Explanation of Rate Ratio and Risk Ratio

Definition of Rate Ratio

Rate ratios compare the relative sizes of two rates. For example, State Performance Plan/Annual Performance Report (SPP/APR) Indicator B4 - significant discrepancy in suspensions/expulsions of greater than 10 days, the comparison is the rate of suspensions/expulsions for learners with an Individualized Education Program (IEP) for each district to the state rate; this is also calculated for each racial/ethnic group within each district.

In general, a rate ratio of 1.00 indicates no difference between the rates. In other words, the district is no more or less likely to suspend/expel learners with an IEP from a specific racial/ethnic group than the state overall. A rate ratio greater than 1.00 indicates that the rate for learners with an IEP from a specific racial/ethnic group in the district is greater than the rate of the state overall. A rate ratio less than 1.00 indicates that the rate for learners with an IEP from a specific racial/ethnic group is less than the rate for the state overall.

Furthermore, a rate ratio of 2.00 indicates that learners with an IEP from a specific racial/ethnic group in the district are suspended/expelled at twice the rate of learners with an IEP in the state overall. A rate ratio of 0.50 indicates that learners with an IEP from a specific racial/ethnic group in the district are suspended/expelled at half the rate of learners with an IEP in the state overall.

Iowa has adopted a rate ratio of 3.5 as the threshold for Indicator B4.

Example Using Rate Ratio

Consider a district that serves 300 Black or African American learners with an IEP, 30 of whom were suspended/expelled for more than 10 days. There are 64,790 learners with an IEP in the state, 7,590 of whom were suspended/expelled for more than 10 days.

The formula is: (# of learners with an IEP suspended/expelled from X group in the district/total number of learners from X group with an IEP in the district) divided by (# of learners with an IEP suspended/expelled in the state/ total # learners with an IEP in the state).

The district rate for Black or African American learners with an IEP is 10 percent (30 Black or African American learners with an IEP suspended/expelled for more than 10 days/300 Black or African American learners with an IEP in the district * 100 = 10 percent).

The state rate of suspensions/expulsions for learners with an IEP is 11.7 percent (7,590 learners with an IEP suspended/expelled in the state/64,790 learners with an IEP in the state * 100 = 11.7 percent).

The rate ratio for Black or African American learners with an IEP in the district is 0.85 (10 percent suspension/expulsion rate for African American learners with an IEP in the district/11.7 percent state suspension/expulsion rate for all learners with an IEP = 0.85). In other words, the suspension/expulsion rate for Black or African American learners with an IEP in the district is 0.85 times the state-level suspension/expulsion rate for all learners with an IEP in the state. This means that the rate of suspensions/expulsions for Black or African American learners in the district is less than the state rate. Because 0.85 is less than Iowa's 3.5 threshold, this district would not be identified as having a significant discrepancy for suspensions/expulsions for Black or African American learners.

Definition of Risk Ratio

Iowa is required by federal statute to use a simple risk ratio for significant disproportionality. §300.647(a)(3) defines "risk ratio" as the risk of an outcome for one racial or ethnic group in a district as compared to the risk of that outcome for all other racial and ethnic groups in the same district. Risk ratio is calculated by dividing the risk for learners experiencing an outcome in one racial or ethnic group within a district by the risk of that same outcome for all other racial or ethnic groups within that district. Iowa also uses a "risk ratio" for State Performance Plan/Annual Performance Report (SPP/APR) Indicator B9 - identification for special education.

Generally, a risk ratio of 1.0 indicates that learners in a given racial or ethnic group are no more likely than learners from all other racial or ethnic groups to be identified for special education and related services, be placed in a particular educational setting, or face disciplinary removals. A risk ratio greater than 1.0 indicates that the risk for the racial or ethnic group is greater than the risk for the comparison group. Accordingly, a risk ratio of 2.0 indicates that one group is twice as likely as other learners to be identified, placed, or disciplined in a particular way.

Iowa has adopted a risk ratio of 3.5 as the threshold for significant disproportionality and for SPP/APR Indicator B9 for all required categories of analysis and will use a single year of data or three consecutive years of data, depending on the measure, for these determinations. The age of learners included in the sample differs; ages 3-21 for significant disproportionality identification and discipline and 5 and in Kindergarten to 21 for Indicator B9 and significant disproportionality placement.

Example Using Risk Ratio

The "standard" risk ratio method compares the likelihood, or "risk," that learners in a particular racial or ethnic group in a district will be identified for special education and related services to the likelihood that learners in the comparison group, all other learners in the district, will be identified for special education and related services.

Consider a district that serves 5,000 learners, 1,000 of whom are Hispanic. In total, there are 450 learners with an IEP in the district, 150 of whom are Hispanic.

The formula is: (# of identified learners from X group/total number of learners from X group) divided by (# of identified learners in non-X group/ total # learners in non-X group).

The likelihood, or "risk," of a Hispanic learner in the district being identified for special education is 15 percent (150 Hispanic learners with IEPs/1000 Hispanic learners in the district * 100 = 15 percent).

The likelihood, or "risk," of a non-Hispanic learner in the district being identified for special education is 7.5 percent (300 non-Hispanic learners with IEPs/4,000 non-Hispanic learners in the district * 100 = 7.5 percent).

In the standard version of the calculation, the risk ratio for Hispanic learners being identified for special education in this district would be 2.0 (15 percent of Hispanic learners identified for special education/7.5 percent of non-Hispanic learners with IEPs = 2.0). In other words, Hispanic learners are twice as likely to be identified for special education compared to non-Hispanic learners in this district. Because 2.0 is less than Iowa's 3.5 threshold, this district would not be identified as having disproportionate representation (B9; age = 5K-21 years) or significant disproportionality (age = 3-21 years) for identification.

**Note for Significant Disproportionality: When the comparison group in the district does not meet the minimum cell size or n-size of ten, the state risk is used as an alternate for the comparison group.