



New Hampshire

**Department of Education**

# Indicators 9 & 10 Calculation Methods

Calculating disproportionate representation of racial/ethnic groups  
due to inappropriate identification in districts

## Indicators 9 & 10

Indicators 9 & 10 calculate the percent of districts with disproportionate representation of racial/ethnic groups due to inappropriate identification in:

- ▶ All disability categories (Indicator 9) and
- ▶ In specific disability categories: Autism, Emotional Disturbance, Intellectual Disability, Other Health Impairment, Specific Learning Disability, Speech or Language Impairment (Indicator 10)

Indicators 9 & 10 require the state to analyze district data to determine the risk of disproportionate identification, and, if present, determine if it is the result of inappropriate identification.

The current calculation limits the state's ability to do this.

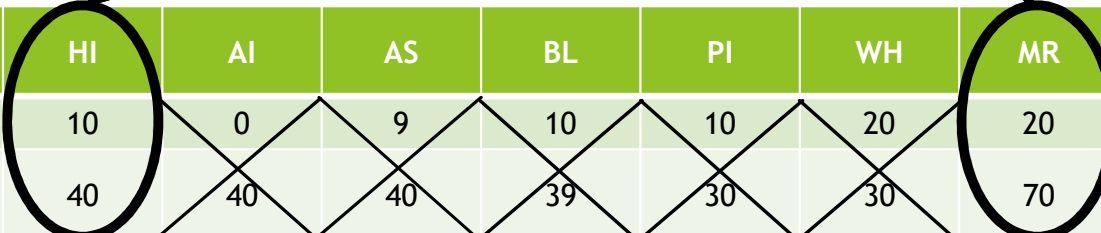
# Current Calculation: Methodology

The current calculation looks at only those districts with racial/ethnic groups that:

- ▶ Meet the minimum cell and N size (**Target Group**) and
- ▶ Only where at least 2 separate racial/ethnic groups (**Target Groups**) met the minimum cell and N size in that district.

For Example:

Race/ Ethnicity (Target Group)	HI	AI	AS	BL	PI	WH	MR
Cell Size >9 (Child Count)	10	0	9	10	10	20	20
N Size >39 (General Enrollment)	40	40	40	39	30	30	70



# Current Calculation: Methodology

For each **Target Group** that met that requirement a Weighted Risk Ratio calculation is done and if the Weighted Risk Ratio is over 3.00 the district is contacted for a review of their procedures and practices in order to determine if a finding of noncompliance will be made due to inappropriate identification or not.

For Example:

Race/ Ethnicity (Target Group)	HI	AI	AS	BL	PI	WH	MR
Cell Size >9 (Child Count)	10	0	10	10	10	10	10
N Size >39 (General Enrollment)	40	40	40	40	30	40	40
Weighted Risk Ratio	1.15	NA	1.15	1.15	NA	1.15	1.15

# Current Calculation: Weighted Risk Ratio vs. Risk Ratio

- ▶ A Risk Ratio calculates the risk of a Target Group against a Comparison Group. For indicators 9 & 10 the Target Group is the specific racial/ethnic category in a district and the Comparison Group is the total of all other racial/ethnic categories for that district.
  - ▶ Example: Target Group - white students in District A. Comparison Group - all non-white students in District A
- ▶ A Weighted Risk Ratio calculates the Risk Ratio of a Target Group against a Comparison Group and then weights that risk against the racial/ethnic makeup of the state.
  - ▶ *(I would need another hour to go into detail about how this works mathematically but the next slide has a visual that may help...)*

## Weighted Risk Ratio vs. Risk Ratio: Example

		HI	AI	AS	BL	PI	WH	MR
District 1	Child Count	10	0	10	10	10	10	10
	General Enrollment	40	40	40	40	30	40	40
	<b>Risk Ratio</b>	<b>1.15</b>	<i>NA</i>	<b>1.15</b>	<b>1.15</b>	<i>NA</i>	<b>1.15</b>	<b>1.15</b>
	<b>Weighted Risk Ratio</b>	<b>1.12</b>	<i>NA</i>	<b>1.13</b>	<b>1.12</b>	<i>NA</i>	<b>0.71</b>	<b>1.13</b>
District 2	Child Count	0	10	20	0	20	0	10
	General Enrollment	20	40	60	20	60	20	40
	<b>Risk Ratio</b>	<i>NA</i>	<b>1.10</b>	<b>1.67</b>	<i>NA</i>	<b>1.67</b>	<i>NA</i>	<b>1.10</b>
	<b>Weighted Risk Ratio</b>	<i>NA</i>	<b>1.35</b>	<b>2.05</b>	<i>NA</i>	<b>2.00</b>	<i>NA</i>	<b>1.35</b>

# Current Calculation: Limitations

Using a Weighted Risk Ratio means, for districts whose racial/ethnic makeup is not similar to the states' racial/ethnic makeup, the risk assigned may not be accurate to the actual risk in the district.

