. The "cut-and-paste" option of Excel should not be used.



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STEP 2:
Enter Referral Cohort Data

The next four demographic characteristics should be ones that were self-reported by the client: gender, sexual orientation, race, and ethnicity. To more accurately capture the client's gender, two questions will be asked: sex at birth and day-to-day life gender (Bauer, Braimoh, Scheim, & Dharma, 2017). These two questions have drop-down menus to assist with data entry and data quality. The combined gender category will be auto-populated based on the answers to these two questions. Table 1 demonstrates how the answers to these two questions are combined to specify the gender category.

Clients are provided four categories for self-identification of their sexual orientation: Straight or Heterosexual, Bisexual, Gay or Lesbian, and Unsure (Medley, Lipari, Bose, Cribb, Kroutil, & McHenry, 2016). A drop-down menu is provided for this demographic category as well.

TABLE 1: Construction of Gender Category

Sex at Birth	Day-to-Day Gender	Gender Category
Male	Male	Male
	Female	Transgender Female
	Sometimes Male, sometimes Female	Gender Fluid
	Something other than Male or Female	Agender
Female	Male	Transgender Male
	Female	Female
	Sometimes Male, sometimes Female	Gender Fluid
	Something other than Male or Female	Agender

The final two demographic categories are race and ethnicity. Two spaces are provided to identify the client's race, with drop-down menus for each. Five categories are provided (White or Caucasian, Black or African-American, American Indian or Alaskan Native, Pacific Islander, and Asian) with an additional option of Other. If Other is selected, the Race 2 category will be grayed out and you will be prompted to enter the client's self-identified race in the "Specify If Other Race" column. If the client self-identifies as multiracial or of blended races, ask the client to specify the two races that he or she primarily identifies with, and select these from the pull-down menus for Race 1 and Race 2 in the Data Entry tab. The race classification will be auto-populated based on selections from the previous data entry. If more than one race has been selected, the tool will display Blended Race as the race classification. For ethnicity, two options are provided: Hispanic or Latinx, and Not Hispanic or Latinx. "Latinx" is used here instead of "Latino" to be gender neutral.

Ideally, a drug court would have information on all referrals, but in practice this is not always the case. If your drug court does not currently have access to referral information, all demographic information should be entered upon admission to the drug court. You will notice that the column for the referral date is labeled "Date of Referral or Admission" to account for this. The rest of the process will remain the same. Drug courts are strongly encouraged to collect demographic data on referrals to better understand how disparities emerge and to fully utilize the EIAT.

STEP 3:
Determine Which Members of the Referral Cohort Were Admitted to Drug Court and Successfully Completed the Program

After the client's demographic information, the next section to complete is the admission decision. Using a drop-down menu, column O allows users to select Yes or No to indicate whether a client was admitted to the drug court program. If Yes, the user will be prompted to enter the date of admission. If the client was not admitted, the primary reason for non-admission should be selected from the drop-down menu. Reasons for non-admission are grouped into five categories: Current Offense, Offense History, Clinical, Legal, and Participant-Related. Table 2 displays all the options provided in the drop-down menu, except for Other. If the user selects Other as the primary reason for non-admission, column Q provides a field for the user to give the specific reason for non-admission. If the client was not admitted to drug court, all columns after "Reason for Non-Admission" will be grayed out to indicate that no further data entry is needed. Finally, the last field related to admission requires the user to enter the date of admission in column R.

TABLE 2: Primary Reason for Non-Admission

Present Offense	Offense History	Clinical	Legal	Participant-Related
Offense Involved Weapon	History of Weapon	Not High Enough Criminogenic Risk	Charges Dropped or Found Not Guilty	Declined to Participate
Offense Involved Drug Distribution/Trafficking	History of Prostitution	Criminogenic Risk Level is Too High	Pending Charges in Another Jurisdiction	Not a Resident of Jurisdiction
Offense Involved Violent Crime	History of Drug Distribution/Trafficking	No Substance Use Diagnosis	Outstanding Warrant(s)	Unable to Pay Fines, Fees, Costs
Offense Involved Sex Offense	History of Violent Crime	Severe Mental Illness	Previous Participation in Drug Court	Lack of Housing Resources
Offense Involved Prostitution	History of Sex Offense	Not Motivated or Ready for Treatment	Previous Participation in Other Diversion Program	No Transportation
		Serious Medical Illness		
		Referred to Mental Health Court		
		Referred to Other Treatment Court		
		Referred to Another Non-Custodial Rehabilitative Program		
		Needed Treatment Resources Not Available		

