# AR Evaluation Post-Hoc Analysis:
## Race/Ethnicity Association to Pathway Assignment & Reassignment

The evaluation team at the Institute for Child and Family Well-Being at the University of Wisconsin-Milwaukee conducted supplemental analyses to explore the association between race/ethnicity and AR pathway assignment and reassignment. These supplemental analyses were driven by findings presented in the Outcome report. Specifically, results suggest that White children have 7% higher chances of being assigned to the AR pathway than non-White children (OR = 1.07), even when controlling for other child and case characteristics. **Although the result is statistically significant, this odds ratio can be interpreted as a negligible effect on pathway assignment (Cohen's d = 0.016, where d ≥ 0.2 is interpreted as a small effect).** Moreover, American Indian children in the AR pathway had a higher likelihood of being reassigned to TR pathway than similar White children (OR = 1.39). White children also had a higher chance of being reassigned from the TR to the AR pathway, compared to similar non-White children (OR =1.21).

Although for statisticians, these ORs may not translate into meaningful effect sizes, it is important to explore potential biases in agency decision-making that may be contributing to these differential effects. DCF partners asked the UWM evaluation team to conduct supplemental analyses of the association between race and assignment and reassignment. This document summarizes the findings of four supplemental analyses:

1. Prevalence of family risk characteristics by race/ethnicity
2. County variation in the association of race and pathway assignment
3. County variation in the association of race and AR-to-TR pathway reassignment
4. County variation in the association of race and TR-to-AR pathway reassignment

## 1. Prevalence of family risk characteristics by race/ethnicity

Table S.1 presents the prevalence of a number of indicators by race/ethnicity within the full 61,349 families included in the assignment sample. In addition to the predictors of pathway assignment (presented in Table 4 of the Outcome Report), we identified allegation descriptors related to neglect, poverty, and drug use that we hypothesized may have differential prevalence rates among racial and ethnic groups. Notably, these percentages reflect the proportion of families with an Initial Assessment from a given racial or ethnic population with a certain characteristic—not the prevalence of that characteristic in the general population of racial/ethnic groups. **The purpose of the table is to explore whether certain characteristics that may be associated with pathway assignment or reassignment occur at a higher rate in any of racial/ethnic groups.**

Chi-square tests were used to identify significant differences, relative to White families, among minority racial/ethnic families. Because the sample size was so large, we also assessed effect size using Cohen's Phi (see Outcome Report for a full description of effect sizes). **Effect sizes for all indicators were found below the threshold of a small effect (Phi < 0.1)**. Nevertheless, patterns indicate some differential sorting by race/ethnicity according to family risk factors. For example, compared to other racial and ethnic groups, a greater proportion of American Indian families with Initial Assessments experienced neglect allegations (77.3%), and had higher prevalence of allegation descriptors including lack of necessary care, lack of supervision, exposure to elements, threats of abuse, as well as a

composite of AODA allegation descriptors. **This analysis is descriptive versus explanatory but may provide context for some differences in pathway assignment and reassignment by race or ethnicity.**

| Table S.1: Prevalence of Key Indicators by Race/Ethnicity | | | | | | |
|---|---|---|---|---|---|---|
| | **Other** | **African American** | **American Indian** | **Hispanic** | **White (reference)** | **Total** |
| N | 5067 | 8269 | 3244 | 4886 | 39883 | 61349 |
| % Assigned to AR Pathway | 51.4 | 42.6 | 41.6 | 42.0 | 47.1 | 46.2 |
| % Reassigned from TR to AR pathway[1] | 6.6 | 6.2 | 7.8$^{ns}$ | 7.7$^{ns}$ | 8.2 | 7.7 |
| % Reassigned from AR to TR pathway[1] | 6.1$^{ns}$ | 4.7 | 6.9 | 4.8$^{ns}$ | 5.4 | 5.4 |
| % No present or impending danger threat | 74.1 | 63.9 | 61.0 | 65.2 | 70.1 | 68.7 |
| % Prior referral | 64.6 | 80.9 | 85.2 | 79.8$^{ns}$ | 79.8 | 79.0 |
| % Reported by law enforcement | 22.4$^{ns}$ | 24.6 | 20.3 | 23.9$^{ns}$ | 22.7 | 22.9 |
| **Allegations** | | | | | | |
| % Neglect | 60.9 | 73.8 | 77.4 | 64.9 | 67.8 | 68.3 |
| % Physical abuse | 25.9$^{ns}$ | 25.6$^{ns}$ | 18.4 | 29.4 | 25.3 | 25.4 |
| % Emotional damage or abuse | 2.7 | 2.2 | 3.0$^{ns}$ | 3.2$^{ns}$ | 3.3 | 3.1 |
| % Sexual abuse | 9.2 | 7.8 | 7.3 | 12.9 | 11.6 | 10.7 |
| **Allegation Descriptions** | | | | | | |
| % Lack of necessary care | 9.7 | 14.0$^{ns}$ | 19.9 | 13.9$^{ns}$ | 13.6 | 13.7 |
| % Lack of Supervision | 15.3 | 16.6 | 17.0 | 14.2 | 12.7 | 13.8 |
| % Exposure to Elements or Environmental Hazards | 12.8$^{ns}$ | 13.5$^{ns}$ | 20.5 | 11.5 | 12.9 | 13.3 |
| % Threatened abuse or neglect | 8.9 | 12.3 | 14.4 | 13.0 | 11.0 | 11.3 |
| % AODA descriptors[2] | 2.2$^{ns}$ | 2.2$^{ns}$ | 3.5 | 1.7 | 2.2 | 2.3 |

