



COLORADO
Department of Education
Commissioner of Education

201 East Colfax Avenue
Denver, CO 80203-1799

Sept. 14, 2016

Dear Superintendents,

I understand that some of you and your staff have questions and concerns about the data suppression practices CDE implemented for the recent public release of assessment results. I recognize that in our haste to get the assessment results out to you as quickly as possible, we could have done a better job communicating our plan to protect student privacy related to the test scores. We are adding some additional information about the suppression rules to our website and reaching out to a number of groups to help them understand why and how we modified our privacy practices.

Discussions about the importance of protecting the privacy of student data have been going on with the State Board of Education, the legislature and national forums for two years. The state board, in particular, places a very high priority on protecting student privacy, and as a result, starting with the 2015 CMAS: PARCC data release, CDE strengthened its data privacy practices by masking assessment results at the performance level for low N-sizes. For the 2016 release, when there were less than four students at a performance level, suppressions were applied. In addition, we again applied “complementary” suppression rules across schools within a district because knowing how many students are at the district level allows the calculation of the suppressed school’s data if all other schools are reported. Please see the attached document for examples of how this was implemented.

These steps were taken only for the files released to the media and placed on our website. The files and reports to which your district assessment coordinators have access contain all data, so your schools and teachers have all of their students’ scores.

Also, the student-level report that parents receive this year provides their students’ results along with the overall results for the school (as long as there are at least 16 students who received scores for that assessment in the school), district (as long as there are at least 16 students who received scores for that assessment in that district), state and PARCC consortium for the math and ELA tests.

Upcoming accountability reports will not have the same degree of suppression as the assessment reports due to two significant differences. The assessment reports are grade-level specific, so there are relatively low numbers of students for many schools and districts. Accountability reports are school- and district-level, so they reflect a larger group of students. In addition, accountability uses mean scale scores and median growth percentiles, which are metrics that do not allow for easy calculations that can identify any single student’s likely performance.

Please understand that CDE is trying to balance the competing priorities of protecting student privacy and providing important information about school performance so that parents and community members know how their schools are doing. These issues continue to evolve, so we encourage districts, parents, community members and any other interested groups to participate in the ongoing discussions at the state



and national level. We welcome your ideas on how to strike the right balance between protecting student privacy and providing transparency into school and district performance.

Sincerely,

A handwritten signature in black ink that reads "Katy Anthes". The signature is fluid and cursive, with a long horizontal stroke extending from the end of the name.

Katy Anthes, Ph.D.
Interim Commissioner





Complementary Suppression

Minimum N-Size for Groups

Historically, Colorado has applied a minimum N-size of 16 to group size for achievement results. Schools and disaggregated groups needed to have at least 16 students in order for CDE to report their assessment data.

In 2014, acknowledging the increased sophistication around data, CDE recognized the need for what is referred to as complementary suppression. Complementary suppression is applied when a group has its data masked because another group doesn't meet the N-size of 16, and the first group's results could be determined through simple calculations. Below is mock data that shows the issue.

	Total Number of Valid Scores	Level 1	Level 2	Level 3	Level 4	Level 5
School A	32	7	8	8	6	3
Males	19	4	4	5	4	2
Females	<16	-	-	-	-	-

Through simple subtraction, the results for female students can be easily determined. See below:

	Total Number of Valid Scores	Level 1	Level 2	Level 3	Level 4	Level 5
School A	32	7	8	8	6	3
Males	19	4	4	5	4	2
Females	School minus male = 13	School minus male = 3	School minus male = 4	School minus male = 3	School minus male = 2	School minus male = 1

Therefore, both males and females must have at least 16 students in order to report out either group.

School Complementary Suppression

The issue also can be seen with schools within districts. Starting with the 2015 CMAS: PARCC data, complementary suppression was also applied to overall school-level data. If one school has data suppressed, at least one other school must have its data suppressed to ensure that the first school's data cannot be calculated by subtracting the known schools from the district results.

	Total Number of Valid Scores	Level 1	Level 2	Level 3	Level 4	Level 5
District A	163	30	30	40	50	13
School A	100	23	20	24	25	8
School B	<16	-	-	-	-	-
School C	50	4	6	13	23	4



	Total Number of Valid Scores	Level 1	Level 2	Level 3	Level 4	Level 5
District A	163	30	30	40	50	13
School A	100	23	20	24	25	8
School B	District minus School A minus School C=13	District minus School A minus School C=3	District minus School A minus School C=4	District minus School A minus School C=3	District minus School A minus School C=2	District minus School A minus School C=1
School C	50	4	6	13	23	4

Therefore, another school's data also has to be suppressed.

	Total Number of Valid Scores	Level 1	Level 2	Level 3	Level 4	Level 5
District A	163	30	30	40	50	13
School A	100	23	20	24	25	8
School B	<16	*	*	*	*	*
School C	*	*	*	*	*	*

Performance Level and Complementary Suppression

As both the Board and legislature discussed their expectation for increased data privacy, CDE consulted with the Privacy Technical Assistance Center (PTAC), part of the U.S. Department of Education. PTAC clarified that minimum N-sizes should be applied to groups as a whole, as well as individual cells (Level 1, Level 2, etc.) within the group. Performance level suppression began with the CMAS: PARCC 2015 assessment data release. In 2016, in order to report individual performance level results, a minimum of 4 students is required. Again, complementary suppression comes into play. Knowing how many students are in a group means that any one performance level can be calculated if all other performance levels are reported.

	Total Number of Valid Scores	Level 1	Level 2	Level 3	Level 4	Level 5	Levels 4/5
School D	60	6	8	10	33	-	36

Level 5 can be calculated by subtracting Levels 1, 2, 3 and 4 from the total score or just by subtracting Level 4 from the combined Levels 4/5.

	Total Number of Valid Scores	Level 1	Level 2	Level 3	Level 4	Level 5	Levels 4/5
School D	60	6	8	10	33	Levels 4/5 minus Level 4 = 3	36

So, we need to suppress Level 4 and Level 5 to prohibit the identification of any specific cell size less than 4.

	Total Number of Valid Scores	Level 1	Level 2	Level 3	Level 4	Level 5	Levels 4/5
School D	60	6	8	10	-	-	36