

Minimum N-Size Requirements Under ESSA:

Deb Sigman

Albuquerque, NM | October 31, 2018



THE CENTER ON
**STANDARDS &
ASSESSMENT
IMPLEMENTATION**

WestEd  CRESST

The Process



Accountability and Reporting

- Two parts of the law pertaining to minimum n-size
 - Accountability
 - Reporting
- Blending Policy and Psychometrics
 - Statistical soundness
 - Transparency
 - Privacy

Statewide Accountability System – ESEA Section 1111 (c)(3(A)(i)) – Page 30

Each State shall describe—

(A) with respect to any provisions under this part that require disaggregation of information by each subgroup of students—

(i) the minimum number of students that the State **determines are necessary** to be included to carry out such requirements and how that number is **statistically sound**, which shall **be the same** State-determined number for all students and for each subgroup of students in the State;

Statewide Accountability System – ESEA Section 1111 (c)(3(A)(ii)) – Page 30

Each State shall describe—

(ii) **how** such minimum number of students was **determined** by the State, including **how the State collaborated** with teachers, principals, other school leaders, parents, and other stakeholders when determining such minimum number; and



Statewide Accountability System – ESEA Section 1111 (c)(3(A)(iii)) – Page 30

Each State shall describe—

(iii) how the State ensures that such minimum number is sufficient to not reveal any personally identifiable information.

State Examples

STATE	BIE SCHOOLS	TRIBALLY OPERATED	N
• ARIZONA	22	32	12,097
• SOUTH DAKOTA	3	19	6,634
• NORTH DAKOTA	4	8	3,727
• OKLAHOMA	1	4	1,116



State Plan Requirement: Minimum N-Size

- Does the SEA provide the minimum number of students that the State determines is necessary to meet the requirements of any provisions under Title I, Part A of the ESEA that require disaggregation of information by each subgroup of students for accountability purposes, including annual meaningful differentiation and identification of schools?
- Is the minimum number of students the same State-determined number for all students and for each subgroup of students in the State (*i.e.*, economically disadvantaged students, students from each major racial and ethnic group, children with disabilities, and English learners) for accountability purposes?

Arizona – Minimum N-Size

- All Arizona public schools and LEAs will have an n-size of 20 for accountability and reporting
- Number considered large enough to provide valid and reliable results, but small enough to ensure schools are held accountable.
- Additionally, this n-size offers privacy protection for those subgroups too small to report without disclosing personally identifiable information.



South Dakota – Minimum N-size

- N-size of 10 for both public reporting and for accountability determinations
- Applies to all students, each subgroup, and the two super subgroups
- Historical acceptance and allows for inclusion of many small schools.
- **Using a number larger than 10 would exclude a large number of schools from accountability and would decrease transparency in the state.**



South Dakota – Gap vs No Gap Groups

- In addition to the above accountability subgroups, South Dakota also uses the super subgroups of Gap and Nongap. The Gap group was conceived as a means of improving transparency in public reporting. Defining the Gap group has resulted in schools across South Dakota reporting information for an additional 1,052 subgroups.
- The Gap group composition was calculated based on the achievement results from the 2008-09, 2009- 10, and 2010-11 school years. The performance of students in each subgroup was compared to the performance of the “all students” group. Those groups that performed consistently under the all students group became part of the Gap group; those that performed above comprised the Nongap group.



North Dakota – Minimum N-size

- North Dakota has established the sample size of $N > 9$ as the minimum number of students required in a school or subgroup for any public reporting or accountability determination to occur.
- If any current-year's achievement rates are based on a sample size less than this defined limit, then any accountability determination and reporting must revert to multiple- year calculations, until a sufficient sample size is achieved.
- This minimum sample size reflects long-standing state policy regarding the minimum sample size required for the purposes of protecting individual students from possible identification, consistent with the Family Education Rights to Privacy Act.



Oklahoma – Minimum N-Size

- Discussion - a large minimum N-size can bolster the reliability of the resulting decisions, but because it excludes certain populations from the system who do not meet the minimum sample size, it also undermines the validity of the system to meaningfully differentiate schools.
- OSDE will continue to use an N-size of 10 for all accountability indicators and data reporting.
- This low N-size should ensure that a high number and percentage of schools and student subgroups are included in the statewide accountability system



State Plan Requirement: How the SEA Determined Minimum N-Size

- Does the SEA describe how it determined the minimum number of students?
- Does the description include how the State collaborated with teachers, principals, other school leaders, parents, and other stakeholders when determining such minimum number?



