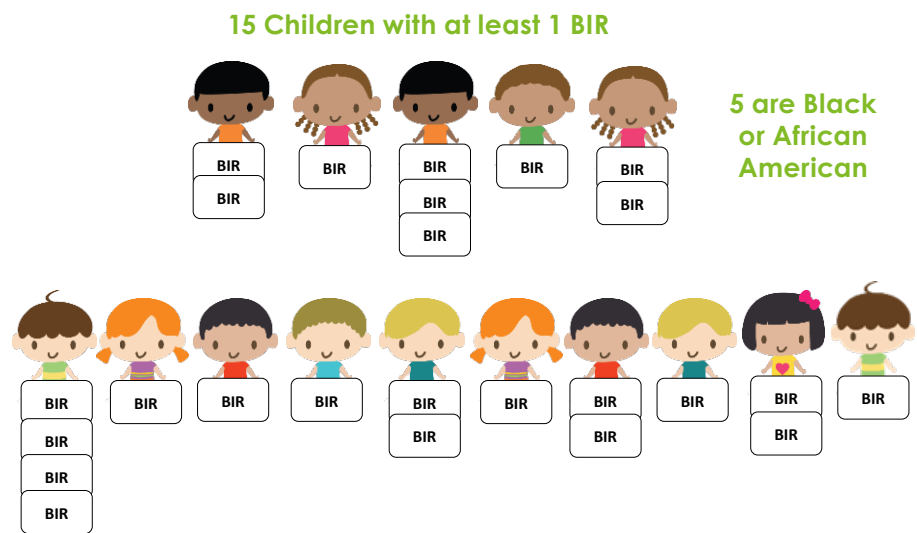


This fact sheet was developed to provide illustrations of the measures used to understand disproportionality related to various groups of children and a particular factor or outcome. This document focuses on children grouped by race/ethnicity. However, there are other groups you might also want to review (e.g., gender, dual language learners, children with IEPs). We provide an example of the calculation of these measures using the completion of a Behavior Incident Report (BIR) for a child. These measures of disproportionality are also used to examine other variables of interest, including suspensions, expulsions, or referrals for services.

## Child Composition

The child composition value is the percentage of children who receive BIRs who belong to a specific focal group.

In the following example, there are a total of 15 children with at least 1 BIR. Of those 15 children, 5 are Black or African American.



To calculate child composition, divide the number of children in your focal group (i.e., group of interest) with at least 1 BIR by the total number of children in the program with at least 1 BIR, including those in the focal group. Following the example above, divide the number of Black or African American children with at least 1 BIR (5) by the number of children with at least 1 BIR (15). This equals 0.33. Multiply this by 100 to get 33%. This value represents the number of children with BIRs from your focal group.

$$\begin{array}{ccc}
 \begin{array}{l} \# \text{ of children in focal group} \\ \text{with at least 1 BIR} \end{array} & \xrightarrow{\quad} & \begin{array}{l} \# \text{ of Black or African American} \\ \text{children with at least 1 BIR} \end{array} \\
 \hline & & \hline
 \begin{array}{l} \text{Total \# of children} \\ \text{with at least 1 BIR} \end{array} & & \begin{array}{l} \mathbf{5} \\ \mathbf{15} \\ \text{Total \# of children} \\ \text{with at least 1 BIR} \end{array} \\
 & & \hline
 & = & \begin{array}{l} \mathbf{33\%} \\ \text{Of the 15 children with at} \\ \text{least 1 BIR, 33\% are Black or} \\ \text{African American.} \end{array}
 \end{array}$$

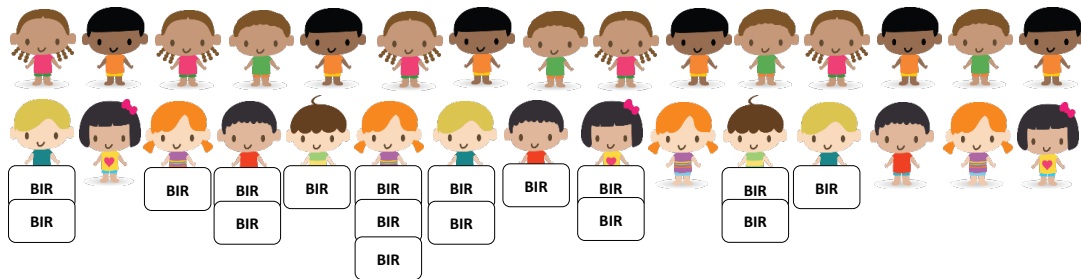
In the BIRS Excel spreadsheet, this value is compared to the total enrollment for the focal group. If the calculated child composition value exceeds the expected value for the focal group, given the enrollment for that group, an equity alert will be activated. *This alert will remain displayed as the value can only change if enrollment for the group changes significantly.*