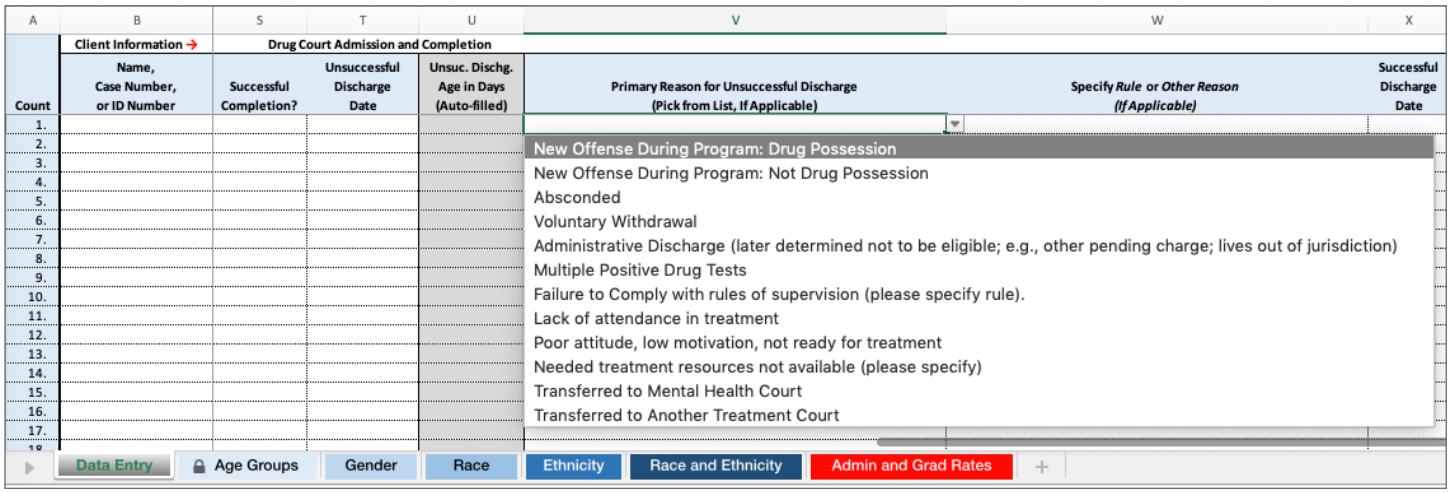
STEP 3:

Determine Which Members of the Referral Cohort Were Admitted to Drug Court and Successfully Completed the Program

For those clients who are admitted to the program, the final section of the EIAT to complete is the completion/discharge information. Using the drop-down menu in column S, the user will select Yes or No to signify whether the participant successfully completed the program. If Yes is selected, all boxes will be grayed out except the successful discharge date in column X. If No is selected, the user will be prompted to enter the unsuccessful discharge date in column T and the primary reason for unsuccessful discharge in column V. Upon entry of the date of unsuccessful discharge, column U will auto-populate with the number of days the client was enrolled in the program. Fourteen reasons for unsuccessful discharge are provided in the drop-down menu, (below) as shown in Table 3 (Other is omitted from the table). Select the primary reason for unsuccessful discharge.

TABLE 3: Primary Reason for Unsuccessful Discharge

New Offense During Program: Drug Possession
New Offense During Program: Not Drug Possession
Absconded
Voluntary Withdrawal
Administrative Discharge (Later Determined to Not Be Eligible)
Multiple Positive Drug Tests
Failure to Comply with Rules of Supervision
Lack of Attendance in Treatment
Poor Attitude, Low Motivation, Not Ready for Treatment
Needed Treatment Resources Not Available
Transferred to Mental Health Court
Transferred to Another Treatment Court
Death or Serious Medical Illness or Injury



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STEP 3:
Determine Which Members of the Referral Cohort Were Admitted to Drug Court and Successfully Completed the Program

Note that if the reason for the unsuccessful discharge is Failure to Comply with Rules of Supervision, the user must specify the rule or rules that were violated. Similarly, if the reason for the unsuccessful discharge is Needed Treatment Resources Not Available, the user must specify the resources that were needed but not available. Finally, if the user selects Other as the reason for the unsuccessful discharge, the user must manually enter the reason for the unsuccessful discharge.