<b>Risk Ratio</b>	NA	1.10	1.67	NA	1.67	NA	1.10
<b>Weighted Risk Ratio</b>	NA	1.35	2.05	NA	2.00	NA	1.35

Requiring a district to meet the minimum cell and N size in two or more racial/ethnic groups means the state is not looking at the performance of many of our districts that do have a statistically significant group of non-white students.

Race/ Ethnicity (Target Group)	HI	AI	AS	BL	PI	WH	MR
Cell Size >9 (Child Count)	9	9	9	9	15	20	9
N Size >39 (General Enrollment)	45	45	45	45	30	40	45



## Current Calculations: Limitations

- ▶ In reviewing the current calculations for Indicators 9 & 10 we found that less than 20% of districts (around 30) meet the threshold annually for Indicator 9.
  - ▶ Requiring a district to meet the minimum cell and N size in two or more racial/ethnic groups means the state is not looking at the performance of many of our districts that do have a statistically significant group of non-white students.
- ▶ Using a Weighted Risk Ratio means, for districts whose racial/ethnic makeup is not similar to the states, the risk assigned may not be accurate to the actual risk in the district.

In order to address the limitations of the current methodology for calculating Indicators 9 & 10 the Bureau is proposing an alternate way to calculate Indicators 9 & 10 to get:

- ▶ A more comprehensive look at the districts in the state and
- ▶ More accurate data for each district.



## Proposed Calculation

- ▶ Risk Ratio greater than 3.00 for only those districts with racial/ethnic groups that
  - ▶ Meet the minimum cell size (**Target Group**) and
  - ▶ Only where all other racial/ethnic groups (**Comparison Group**) met the minimum cell size in that district.

**Target Group** - District specific area, sub-area, and racial category, *e.g. white students in District A.*

**Comparison Group** - All other racial categories in specific area, sub-area, *e.g. all non-white students in District A.*

# Current Calculation vs. Proposed Calculation

- ▶ Current Calculation: Weighted Risk Ratio over 3.00 for only those districts with racial/ethnic groups that
  - ▶ Meet the minimum cell and N size (**Target Group**) and
  - ▶ Only where at least 2 separate racial/ethnic groups (**Target Groups**) met the minimum cell and N size in that district.
- ▶ Proposed Calculation: Risk Ratio over 3.00 for only those districts with racial/ethnic groups that
  - ▶ Meet the minimum cell size (**Target Group**),
  - ▶ Remove the minimum N size, and
  - ▶ Only where all other racial/ethnic groups (**Comparison Group**) met the minimum cell size in that district.

# Proposed Calculation: Methodology

Risk Ratio over 3.00 for only those districts with racial/ethnic groups that meet the minimum cell size (**Target Group**) and only where all other racial/ethnic groups (**Comparison Group**) met the minimum cell size in that district.

Race/ Ethnicity (Target Group)	HI	AI	AS	BL	PI	WH	MR
Cell Size >9 (Child Count)	9	9	0	0	0	0	15
N Size <i>no minimum</i> (General Enrollment)	30	30	30	30	30	30	20
Risk Ratio	NA	NA	NA	NA	NA	NA	7.50

Race/ Ethnicity (Target Group)	HI	AI	AS	BL	PI	WH	MR
Cell Size >9 (Child Count)	1	0	0	2	4	1	57
N Size <i>no minimum</i> (General Enrollment)	5	3	3	7	15	5	277
Risk Ratio	NA	NA	NA	NA	NA	NA	NA

# Proposed Calculation: Example Indicator 9

Indicator 9: 10/1/20 Ratio Comparison							
Ratio >= 3.00		Weighted Risk Ratio/2 or more Racial Categories					
ID	HI	AI	AS	BL	PI	WH	MU
1						0.38	
2	0.85		0.60	0.00		1.52	0.93
3						0.88	
4	1.04	0.50	0.28	0.76		1.20	1.13
5	1.09	0.61	0.62	1.38		1.01	0.97
6						1.92	
7	0.82					0.71	
8						1.18	
9	1.25		0.46	1.31		1.02	0.75
10	0.00		0.95			1.04	0.71
11	1.30		0.66			0.66	0.90
12	1.95		0.26			0.63	1.02
13	1.62					1.23	0.70
14	0.52		0.58	1.23		1.80	0.36
15						0.56	
16	1.07			0.30		1.14	0.72
17						1.12	
18	1.20					1.25	
19	0.88					1.13	
20	1.33		0.51	1.43		0.85	1.28
21	1.53		1.39	4.23		0.58	0.39
22	1.35		0.89	1.73		0.89	0.52
23	0.85		0.32	0.81		1.35	0.94
24	1.47					1.25	
25						0.92	
26						0.99	
27	1.13		0.40	1.06		1.24	0.52
28						1.35	
29	0.90		0.55	1.58		1.01	