## Risk and Risk Ratio

Risk measures the percentage of children in a group who have at least one incident. It can be used to assess how much a group is affected by having a BIR. The risk ratio is calculated by comparing the risk of the focal group to the risk of the comparison group. This value is the best single measure to summarize a group’s risk. *Please note: At least 15 children are needed in the focal and comparison groups for the risk ratio to be a stable and meaningful measure.*

In the following example, there are a total of 45 children enrolled in the program. Of the 45 children, 15 are Hispanic or Latino of any race. This is the focal group. Of the 15 Hispanic or Latino children, 5 have at least 1 BIR. There are 30 children who are not Hispanic or Latino (the comparison group), and of those 30 children, 10 have at least 1 BIR.

### 15 Hispanic or Latino children enrolled in a program



### 30 “All Other” children, 10 with at least 1 BIR

First, calculate risk for each group by dividing the number of children in the group with at least 1 BIR by the number of children in that group enrolled in the program. Do this for both the focal group and comparison group. Multiply the resulting value by 100 to get a percentage. Following the example above, divide the number of Hispanic or Latino children with at least 1 BIR (5) by the number of Hispanic or Latino children enrolled in the program (15). This equals 0.33. Multiply this value by 100 to get the risk value of 33%. Next, divide the number of all other children with at least 1 BIR (10) by the number of all other children enrolled in the program (30). This also equals 0.33. Multiply by 100 to get the risk value of 33%.

# of children in group with at least 1 BIR	→	# of <b>Hispanic or Latino</b> children with at least 1 BIR	=	<b>33%</b>
-----		<b>5</b>		Of the 15 Hispanic or Latino children, 33% have at least 1 BIR.
# of children enrolled in the program		<b>15</b>		
		<b>Hispanic or Latino</b> children with at least 1 BIR		

# of children in group with at least 1 BIR	→	# of <b>All Other</b> children with at least 1 BIR	=	<b>33%</b>
-----		<b>10</b>		Of the 30 other children, 33% have at least 1 BIR.
Total # of children in group enrolled in the program		<b>30</b>		
		<b>Total # of All Other</b> children enrolled in the program		

Next, calculate the risk ratio by dividing the risk of the focal group by the risk of the comparison group. Following the example, divide 33% by 33% to get a value of 1.0. This value is the risk ratio for Hispanic or Latino children.

To interpret the risk ratio value, use the table below. Values of 1.0 can be interpreted as equal risk. In other words, the risk of the focal group is no greater than the risk of the comparison group. Values over 1.0 should be examined further.

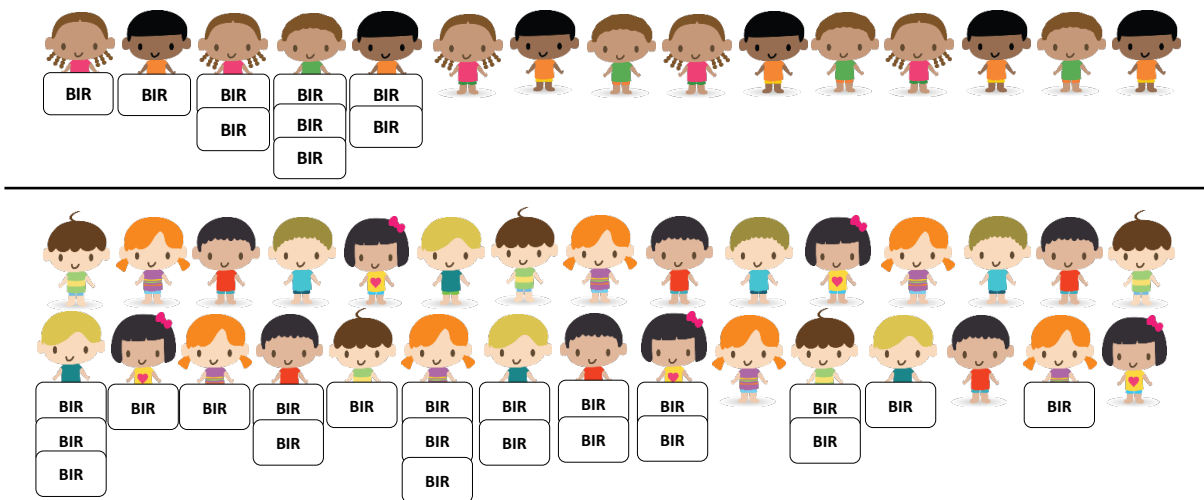
Risk Ratio Value	Level of Disproportionality
1.0	Equal risk
1.25	25% higher risk
1.50	50% higher risk
2.00	Two times higher risk
2.50	2.5 times higher risk
3.00	3 times higher risk
>3.00	Yikes!