Please also include any referrals in the cohort who are still active in the court. In the case of active participants, you will be unable to record data for their completion status, and consequently columns S through X of the Data Entry tab will be left blank.

Analysis and Interpretation

The EIAT will automatically perform the calculations needed to identify points in the criminal justice and drug court processing where inequities may be emerging. It will also provide some data that will assist in the diagnosis of the source of such inequities, but additional diagnostic efforts will almost certainly be required, including conducting a systematic investigation of the processing that occurs between the three major processing points incorporated into the EIAT, interviewing relevant justice system actors, gathering additional empirical data, and so on. Consider the EIAT to be the starting point for continued investigation to locate the sources of disparities, not the terminus of the effort. The EIAT will not:

- Determine why or how such inequities emerge
- Inform the user whether the differences in processing rates and transition probabilities are statistically significant
- Provide recommendations for ameliorating any inequities

STEP 4:
Compare and Interpret the Demographic Characteristics of the Referral Cohort to the Demographics of Arrestees

As noted earlier, this comparison is inexact at best, but it may nonetheless prove insightful for assessing equity and inclusion at the point of referral. It is not worthwhile to perform significance tests for the differences between arrest rates for drug offenses and drug court referral rates, because the arrest rates do not include all arrestees who would be "paper eligible" for drug court, and they do include many of those arrested for drug offenses who would not be eligible for drug court (e.g., those with trafficking offenses). The ideal arrest comparison group would contain only those arrestees who meet the legal and administrative eligibility criteria (i.e., the "paper" criteria) for drug court. These criteria often include type of offense committed, having a substance use disorder, criminal history, place of residence, etc., but do not include the often-discretionary criteria that some drug courts use to screen referrals to determine suitability for the program. Examples of these discretion-based characteristics are team perceptions of readiness for treatment and motivation for change. Unfortunately, arrest statistics do not capture the level of offender detail needed to examine this specific group of individuals.

Due to the difficulties in accessing only those arrest statistics that are compatible with the eligibility criteria for drug courts, the EIAT uses the offense category "Drug Use Violations," routinely collected by the UCR, as a proxy. Although this is not a perfect comparison, for the reasons listed earlier (see Step 1: Compile Arrest Data), it is the most salient offense category for the comparisons that follow.

The four tabs that follow the Data Entry tab (below) are used to compare the demographic characteristics (Age Groups, Gender, Race, Ethnicity) of those arrested for drug use violations to those of the clients in the referral cohort. All frequencies and percentages for the referral cohort are auto-populated into the four tabs and displayed in both table and bar chart form. If referral information is not available and not entered into the Data Entry tab, these tabs compare the demographics of admissions to arrests. This comparison is not as useful as the information that would be provided by examining both referrals and admissions, but it may offer some insight. Statistics from the BJS and UCR are included in the EIAT to provide comparisons

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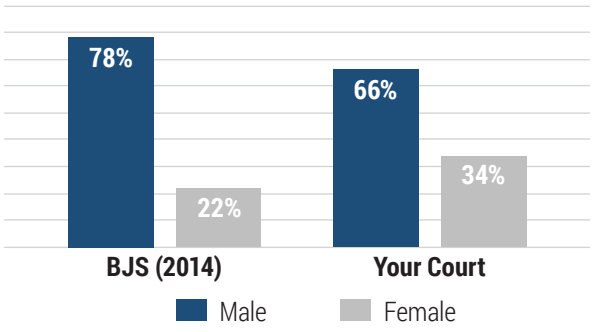
STEP 4:
Compare and Interpret the Demographic Characteristics of the Referral Cohort to the Demographics of Arrestees

to the national population with the most recent data available. The user can update these statistics if more recent ones are released or can change them to jurisdictional-specific statistics, if available. Jurisdictional data is the preferred source of comparison because it will be more representative of the true comparison population.