Determining N-Size and Engagement – Arizona

- Below is a table displaying how varying n-sizes could impact Arizona schools and the accountability system. This table shows how many schools could be excluded from accountability by subgroup depending on the n-size that is selected.
- As expected, the smaller the n-size, the more schools that would be included in accountability. The decision regarding n-size needs to be balanced with statistical validity and reliability.
- The A-F Ad Hoc committee that proposed this n-size consisted of teachers, superintendents , parents, educational lobbyists and State Board of Education members. The committee reviewed data and made recommendations.
- The State Board of Education also did a month long roadshow, including an online survey and 18 face-to-face meetings, to incorporate feedback from all stakeholders prior to the State Board of Education making final decisions
- Thus, a final n-size of 20 has been determined and approved by the State Board of Education.

Arizona

Demographic	Total Students	Total Schools	N30	N25	N20	N10
African American	91,541	2401	1,165	1,072	956	668
American Indian	74,531	2401	1,679	1,577	1,474	1,079
Hispanic/Latino	692,634	2401	401	365	332	244
Asian	42,262	2401	1,443	1,367	1,278	958
Hawaiian	5,251	2401	1,413	1,412	1,408	1,355
White	604,639	2401	502	445	373	242
Multi-Racial	43,926	2401	1,585	1,433	1,264	831
English Learner	95,788	2401	1,239	1,161	1,057	734
Economically Disadvantaged	630,602	2401	878	858	843	805
Children with Disabilities	167,907	2401	948	867	780	562

South Dakota – Determining N-size and Engagement

- During the course of its consultations on this plan, SD DOE brought together an Accountability Work Group comprised of school administrators, teachers, and other stakeholders with varied backgrounds to provide recommendations to the state.
- This group considered the question of n size in the context of what South Dakota has utilized and how other states approach this question.
- The group recommended continuing to use an n size of 10.
- These discussions were also held in the English Learner Work Group meetings, Parent Advisory Council meetings, and have been ongoing discussions at Technical Advisory Committee meetings.



North Dakota – Determining N-size and Engagement (1)

- North Dakota historically has used the N size of 10 for accountability purposes. This issue was discussed at length within our State ESSA Planning Committee.
- The North Dakota Standards, Assessment, Accountability and Reporting subcommittee wanted to be thorough in creating our state plan and explored increasing the N-size to 15 and reporting every year.
- They sought input from their constituents and determined if the state's accountability plan required school districts to report every year, a larger schools' factors are different from a smaller one.
- In addition, if the N size were to increase, then a smaller school district may never have enough students to report or would need to aggregate too many years.



North Dakota – Determining N-size and Engagement (2)

- In addition, if the N size were to increase, then a smaller school district may never have enough students to report or would need to aggregate too many years.
- This scenario was unsatisfactory to the subcommittee, and they recommended to the full North Dakota State ESSA Planning Committee to keep the N size at 10 and for the smaller districts to aggregate two to possibly three years of data.
- After further dialogue, the North Dakota State ESSA Planning Committee agreed with the subcommittee's recommendation and voted to keep the accountability number size at 10.



Oklahoma – Determining N-size and Engagement –

- OSDE held regional meetings across the state and convened the Oklahoma Assessment and Accountability Task Force to deliberate over the many technical, policy and practical issues, including the minimum N-size associated with implementing an approved assessment and accountability system.
- Those giving input included teachers, Pre-K-12 administrators, higher education representatives, career technical representatives, parents, legislators, business representatives, tribal representatives and other community members.
- In the Oklahoma ESSA State Plan Draft 1 Survey, stakeholders were asked to respond to the question of whether an N of 30 for accountability was reasonable.
- Many comments reflected the desire to see a lower N-size to ensure the maximum number of students is included in accountability; therefore, the state has selected an N-size of 10.



State Plan Requirement - Statistical Soundness of Minimum N-Size

- Is the selected minimum number of students statistically sound ²

Footnote 2

Consistent with ESEA section 1111(i), information collected or disseminated under ESEA section 1111 shall be collected and disseminated in a manner that protects the privacy of individuals consistent with section 444 of the General Education Provisions Act (20 U.S.C. 1232g, commonly known as the “Family Educational Rights and Privacy Act of 1974”). When selecting a minimum n-size for reporting, States should consult the Institute of Education Sciences report [“Best Practices for Determining Subgroup Size in Accountability Systems While Protecting Personally Identifiable Student Information”](#) to identify appropriate statistical disclosure limitation strategies for protecting student privacy.

