



# FastBridge Social Emotional Behavior National Norms Report



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## Introduction

In the summer of 2021, FastBridge launched new national norms for the two social emotional behavior screeners, mySAEBRS and SAEBRS. The national norms were derived from a national sample of students demographically matched to the U.S. school population by gender, race/ethnicity, and free and reduced lunch rates and provide the basis for defining *high risk* and *some risk* benchmarks.

### Criterion Benchmarks

Prior to the development of the national norms, the benchmarks for SAEBRS and mySAEBRS were derived from statistical associations with other validated measures of social and emotional behavior. Using cut scores on each criterion measure, students were classified as at-risk or not-at-risk. ROC analysis identified scores on mySAEBRS and SAEBRS that optimized overall classification accuracy on the criterion measures. Those scores became the some-risk cut scores for mySAEBRS and SAEBRS. The advantage of this criterion-reference approach is that it utilizes prior research and validity evidence to produce scores that can be considered diagnostically accurate.

The criterion-referenced approach has important limitations. The method requires some degree of subjective preference, such as deciding how much emphasis should be placed on minimizing false positives or false negatives. The cut score will vary depending on the weight given to each. Additionally, the method depends on the strength of the association with the criterion assessment. If the criterion assessment measures a somewhat different construct, the statistical relationship is likely to be attenuated which can obscure interpretation. Finally, in educational and psychological assessment, the assessment used as a criterion is itself imperfect.

### Normative Benchmarks

A normative approach to defining risk cut scores has several benefits. First, it is the method used by other research-based measures of social emotional behavior (SEB) measures such as the BASC and DESSA, and there is a well-established research literature on using norms for identification of SEB risk. Second, it is the method used by the FastBridge academic assessments. By aligning the methods across the system, it will be easier for educators to interpret results. Third, it ties benchmarks to the behavior of a large diverse population of students. At the population level, score distributions, and therefore benchmarks remain stable over time. This fixed criterion makes it easier identify and interpret trends at the local level. Fourth, this approach includes percentiles which provide a continuum that helps educators and parents interpret performance, assess need, and monitor progress. Finally, the national norms make it possible to provide both *some risk* and *high risk* cut scores.

Through careful consideration and consultation with the SAEBRS/mySAEBRS authors the FastBridge research and product teams determined that the benefits to customers of moving to a national norm-referenced model would provide users with better data to inform SEB supports. The cut-scores for SAEBRS and mySAEBRS were defined as follows:

- **Low risk:** scores above the 16<sup>th</sup> national percentile
- **Some risk:** scores from the 3<sup>rd</sup> to the 16<sup>th</sup> national percentile
- **High risk:** scores below the 3<sup>rd</sup> national percentile

These cut scores represent approximately 1 and 2 standard deviations below the national mean, which is consistent with the approach used by the BASC and DESSA. Our research suggests that these new scores still perform well in predicting SEB risk, while also identifying a smaller percentage of students as at risk within the average school. Interestingly, the new norm-referenced some-risk cut scores aligns precisely to the original criterion-referenced some risk cut score on SAEBRS. That is, the 16<sup>th</sup> national percentile corresponds to a SAEBRS Total Scale Score of 37. Thus, the addition of the high-risk score threshold provides a refinement of prior guidance.

Based on analysis of the national sample, FastBridge researchers determined that the new norms could be the same for all grades. For this reason, there is one set of norms for SAEBRS and one set for mySAEBRS and these are sufficiently accurate for all grades and seasonal screening periods. In other words, the correspondence between the Total Scale Score on SAEBRS and the national percentile rank is the same for all grades, K – 12. Similarly, the correspondence between the Total Scale Score on mySAEBRS and the national percentile rank is the same for all grades, 2 – 12.

### National Norms Development

The SAEBRS and mySAEBRS national norms were derived from data collected as part of universal screening during the 2018-19 and 2019-20 school years. The sample was limited to schools that universally screened as defined by assessing at least 90% of enrolled students in a grade. The median percent tested was 97%. By limiting the analysis to schools that universally screened, they represented reasonable samples across grade levels. Those schools' deidentified demographic data were obtained from the Common Core Data files produced by the National Center on Education Statistics (NCES) for the U.S. Department of Education and were used for demographic matching.

A random selection procedure was used to generate samples demographically matched to the U.S. school population. In the first step, a file was constructed that provided the counts and percentages of students by gender, race/ethnicity, and free or reduced lunch benefits. Each row of the file represented a grade within a school. Five race/ethnicity groups were defined: African American, Asian, Hispanic, Other, and White.