*Check for small n if your ratio exceeds 7.0*

## BIR Composition

The BIR composition value examines the number of BIRs for your focal group compared to the total number of BIRs in the program. Unlike the other measures, BIR composition is impacted by children with multiple BIRs.

In the following example, there are a total of 30 BIRs in the program. Of the 30 BIRs, 9 are for Black or African American children. The remaining 21 BIRs are for all other children.



Calculate the BIR composition value by dividing the number of BIRs for the focal group by the total number of BIRs in the program. Following the example above, there are 9 BIRs written for Black or African American children. Divide this value by the total number of BIRs in the program (30). This gives a value of 0.3. Multiply this value by 100% to get the BIR composition value of 30%.

# of BIRs for Black or African American children <hr style="border: 0.5px solid #ccc;"/> Total # of BIRs In the program	→	# of BIRs for <b>Black or African American</b> children <b>9</b> <hr style="border: 0.5px solid #ccc;"/> <b>30</b> Total # of BIRs in the program	=	<b>30%</b> Of the 30 BIRs written, 30% are attributed to Black or African American children
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## Additional Metrics

Multiple metrics are needed to measure disproportionality. Below are additional metrics teams can use to guide discussion and decide when and how to intervene.

<b>BIR Ratio</b>	The BIR Ratio is the rate of BIRs for a specific group of children divided by the BIR rate of all other children. A value of 1.0 is considered equal.
<b>BIR Rate</b>	The BIR Rate is calculated by dividing the total number of BIRs for a group of children by the number of children enrolled in that group.
<b>Difference in Child Composition</b>	The Difference in Child Composition value is calculated by subtracting the child composition value from the percent of child enrollment. Positive values suggest disproportionality.
<b>Difference in BIR Composition</b>	The Difference in BIR Composition value is calculated by subtracting the BIR Composition value from the percent of child enrollment. Positive values suggest disproportionality.
<b>E-Formula</b>	If a group's Child Composition is greater than the e-formula value, disproportionality is indicated. This value is designed for "small-n" scenarios.

## BIR System Excel Spreadsheet

The BIRS Excel spreadsheet calculates the measures presented in this document when users input enrollment counts by all of the demographic variables. An alert is displayed if a value exceeds what is expected for that group indicating there may be an issue of disproportionate discipline. For more information about using the equity alerts and tabs within the spreadsheet please review the *Behavior Incident Report System Data Decision-Making Guide*.

Equity Profile alerts are displayed on the Program Summary tab of the BIRS Excel spreadsheet to alert the user to review disproportionality measures in the equity profile tabs. Below is an example of how equity alerts are displayed on the program summary tab.

Clicking on an alert will display the corresponding Equity Profile tab. Below is an example of a part of the equity profile. The equity profile has calculated values for each measure in the table as well as statements for each measure displayed by group.