Arizona – Statistical Soundness

- An n-size of 20 was established as that number is large enough to provide statistically valid and reliable results, but small enough to ensure schools are held accountable.
- Additionally, this n-size offers privacy protection for those subgroups too small to report without disclosing personally identifiable information.

South Dakota – Statistical Soundness

- The decision regarding n size was made after discussions with Accountability Work Group members, SD DOE’s Technical Advisory Committee, SD DOE’s Parent Advisory Council, and by utilizing the recent Institute of Education Sciences Report “Best Practices for Determining Subgroup Size in Accountability Systems While Protecting Personally Identifiable Student Information.”
- This number strikes a balance between inclusion and indicator stability in the system, ensuring that many of the small schools in the state are still included in the state accountability system, and ensuring transparency for stakeholders and parents related to student outcomes.
- Schools not meeting the minimum n size of 10 at the school level undergo a Small and Special School Audit that utilizes a review of three years of data to determine whether the school is meeting accountability criteria.



Oklahoma – Statistical Soundness

- Oklahoma has chosen an N-size of 10 for all accountability student groups and indicators.
- Oklahoma has a significant number of small schools (e.g., 57 schools in schools year 2015-16 had fewer than 30 tested students in mathematics).
- Using a minimum N-size of 10 for calculating indicators in Oklahoma's accountability system will allow for greater transparency for rural schools and underrepresented student groups.
- If an N-size of 10 cannot be met in a single year for a student group, Oklahoma will aggregate data up to three prior years in order to reach an N-size of 30. Schools that cannot reach an N-size of 10 over three years will be subject to an alternate accountability model.



A.4.ii.d: Minimum N-Size and Ensuring Student Privacy (ESEA section 111(c)(3)(A)(iii))

- Does the SEA describe how it ensures that the minimum number of students will protect the privacy of individual students?



Arizona – Privacy

- Arizona Department of Education suppresses aggregate data that falls below the minimum n-size to ensure that student information is protected. Additional ways to protect data are also being discussed.
- Student privacy is of utmost importance when reporting data and will be ensured for all students and subgroups.



South Dakota – Privacy

- South Dakota has long used an n size of 10 in order to report and hold schools accountable. This established number has been demonstrated through research and peer review as effective in complying with the Family Educational Rights and Privacy Act to protect student information.
- South Dakota uses multiple techniques to provide protection against disclosure or identification of an individual student's outcomes, including suppression of small group outcomes, suppression of complementary group outcomes, and suppression of small category outcomes.

Oklahoma – Privacy

- Personally identifiable information is protected in multiple ways.
- First, Oklahoma ensures that student information remains private by employing complementary suppression of the information when all students score at a certain level (for example, 100% graduation rate) or when no students score at a certain level (for example, 0% graduation rate).
- Oklahoma also employs complementary suppression within student groups that are mutually exclusive and exhaustive. For example, if data for one racial/ethnic group are suppressed due to not meeting the minimum N-size of 10, then the racial/ethnic group with the second-lowest N-size will be suppressed as well.
- Measures comprised of fewer than 10 students are not reported regardless of the result



North Dakota – Privacy

- The *Family Educational Rights and Privacy Act* (FERPA) forbids the reporting of any information that might lead to the identification of an individual student. Historically, North Dakota has used an N<10 rule (i.e., sample size less than ten students) to govern the public identification or publication of student achievement rates.
- Thus, if a school's or a subgroup's sample size is fewer than 10 students in either one year or up to three years combined data, providing for a sufficient reportable sample size, then no achievement data would be reported for that school or specific subgroup.



Policy and Psychometric Considerations

- Balance between
 - Transparency leading to access and equity
 - Statistical soundness
- Essentially a policy decision as the parameters are broad



For more information, please contact:

Deb Sigman
dsigman@wested.org

CSAI Help Desk
csai@wested.org

www.csai-online.org



THE CENTER ON
**STANDARDS &
ASSESSMENT
IMPLEMENTATION**

WestEd  CRESST