Note: (1) Pathway reassignment prevalence rates use the total sample for the numerator and so result in a lower rate than in Table 2 of the outcome report, which uses a numerator representing a single pathway. (2) AODA descriptors combines: Caregiver alcohol abuse, caregiver drug abuse, drug affected infant, exposure to controlled substances, fetal alcohol spectrum disorder, and manufacturing methamphetamines.
Due to the large sample size, all differences are significant ($p < 0.05$), except where otherwise indicated (ns); S, M, L = Cramer's Phi effect size: small effect = 0.1; medium effect = 0.3; large effect= 0.5 where percentages without superscript indicate a negligible effect size. Highlight represents group on the undesirable end of the variable.

## 2. County variation of the association of race and pathway assignment

Logistic regression analyses similar to the model presented in Table 4 of the Outcome Report were conducted for each county. **The table below presents ORs for the likelihood of assignment to AR for White children, compared to non-White children by county, while accounting for other child and case characteristics.** The table masks the identity of the county, but describes them in terms of size, AR pilot cohort, and proportion of White children residing in the county.

Although much of the variation in pathway assignment is most likely left unexplained by specific county characteristics presented here, **results suggest that racial/ethnic diversity in a county's population is associated with the extent to which a child's race/ethnicity is associated with pathway assignment.** Specifically, in the four counties where White children were significantly *more likely* than non-White children to be assigned to the AR pathway, the proportion of White children in the overall population ranged from 93.6% to 96.9% (mean = 95.2%). In the four counties where White children were *less likely* than non-White children to be assigned the AR pathway, the proportion of White children in the overall population ranged from 90.5% to 95.1% (mean = 93.0%). In the 13 pilot counties where race/ethnicity had no significant association with the likelihood of assignment to the AR pathway, the proportion of White children ranged from 80.8% to 96.4% (92.6%).

**Table S.2: The Influence of Race on Assignment by County**

| | County | OR | Cohort | Size | % White[1] |
|---|---|---|---|---|---|
| Counties where White children are significantly ***more likely*** to be assigned to AR Pathway | I | 1.45 | 4 | Medium | 96.9 |
| | S | 1.25 | 5 | Large | 94.6 |
| | T | 1.18 | 4 | Large | 93.6 |
| | E | 1.16 | 2 | Medium | 95.7 |
| Counties where there is ***no significant association*** between race/ethnicity and assignment | U | 1.11 | 1 | Medium | 96.4 |
| | F | 1.10 | 3 | Large | 94.5 |
| | O | 1.10 | 2 | Large | 93.8 |
| | K | 1.08 | 2 | Small | 96.2 |
| | Q | 1.06 | 4 | Extra Large | 86.5 |
| | M | 1.05 | 2 | Extra Large | 92.5 |
| | L | 1.05 | 2 | Small | 94.4 |
| | B | 1.04 | 2 | Medium | 92.9 |
| | C | 1.03 | 1 | Large | 92.8 |
| | R | 1.00 | 5 | Extra Large | 80.8 |
| | G | 1.00 | 2 | Medium | 95.3 |
| | D | 1.00 | 3 | Small | 96.1 |
| | N | 0.97 | 1 | Large | 91.5 |
| | H | 0.91 | 4 | Extra Large | 90.5 |
| | J | 0.35 | 3 | Medium | 94.7 |
| Counties where White children are significantly ***less likely*** to be assigned to AR Pathway | P | 0.92 | 1 | Large | 91.6 |
| | A | 0.79 | 2 | Medium | 95.1 |

[1] % White = Proportion of county child population non-Hispanic White (American Community Survey, US Census, 2017).