The fifth tab displays the breakdown of each race by ethnicity. These tables can be useful to identify differences in ethnicity across races for those referred to the drug court. It also can help identify what races have the highest concentration within the Hispanic or Latinx population.

When comparing the demographics of the referral cohort to the demographics of those arrested, it is important to examine those categories that are drastically different from the national average or jurisdictional average. Once the differences are identified, the drug court can investigate why it may be receiving more or fewer referrals for a specific demographic population and take the appropriate measures to ensure equity in the future.

FIGURE 3: Example of Interpreting Differences in Referral Cohort: Drug Arrests v. Referrals, by Sex at Birth



For example, Figure 3 shows a comparison of referrals by sex at birth (using fabricated data). In this example, males tend to be underrepresented compared to their representation among drug offense arrestees, as reported by BJS in 2014 (actual data). The difference between the rates for males is 12%, a large enough difference to merit further investigation.

What factors could account for the underrepresentation of males among drug court referrals in our example? Potential explanations could be:

- Prosecutor bias in the referral process favoring females, who may be perceived as being at lower risk for reoffending than males
- Exclusionary criteria for drug court admission that disproportionately exclude males from consideration for drug court (e.g., barring offenders with prior violent offenses from consideration)
- Defense bar reluctance to refer male clients to drug court
- Reluctance on the part of males to consider drug court, reflecting a bias against being labeled as a person who needs psychosocial treatment for fear of being considered "weak"

To investigate the true reason for the underrepresentation of males among drug court referrals, the drug court team should identify possible explanations that are relevant for their program and/or jurisdiction and then collect data, conduct interviews, and gather any other information to test the validity of the

STEP 4:
Compare and Interpret the Demographic Characteristics of the Referral Cohort to the Demographics of Arrestees

possible explanation(s). Based on the information collected and the conclusions reached, the team should develop a plan to address this underrepresentation. Drug courts should pursue a similar approach to understand differences between the demographic composition of arrestees and referrals according to age, sexual orientation, race, and ethnicity when these rates are drastically different. NADCP has developed a suite of tools that can be used to develop an effective plan to address inequities detected by the EIAT.

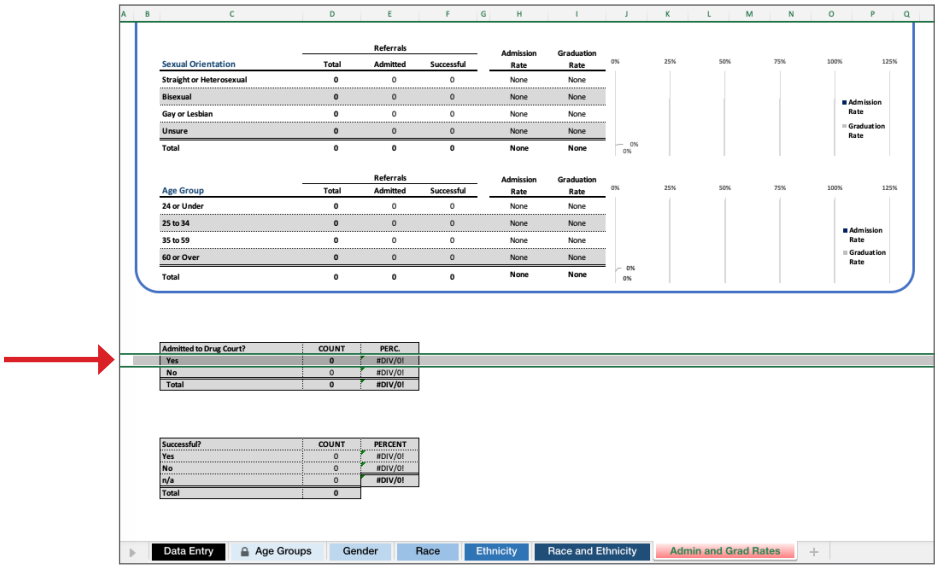
The transition from arrest to referral is often neglected by drug court programs, which may consider it to be beyond their control. This is unfortunate, since there is ample evidence that inequities exist at this stage of processing (see, for example, Marlowe, Hardin, & Fox, 2016) that stand to be exacerbated at subsequent stages of processing. While it is true that drug courts do not have direct control over this transition, they can identify the problem and educate other important actors within the criminal justice system (e.g., prosecutors, law enforcement, jail staff, defense bar). This may require convening interdisciplinary workgroups, implementing memorandums of understanding, and conducting educational efforts. Regardless, drug courts should not neglect this important stage in processing nor underestimate its impact on equity and inclusion at subsequent stages of processing.