An iterative random sampling without replacement procedure was used to select 100 grade-school combinations such that the sample matched as closely as possible to the U.S. school population on gender, race/ethnicity, and free or reduced lunch rates. This procedure was repeated 30 times. The data from the 30 replications were combined and used as the basis for generating national percentile ranks.

Prior to generating the national percentile ranks, a series of analyses was conducted to determine the validity of combining data across grades and benchmark screening periods (i.e., fall, winter, and spring). That is, we examined whether there were systematic differences in score distributions by grade and screening season. Linear models were run on the complete data sets, treating grade and season as factors. Analyses were run separately for SAEBRS and for mySAEBRS. The overall effect size due to grade and season was computed using Cohen's

$f^2$  statistic. For SAEBRS the overall effect size was 0.0013 and for mySAEBRS it was 0.01. Means, SDs, and total number of administrations by grade for SAEBRS and mySAEBRS are provided in Table 1.

Table 1

SAEBRS and mySAEBRS Descriptive Statistics by Grade.

Grade	SAEBRS			mySAEBRS		
	Mean	SD	N	Mean	SD	N
KG	46.8	9.5	111,348	--	--	--
1	46.9	9.5	112,494	--	--	--
2	46.8	9.6	111,159	40.7	8.6	32,634
3	46.7	9.5	106,127	42.1	8.3	53,200
4	46.9	9.4	105,453	43.0	8.0	57,016
5	47.0	9.4	99,437	43.1	8.0	56,851
6	47.7	9.1	54,599	42.9	7.9	48,853
7	46.7	9.5	33,126	42.4	7.9	41,322
8	46.9	9.5	31,857	41.8	7.9	33,943
9	46.3	9.3	9,877	41.5	7.8	9,898
10	46.3	9.0	7,173	40.9	7.7	6,993
11	46.7	8.9	6,507	41.3	7.8	5,580
12	47.1	8.6	3,985	41.5	7.6	3,061

Visual inspection of the data revealed there was no systematic difference across grades for either SAEBRS or mySAEBRS total scores. Figures 1 and 2 show the mean score across grade. The vertical axis score range represents approximately  $\pm 1$ SD from the overall mean. For SAEBRS, the deviations from the mean are extremely small and non-systematic and the linear trendline is flat. For mySAEBRS the deviation from the overall mean is slightly greater, but non-systematic. The overall trendline shows a small negative slope across grade. To better understand the significance of these deviations from the mean, effect sizes were computed by comparing each grade level mean to the overall mean across grades. For most grades, the deviation from the overall mean translated to an effect size less than 0.10 SD. For example, the difference from the overall mean in Grade 2 was 1.7 points or about 0.20 SD. This is a small effect.

Taken together these results support the application of a single set of norms to all grades. By doing so, we leverage the benefits of better national representation, more accurate norms overall, and a simpler to use solution across grades.

Figure 1

Mean SAEBRS Total Score by Grade.

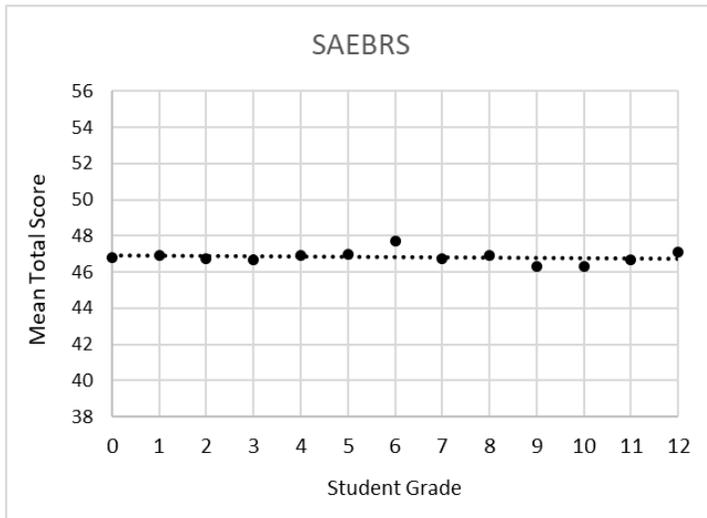
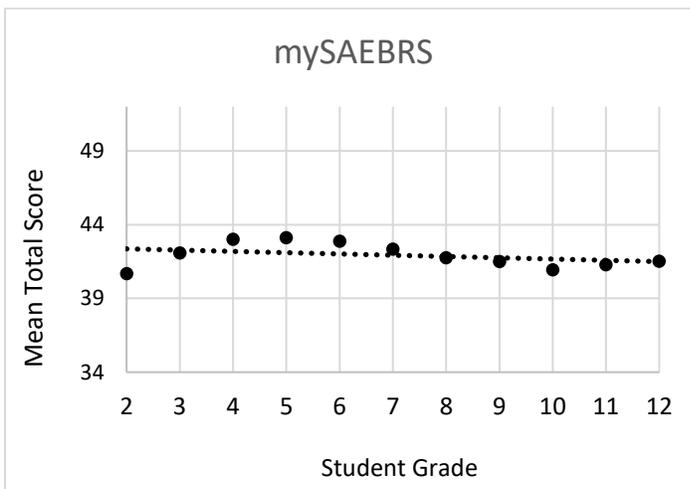


Figure 2

Mean mySAEBRS Total Score by Grade.