## 3. County variation of the association of race and AR-to-TR pathway reassignment

We adopted a similar approach to assess racial differences by county in reassignment from the AR pathway to the TR pathway. The model presented in the Outcome Report indicates that American Indian children had a higher likelihood of reassignment from AR to the TR pathway compared to White children (OR = 1.39). The model controlled for the significant predictors of reassignment from the AR to the TR pathway: sexual abuse, medically fragile, Present or Impending Danger Threat(s), any prior

report, unborn child abuse, and threatened abuse and neglect. In the county sub-analysis, we included the days between the report and AR implementation as well as county as a grouping variable. We were unable to include medically fragile in the model due to its low rate of occurrence.

Table S.3 indicates that American Indian children had higher odds of being reassigned to the TR pathway, compared to similar White children in five counties (S, L, A, C, G). The effect sizes with three of these counties range from medium to high (OR > 1.8). The county with the highest OR for American Indian child reassignment (S, OR = 4.70) also had a significantly high OR for African American child reassignment (OR = 1.89).

In terms of other racial and ethnic differences, one county had significantly higher rates of reassignment for Hispanic children and three counties had significantly higher rates of reassignment for children identified as other races, relative to similar White families. Conversely, in three counties, African American children had a significantly lower odds of being reassigned from AR to TR compared to White children.

**No clear pattern of differential reassignment emerges in terms of county demographics or AR cohort, except that significant racial differences were only detected in one out of four extra-large counties. It's not clear if this is indicative of different decision-making policies or if it is partly due to sample size differences.**

**S.3: Reassignment from AR to TR: Race x County Analysis**

| County | Race/Ethnicity | Sign ORs | % AI | % AA | % His | Cohort | Size |
|---|---|---|---|---|---|---|---|
| S | American Indian<br>African American | 4.70<br>1.89 | 0.5 | 0.5 | 2.8 | 5 | Large |
| L | American Indian | 3.97 | 0.6 | 1.8 | 0.4 | 2 | Small |
| A | American Indian | 2.08[m] | 0.3 | 1.4 | 1.2 | 2 | Medium |
| C | American Indian | 1.80 | 0.5 | 0.7 | 3.5 | 1 | Large |
| G | American Indian<br>Other | 1.41<br>1.61 | 1.3 | 0.5 | 0.7 | 2 | Medium |
| I | African American | < 0.10 | 0.6 | 0.4 | 0.4 | 4 | Medium |
| P | African American | 0.61 | 0.3 | 0.7 | 5.5 | 1 | Large |
| T | African American | 0.64 | 0.5 | 1.2 | 1.3 | 4 | Large |
| U | Hispanic | 1.86 | 0.3 | 0.5 | 1.1 | 1 | Medium |
| K | Other | 1.47 | 0.8 | 0.8 | 0.4 | 2 | Small |
| H | Other | 1.60 | 1.6 | 1.1 | 3.2 | 4 | Extra Large |
| B | | | 1.6 | 1.1 | 1.1 | 2 | Medium |
| D | | | 0.3 | 0.5 | 0.4 | 3 | Small |
| E | | | 0.8 | 1.3 | 0.5 | 2 | Medium |
| F | | | 0.1 | 0.8 | 0.7 | 3 | Large |
| J | | | 0.6 | 0.8 | 2.4 | 3 | Medium |
| M | | | 0.6 | 2 | 2.4 | 2 | Extra Large |
| N | | | 0.4 | 1.4 | 4.5 | 1 | Large |
| O | | | 0.8 | 2.1 | 0.6 | 2 | Large |
| Q | | | 2.3 | 2.4 | 3 | 4 | Extra Large |
| R | | | 0.5 | 11.1 | 1.2 | 5 | Extra Large |

AI = American Indian; AA = African American; Hisp = Hispanic/Latinex; Oth=Other; Proportion of county child population (American Community Survey, US Census, 2017).
Note: Only significant odds ratios reported in table, except for in County A where m = marginally significant ($p$ = 0.06)