STEP 5:
Compare the Admission and Successful Completion Probabilities by Demographic Characteristics

The last tab of the EIAT calculates the admission rate by demographic category based on the referral and admission data entered in the Data Entry tab. If referral information is not available and not entered into the Data Entry tab, the admission rate will be deceptively high and should be disregarded. In such cases, however, the graduation rate will remain valid.

Examining the admission rate by demographic characteristics will enable a drug court to identify any disparities that emerge between referral and admission. Knowing if a group is being underrepresented at admission as well as completion is a best practice standard (NADCP, 2013). The overall percentage of referrals admitted to the drug court program is displayed in a table at the bottom of the tab, in line 57 (below). This percentage can be interpreted as the probability that a member of the referral cohort will transition from referral to admission.

In an ideal world, there should be no differences in these transitional probabilities based on demographics. The tables and charts on this tab break the transition probabilities down (i.e., disaggregate them) according to race, ethnicity, gender, sexual orientation, and age group. By examining the differences in transitional probabilities within these key demographics, a drug court can identify differences that suggest that some groups are more likely to be admitted than others. Such a finding, at the very least, merits investigation and perhaps, depending on the results of the investigation, corrective action. It is important here to look at the raw numbers as well as the admission rate; those demographic categories with very small numbers are more likely to show extremely high or extremely low admission rates due to the low base rates.



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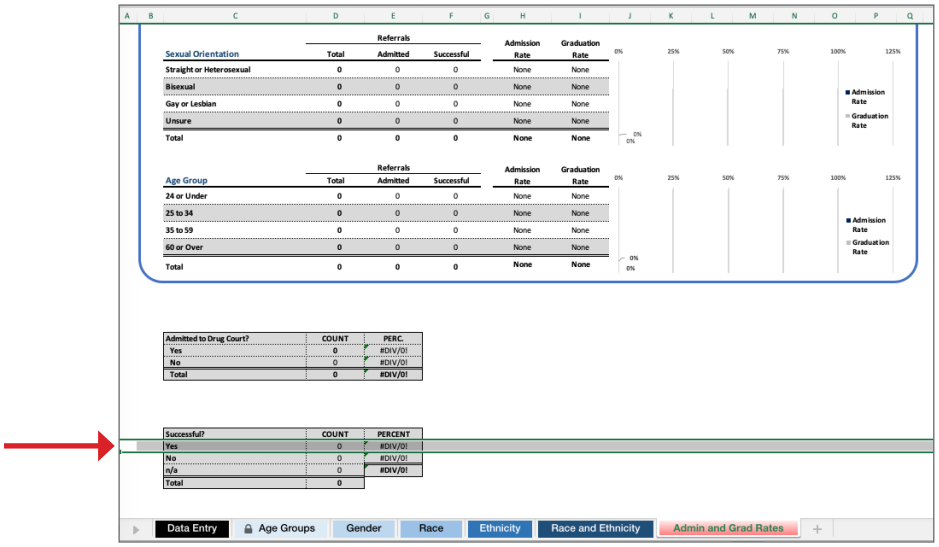
STEP 5:
Compare the Admission and Successful Completion Probabilities by Demographic Characteristics

If a drug court identifies a certain demographic category as an area of concern due to low admission rates, it can use the EIAT Data Entry tab to examine the reasons why this population is not being admitted. Using column P, "Primary Reason for Non-Admission," in the Data Entry tab and identifying the cases of interest (based on the demographic characteristic being investigated), one can see trends in the reasons that members of this group are not being admitted to the drug court. For example, if females have a lower probability of being admitted to the drug court than males, one may want to identify all rows in the Data Entry tab that involve female referrals. Once those rows have been identified, compiling the reasons for non-admission and comparing those to the reasons that males are not being admitted may show that females are being diverted from drug court for different reasons than those for males. This examination can show whether certain screening criteria should be removed or changed or if the population being diverted should have been referred to a different program. This process can be completed for all demographic areas of interest: age, gender, sexual orientation, race, and ethnicity.