### The Data

The SAEBRS national norm sample was drawn from a base of 687 schools across 29 states, and the mySAEBRS norm sample was drawn from a base of 490 schools across 23 states.

As described above, the final norm sample selection used an iterative random sampling procedure designed to select school by grade level combinations that would lead to the closest match to the demographics of the U.S. school population. Thirty iterations were performed with 100 schools randomly selected in each iteration.

Tables 2 and 3 describe the demographic composition of the base sample, the U.S. school population (U.S. Pop.) and the final norm sample (Final Norm) for SAEBRS and mySAEBRS, respectively. For both assessments, the base sample included broad representation of each key demographic. However, in both base samples, students of color were under-represented as were schools with high rates of students receiving free or reduced lunch. The final norm sample controlled for this and resulted in a very strong match to the U.S. school-aged population by gender and free and reduced lunch rates and a strong match to race/ethnicity composition. It is important to note that in separate analyses we examined the effects of race/ethnicity and free and reduced lunch rates on the total score. We did this by fitting mixed effects linear models in which student grade, the percent of school population of students of color, and the percent qualifying for free or reduced lunch. For both SAEBRS and mySAEBRS, race had a near zero effect and was not significant, whereas free and reduced lunch rates showed a small but significant negative effect.

Table 2  
Demographic Composition of SAEBRS Samples.

Demographic	Group	Percent		
		Base Sample	U.S. Pop	Final Norm
Race/ethnicity	African Amer.	7.1	15.1	12.8
	Asian	5.0	5.1	8.1
	Hispanic	18.7	26.8	23.0
	Other	2.8	5.1	2.5
	White	66.3	47.9	53.6
Gender	Female	48.4	48.8	48.6
Free or Reduced Lunch Rate	0-20%	32.2	17.5	16.5
	21-40%	26.7	22.1	21.8
	41-60%	17.4	23.3	15.7
	61-80%	12.4	17.9	23.1
	81-100%	11.2	19.1	22.9

Table 3

Demographic Composition of mySAEBRS Samples.

Measures	Demo	Percent		
		Base Sample	U.S. Pop.	Final Norm
Race/ethnicity	African Amer.	7.4	15.1	13.6
	Asian	3.2	5.1	4.0
	Hispanic	13.6	26.8	20.6
	Other	2.0	5.1	2.5
	White	73.7	47.9	59.3
Gender	Female	48.4	48.8	48.6
Free or Reduced Lunch Rate	0-20%	28.0	17.5	15.8
	21-40%	16.4	22.1	21.4
	41-60%	32.8	23.3	16.3
	61-80%	13.7	17.9	23.1
	81-100%	9.0	19.1	23.4

### Final Norms and Benchmarks

Tables 4 and 5 display the benchmark cut scores for SAEBRS and mySAEBRS, respectively. The benchmarks for the total score as well as the Social, Academic, and Behavior subscales are provided. It is important to note that a student's score on the SAEBRS and mySAEBRS should never be used as the sole determinant of overall risk or intervention services. Instead, these scores should be examined by a team consisting of the student's teacher(s), counselor, psychologist, administrative leader, and others who know the student well. SAEBRS and mySAEBRS must be compared with other sources of information about the student's behaviors to confirm the presence of risk and need for support.

Table 4

SAEBRS Low Risk, Some Risk, and High Risk Score Ranges

Scale	Low Risk	Some Risk	High Risk
Total	37 – 57	24 – 36	0 – 23
Social	13 – 21	8 – 12	0 – 7
Academic	10 – 18	6 – 9	0 – 5
Emotional	16 – 21	12 – 15	0 – 11

Table 5

mySAEBRS Low Risk, Some Risk, and High Risk Score Ranges

Scale	Low Risk	Some Risk	High Risk
Total	35 - 58	25 – 34	0 – 24
Social	13 – 21	10 – 12	0 – 9
Academic	10 – 18	7 – 9	0 – 6
Emotional	11 – 21	8 – 10	0 – 7