## 4. County variation of the association of race and TR-to-AR pathway reassignment

Finally, we conducted a similar analysis for children who were reassigned from TR to AR pathways. In the Outcome Report, we report that compared to children from racial/ethnic minorities who were in the TR pathway, White children were 1.2 times as likely to be reassigned to the AR pathway, while controlling for the following predictors: unable to locate child, caregiver alcohol abuse, any prior reports, reports made by law enforcement, exposure to elements or environmental hazards, physical abuse, medically fragile child, and sexual abuse. To assess whether specific counties contributed to this differential reassignment based on race, we constructed logistic regression models for each county, using the same predictors of re-assignment. In the sub-analysis we included the days between the report and AR implementation as well as county as a grouping variable, the days between the report and AR implementation. We were unable to include medically fragile, unable to locate, or caregiver alcohol in the model due to the low rate of occurrence.

In three counties (S, J, A), children identified as coming from other, non-specified races had a higher likelihood of transferring from TR to AR pathways compared to White children. County F found high ORs for Hispanic children reassignment. In contrast, African American families were significantly more likely to stay in TR compared to similar White children in Counties H, T, B, G, and N. Likewise, children from other race categories in County P and Hispanic children from County N were less likely to be reassigned, relative to similar White children.

| **Reassignment from TR to AR: Race x County Analysis** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **County** | **Race/Ethn** | **Sign ORs** | **% AI** | **% AA** | **% His** | **Cohort** | **Size** |
| S | Other | 3.30 | 0.5 | 0.5 | 2.8 | 5 | Large |
| J | Other | 2.86 | 0.6 | 0.8 | 2.4 | 3 | Medium |
| A | Other | 1.74 | 0.3 | 1.4 | 1.2 | 2 | Medium |
| F | Hispanic | 1.39 | 0.1 | 0.8 | 0.7 | 3 | Large |
| P | Other | 0.76 | 0.3 | 0.7 | 5.5 | 1 | Large |
| H | African American | 0.75 | 1.6 | 1.1 | 3.2 | 4 | Extra Large |
| T | African American | 0.69 | 0.5 | 1.2 | 1.3 | 4 | Large |
| B | African American | 0.67 | 1.6 | 1.1 | 1.1 | 2 | Medium |
| G | American Indian | 0.64 | 1.3 | 0.5 | 0.7 | 2 | Medium |
| C | American Indian | 0.50 | 0.5 | 0.7 | 3.5 | 1 | Large |
| N | African American<br>Hispanic | 0.80<br><0.01 | 0.4 | 1.4 | 4.5 | 1 | Large |
| D | | | 0.3 | 0.5 | 0.4 | 3 | Small |
| E | | | 0.8 | 1.3 | 0.5 | 2 | Medium |
| I | | | 0.6 | 0.4 | 0.4 | 4 | Medium |
| K | | | 0.8 | 0.8 | 0.4 | 2 | Small |
| L | | | 0.6 | 1.8 | 0.4 | 2 | Small |
| M | | | 0.6 | 2 | 2.4 | 2 | Extra Large |
| O | | | 0.8 | 2.1 | 0.6 | 2 | Large |
| Q | | | 2.3 | 2.4 | 3 | 4 | Extra Large |
| R | | | 0.5 | 11.1 | 1.2 | 5 | Extra Large |
| U | | | 0.3 | 0.5 | 1.1 | 1 | Medium |

AI = American Indian; AA = African American; His = Hispanic/Latino; Oth=Other; Proportion of county child population (American Community Survey, US Census, 2017).
Note: Only significant odds ratios reported in table.

**In sum, the county comparisons reveal that the association between race/ethnicity and pathway assignment/reassignment is variable among counties. The descriptive analyses do not offer clear explanations as to why some of this variation exists: much of it may be due to unmeasured family, county, or agency-level influences. Nevertheless, child race/ethnicity does appear to have stronger associations with pathway assignment in some counties relative to others.** For example, in County S, White families are 1.25 times more likely to be assigned to the AR pathway initially than non-White families, whereas American Indian (OR = 4.70) and African American (OR =1.89) are more likely to be transferred from AR to TR. This same county has the second-highest rate of assignment to AR (nearly 60%, see Figure A in the Outcome Report), a relatively low rate of switching from AR to TR pathway, and a relatively low rate of switching from TR to AR. Unfortunately, the quantitative data from eWiSACWIS is not likely to generate a more nuanced understanding of this differential assignment. Qualitative data from discussions with some archetypical counties (e.g., county S for higher race effects, county R for null race effects) may help untangle these phenomena.