The last tab of the EIAT also calculates the successful completion rate (graduation rate) for those who were admitted to the drug court program. The overall successful completion rate is displayed at the bottom of the tab, on line 65 (below). This percentage can be interpreted as the probability that a member of the admission cohort will successfully complete the program.

The graduation rate, broken down by demographic categories, allows a drug court to see if a demographic group is more likely or less likely to complete the program, compared to others. Following the same procedures as were described earlier for investigating the admission rate can



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STEP 5:
Compare the Admission and Successful Completion Probabilities by Demographic Characteristics

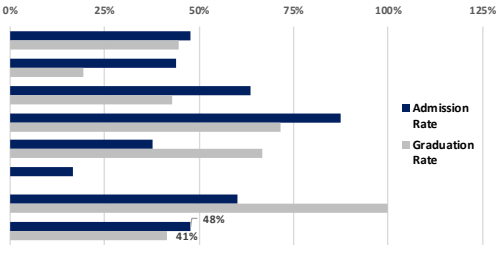
enable a more detailed examination of any inequities that may be occurring. The EIAT Data Entry tab allows for a detailed look at the primary reasons for unsuccessful discharge. If a group is identified as having a low likelihood of successful completion, a drug court can use column V, "Primary Reason for Unsuccessful Discharge," to pull together the reasons that participants were discharged, and can aggregate their length of time in the program with column U. These two columns can show if, on average, the group is being discharged quickly from the program and the reasons why, or if they are making it further into the program and those reasons for discharge. Examining these columns allows for a deeper understanding of the reasons for discharge and how they may vary by demographics.

Figure 4 displays fictional data for admission and successful completion rates by race and ethnicity. In the bar graph to the right, the blue bars display the admission rate for each population, while the gray bars display the successful completion rates. This may be an easier way to visually identify demographic groups that are less likely to be admitted or are less likely to complete the drug court program. In this example, the Other race category has a very high successful completion rate; however, the total number of referrals in this category is very small, and therefore this category should be disregarded. The race category American Indian or Alaskan Native has a very low graduation rate compared to the other racial categories. Investigating why this demographic group has a higher rate of unsuccessful discharge from the drug court may reveal disparities between the racial groups.

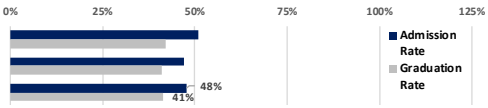
FIGURE 4: Example of Interpreting Differences in Admission and Successful Completion Rates

Admission and Graduation Rates - Page 1 of 2

	Referrals			Admission	Graduation
Race	Total	Admitted	Successful	Rate	Rate
White or Caucasian	230	110	49	48%	45%
Black or African-American	82	36	7	44%	19%
American Indian or Alaska Native	11	7	3	64%	43%
Asian	8	7	5	88%	71%
Pacific Islander	8	3	2	38%	67%
Blended Race	6	1	0	17%	None
Other	5	3	3	60%	100%
Total	350	167	69	48%	41%



	Referrals			Admission	Graduation
Ethnicity	Total	Admitted	Successful	Rate	Rate
Hispanic or Latinx	61	31	13	51%	42%
Not Hispanic or Latinx	289	136	56	47%	41%
Total	350	167	69	48%	41%



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STEP 5:
Compare the Admission and Successful Completion Probabilities by Demographic Characteristics

Looking at admission rates and graduation rates together allows for a detailed examination. If a certain group has a very low admission rate but a high successful completion rate, the screening criteria used to admit referrals to the program may be identifying only those individuals who may succeed in the program, also known as *cherry-picking.* However, if a group has a high admission rate but a low successful completion rate, a drug court may want to identify the reasons for unsuccessful discharge among this group and possibly alter the screening criteria for admission. The bar chart to the right of each table displays these two figures graphically beside one another, gray for the graduation rate and blue for the admission rate, to allow the drug court to identify differences between them, as well as to compare the rates for different demographic categories.