Ratio >= 3.00		Risk Ratio/Cell and comparison group greater than 9					
ID	HI	AI	AS	BL	PI	WH	MU
1						0.38	
2	0.88		0.60	0.00		1.51	0.95
3						0.95	
4	1.14	0.52	0.28	0.80		1.21	1.20
5	1.08	0.60	0.62	1.37		0.98	0.97
6						1.06	
7	0.88					0.89	
8						0.97	
9	1.24		0.47	1.31		1.07	0.76
10	0.00		0.97			1.60	0.72
11	1.37		0.70			0.83	0.96
12	2.01		0.28			0.69	1.07
13	1.53					1.23	0.69
14	0.52		0.57	1.23		1.60	0.37
15						0.43	
16	1.05			0.30		1.11	0.71
17						1.12	
18	1.15					1.05	
19	0.84					0.63	
20	1.35		0.51	1.47		0.98	1.32
21	1.59		1.46	4.31		0.63	0.41
22	1.35		0.90	1.73		0.91	0.52
23	0.83		0.31	0.79		1.29	0.92
24	1.38					0.90	
25						0.94	
26						0.85	
27	1.11		0.40	1.04		1.22	0.52
28						1.35	
29	0.90		0.55	1.56		0.95	

# Proposed Calculation: Example Indicator 10: SLD

Indicator 10: SLD 10/1/18 Ratio Comparison															
Ratio >= 3.00		Weighted Risk Ratio/2 or more Racial Categories						Ratio >= 3.00		Risk Ratio/Cell and Comparison greater than 9					
ID	HI	AI	AS	BL	PI	WH	MU	ID	HI	AI	AS	BL	PI	WH	MU
94	1.44					1.18	1.43	94	1.37					0.83	1.37
95	0.00		1.16	3.99		0.77	1.68	95	0.00		1.11	3.80		0.55	1.59
96	2.29		0.00			0.97	0.88	96	2.20		0.00			0.97	0.89
97						1.82	2.66	97						0.82	2.44
98	1.08	1.10	0.34	3.80		0.88	0.43	98	1.11	1.13	0.35	3.78		1.07	0.44
99	0.00					0.63		99	0.00					0.63	
100						0.87		100						0.87	
101						1.94		101						1.94	
102	0.00					3.14	1.54	102	0.00					1.34	1.39
103						1.27		103						1.27	
104	1.25					0.34	0.44	104	1.51					0.57	0.53
105	1.03	0.00	0.60	0.68		1.35	0.61	105	1.03	0.00	0.60	0.68		1.39	0.60
106	0.00			5.82		0.90	1.56	106	0.00			5.52		0.74	1.54
107						1.17		107						1.17	
108	0.99		1.50	0.59		1.21	0.00	108	0.98		1.46	0.59		1.14	0.00
109						1.37		109						1.37	
110	0.97		0.95			0.96	0.00	110	0.99		0.96			1.11	0.00
111	0.75		0.00			3.83	0.00	111	0.87		0.00			8.26	0.00
112						1.35	0.00	112						2.93	0.00
113	0.94	0.81	0.43	1.07		1.20	0.98	113	0.95	0.81	0.43	1.07		1.26	0.99
114						0.42		114						0.46	
115						0.23		115						0.23	
116	1.24		0.00	0.58		1.39	0.85	116	1.21		0.00	0.57		1.32	0.84
117	0.43	1.72	0.22	1.16		2.51	0.00	117	0.42	1.64	0.21	1.10		2.18	0.00
118	0.00		0.00			1.89	2.57	118	0.00		0.00			1.61	2.45
119						0.00		119						0.00	
120						1.14		120						1.14	
121	1.49		0.45	4.82		2.64	0.70	121	1.57		0.48	4.83		0.79	0.74
122						2.06		122						2.06	
123						0.48		123						0.48	



# Summary

- ▶ The proposed calculation would increase the percent of districts looked at from less than 20% to around 35%.
  - ▶ This would allow all districts with statistically significant amounts of non-white students to be analyzed for risk of disproportionate identification which is the intent of Indicators 9 & 10.
- ▶ The proposed calculation would also give more accurate data to the state and to the districts about the risk of disproportionate identification in the district itself.
- ▶ The proposed calculation will not automatically mean more findings!
  - ▶ Looking back at a selection of calculations from Indicators 9 and 10 from 2019-2020 and 2018-2019 in districts that met the minimum cell size requirements there were no additional Target Groups that had risk ratios over 3.00.