Equity Profile Alerts	
<b>INCIDENT ALERTS</b>	
<a href="#">Check Race/Ethnicity Equity Profile</a> <a href="#">Check Gender Equity Profile</a> <a href="#">Check DLL Status Profile</a>	
<b>IN-SCHOOL SUSPENSION ALERTS</b>	<b>OUT-of-SCHOOL SUSPENSION ALERTS</b>
<a href="#">Check IEP Status ISS Equity Profile</a> <a href="#">Check DLL Status ISS Equity Profile</a>	<a href="#">Check Race/Ethnicity OSS Equity Profile</a> <a href="#">Check Gender OSS Equity Profile</a>
<b>DISMISSAL ALERTS</b>	
<a href="#">Check IEP Status Dismissal Equity Profile</a>	

Race/Ethnicity Equity Profile for Incident Frequency

Report Date: 12/11/2020 11:55

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	Guiding Question 1: Are outcomes equitable for all groups?				Guiding Question 2: How big are the disparities?				Guiding Question 3: How much of your focus is affected by disproportionality?			
	Number of Children Enrolled at the School*	Number of Children in Group with a BIR	Total Number of BIRs from Group	Group's Percent of Enrollment	Child Composition	BIR Ratio	BIR Rate	Risk Ratio	Difference in Child Composition	Difference in BIR Composition	BIR Composition	Risk
					The % of children with BIRs	BIRs per 100 children	Total number of BIRs per 100 children	Group's risk of BIR	Child Composition minus the percent of the child enrollment; Positive values suggest disproportionality	BIR Composition minus the percent of the child enrollment; Positive values suggest disproportionality	% of BIRs accounted for by children of a particular group	% of children in a group at least one BIR
American Indian or Alaskan Native	2	0	0	0.7%	0.0%	0.00	0.00	0.00	-0.7	-0.7	0.0%	0.0%
Asian	20	0	0	7.2%	0.0%	0.00	0.00	0.00	-7.2	-7.2	0.0%	0.0%
Black or African American	10	1	30	3.6%	2.6%	1.16	3.00	0.72	-1.0	0.5	4.2%	10.0%
Hispanic or Latino of any race	156	29	392	56.5%	76.3%	0.92	2.51	2.48	19.8	-2.1	54.4%	18.6%
Native Hawaiian or Other Pacific Islander	0	0	0	0.0%	0.0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Two or more races	20	0	0	7.2%	0.0%	0.00	0.00	0.00	-7.2	-7.2	0.0%	0.0%
White	68	8	298	24.6%	21.1%	2.16	4.38	0.82	-3.6	16.8	41.4%	11.8%
<b>Totals</b>	<b>276</b>	<b>38</b>	<b>720</b>	<b>100.0%</b>								

Each measure is calculated for each group.

Values exceeding what is expected are highlighted.  
(Please note: only Child Composition and Risk Ratio columns)

**Asian children** have an average of 0 BIRs per child.

- Risk Ratio** Asian children are 0 times more likely to have at least one BIR than all other children.
- Diff. in C Comp.** Asian children's representation among children with BIRs is 7.2 percentage points lower than expected given their percentage of the child enrollment.
- Diff. in R Comp.** The percentage of BIRs for Asian children is 7.2 percentage points lower than expected given their percentage of the child enrollment.
- BIR Comp.** Of the 720 BIRs generated, 0% were attributed to Asian children.
- Risk** Of the 20 Asian children, 0% have at least one BIR.

Statements for each measure by group.

**Black or African American**

- Child Comp.** Of the 38 children with at least one BIR, 2.6% are Black or African American; this group makes up 3.6% of the total child enrollment.
- BIR Ratio** The average number of BIRs per Black or African American child is 1.16 times the BIR rate for all other children.
- BIR Rate** Black or African American children have an average of 3 BIRs per child.
- Risk Ratio** Black or African American children are 0.72 times more likely to have at least one BIR than all other children.
- Diff. in C Comp.** Black or African American children's representation among children with BIRs is 1 percentage points lower than expected given their percentage of the child enrollment.
- Diff. in R Comp.** The percentage of BIRs for Black or African American children is 0.5 percentage points higher than expected given their percentage of the child enrollment.
- BIR Comp.** Of the 720 BIRs generated, 4.2% were attributed to Black or African American children.
- Risk** Of the 10 Black or African American children, 10% have at least one BIR.

**Hispanic or Latino of any race**

- Child Comp.** Of the 38 children with at least one BIR, 76.3% are Hispanic or Latino of any race; this group makes up 56.5% of the total child enrollment.
- BIR Ratio** The average number of BIRs per child who is Hispanic or Latino of any race is 0.92 times the BIR rate for all other children.
- BIR Rate** Children who are Hispanic or Latino of any race have an average of 2.51 BIRs per child.
- Risk Ratio** Hispanic or Latino children of any race are 2.48 times more likely to have at least one BIR than all other children.



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