Significance Testing

It is possible to test the statistical significance of differences in the transition probabilities for both admission and successful completion between various demographic groupings using *a test of the significance of the difference between two independent proportions* (see example). The calculator at this link will enable the user to perform the test of significance, but only if certain conditions are satisfied. In the case of admissions, there must be at least five referrals (i.e., $n(p) = 5$) and the value of $n(1 - p)$ must also be at least 5, where n equals the number of referrals and p equals the number of referrals admitted for a particular demographic group. These conditions must be satisfied for any two demographic groups to be compared. If these conditions are not satisfied, the calculator will alert the user and will not perform the calculations.

In Figure 4, for example, the user may want to compare the probabilities of transitioning between referral and admission for Whites and Blacks. Based on all available data, it is reasonable to expect that Whites will have a higher probability of transitioning than Blacks. Let n_a and n_b represent the total number of referrals for Whites and Blacks, respectively. Let k_a and k_b represent the number of referrals who are admitted for Whites and Blacks, respectively. Using the data in Figure 4, we see that $n_a = 33$ and $k_a = 18$, while $n_b = 24$ and $k_b = 8$ for Whites and Blacks, respectively. Thus, the transition probabilities are $p_a = (19/33) = .576$ and $p_b = (8/24) = .333$ for Whites and Blacks, respectively. Note that both n_a and n_b are greater than 5 and that $n_a(1 - p_a) = 33(1 - .576) = 14$ and $n_b(1 - p_b) = 24(1 - .333) = 16$, and hence are both greater than 5. Thus a test of significance is possible. These calculations are performed automatically in the calculator at the link provided above but are shown here for purposes of illustration.

When this data is entered into the calculator, it provides two probabilities that the difference between the transition probabilities is significant, *one-tail* and *two-tail.* A one-tailed test is appropriate if you want to determine only if there is a difference between groups in a specific direction. So if you are interested in determining only if group A scored higher than group B, and you are completely uninterested in the possibility

STEP 5:
Compare the Admission and Successful Completion Probabilities by Demographic Characteristics

of group A scoring lower than group B, you may want to use a one-tailed test. The main advantage of using a one-tailed test is that it has more statistical power than a two-tailed test at the same significance (alpha) level. In other words, your results are more likely to be significant for a one-tailed test if there truly is a difference between the groups in the direction that you have predicted. This is because only one tail of the distribution is used for the test.

Which kind of test should you use? When in doubt, it is almost always more appropriate to use a two-tailed test. A one-tailed test is justified only if you have a specific prediction about the direction of the difference (e.g., group A scoring higher than group B) *and* you are completely uninterested in the possibility that the opposite outcome could be true (e.g., group A scoring lower than group B).

In the case of our example, we previously noted that we expect Whites to have a higher probability of transitioning between referral and admission than Blacks, and thus a one-tailed test is warranted. A one-tailed test for the significance of the difference in transition probabilities between Whites and Blacks shows that the probability is .0351. Any value for this probability that is less than or equal to .05 is considered statistically significant. Consequently, we conclude that Whites have a statistically significant greater probability of transitioning from referral to admission than Blacks. This provides evidence that the admission process may be unfair to Blacks, which merits investigation.

Carrying this comparison to the next stage of processing, we compare the probabilities of transitioning between admission and successful completion between Whites and Blacks. Based on all available data, it is reasonable to expect that Whites will have a higher probability of transitioning than Blacks. Let n_a and n_b represent the total number of admissions for Whites and Blacks, respectively. Let k_a and k_b represent the number of admissions who successfully complete drug court for Whites and Blacks, respectively. Referring to the data in Figure 4, we calculate that $n_a = 19$ and $k_a = 12$, while $n_b = 8$ and $k_b = 3$ for Whites and Blacks, respectively. Thus, the transition probabilities are $p_a = (12/19) = .632$ and $p_b = (3/8) = .375$ for Whites and Blacks, respectively. Note that both n_a and n_b are greater than 5 and that $n_a(1 - p_a) = 19(1 - .632) = 7$ and $n_b (1 - p_b) = 8(1 - .375) = 5$. Thus, both are greater than or equal to 5, meaning that a test of significance should be possible. However, when accounting for rounding errors, it is just too close, and the calculator will not perform the calculations needed to test the significance of the difference between the transition probabilities. Note that similar procedures can be used to test for the difference in transition probabilities between any two groups with different demographic characteristics (e.g., males vs. females, Hispanics vs. non-Hispanics, heterosexuals vs. gays or lesbians).

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