USDA Food and Nutrition Service
U.S. DEPARTMENT OF AGRICULTURE

Research Summary June 2021

Direct Certification in the National School Lunch Program State Implementation Progress Report to Congress School Year 2017-2018 & School Year 2018-2019

Background

The Food, Conservation, and Energy Act of 2008 (Public Law 110-234, also known as the 2008 Farm Bill) requires an annual Report to Congress on State progress in direct certification in the National School Lunch Program (NSLP). Direct certification is the process by which eligible children are certified for free meals without the need for a household application based on household participation in one or more means-tested Federal assistance programs. This report measures progress in the direct certification of school-aged children for free school meals in the NSLP and/or School Breakfast Program (SBP) if they are living in households receiving Supplemental Nutrition Assistance Program (SNAP) benefits, as required by the2008 Farm Bill. States are required to directly certify at least 95 percent of school-aged children living in households receiving SNAP.

This is the 10th report in the series, covering school year (SY) 2017-2018 and SY 2018-2019. The most recent previously released report was for SY 2015-2016 and SY 2016-2017.[1]

Key Findings

- The calculated national percentage of SNAP-participant children directly certified for free school meals was 98 percent in both SY 2017-2018 and SY 2018-2019.
- This is a 6 percentage point improvement from the performance rate in SY 2016-2017, which was 92 percent, and an 11-percentage point increase since SY 2013-2014.
- Forty States met or exceeded the required 95 percent direct certification rate benchmark for SY 2018-2019.

Methods

States report annual data to the U.S. Department of Agriculture, Food and Nutrition Service (FNS) that are used to calculate direct certification performance measures via the School Food Authority Verification Collection Report (form FNS-742) and the State Agency (NSLP/SNAP) Direct Certification Data Element Report (form FNS-834). The data elements used in the calculation are defined below.

1. The number of children in SNAP households directly certified by the State's Local Education Agencies (LEAs) for free school meals based on information collected from LEAs by States for reporting on form FNS-742.
2. The number of SNAP participants in the State's Community Eligibility Provision and non-base year special provision schools based on State reports on form FNS-834.[2]
3. The number of school-aged children in the State's SNAP households based on State reports on form FNS-834.

Direct Certification Rate Calculation Formula

$$\text{Percent of SNAP Children Directly Certified for Free School Meals} = \frac{\text{1. Students Directly Certified for Free School Meals Based on SNAP Participation} + \text{2. SNAP Children in CEP and Special Provision Schools Operating in Non-Base Years}}{\text{3. School-Aged Children in SNAP Households}}$$

[1] U.S. Department of Agriculture, Food and Nutrition Service, Office of Policy Support, Direct Certification in the National Lunch Program: State Implementation Progress, School Year 2015–2016 and School Year 2016-2017, by Dennis Ranalli, Joe Templin and Maggie Applebaum, Alexandria, VA: October 2018.

[2] Non-base years are years in which eligibility determination procedures are not conducted and base year claiming percentages are used for reimbursement in schools operating Provision 2 and 3.

Figure 4 in the appendix presents national data for these three elements for SY 2013-2014 through SY 2018-2019.

Findings

The calculated national percentage of SNAP-participant children directly certified for free school meals was 98 percent in both SY 2017-2018 and SY 2018-2019. This is an improvement of 6 percentage points from the direct certification performance rate in SY 2016-2017, which was 92 percent, and an 11-percentage point increase since SY 2013-2014.

There was a 1.4 million decrease (10 percent) in school-age SNAP participation, (Data Element #3) from SY 2016-2017 to SY 2018-2019. This school-age SNAP participant drop follows a larger national deceasing trend in total national SNAP participants of 24 percent since 2013. The number of SNAP matches did not decrease (-4 percent) at the same rate as the overall SNAP participant drop, suggesting improvement in the direct certification process along with the increased take up of CEP.

Figure 1 presents the national direct certification rates from SY 2007-2008 to SY 2018-2019. The green line in Figure 1 represents a change in the methodology used to calculate the direct certification rate starting with SY 2013-2014. Rates prior to this time are not directly comparable to rates calculated after SY 2012-2013.

Figure 1: National Direct Certification Rate School Year 2007-2008 to School Year 2018-2019

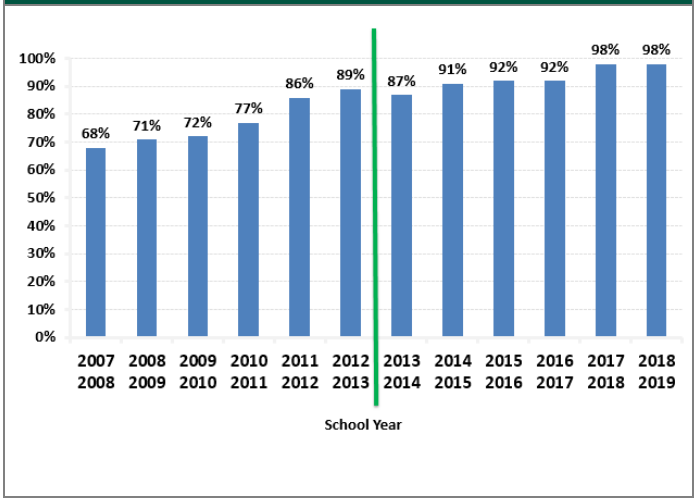
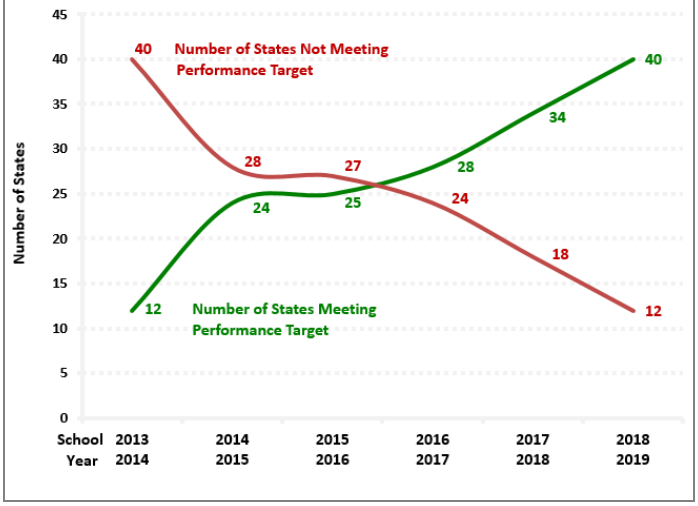


Figure 2 shows the number of States that achieved the required 95 percent benchmark as well as the number that fell below. Forty States met or exceeded the 95 percent requirement for SY 2018-2019.[3] The 12 States that did not achieve a 95 percent direct certification rate in SY 2018-2019 are required to develop and implement a direct certification continuous improvement plan (CIP) detailing how the State will improve its direct certification procedures.

Figure 2: Number of States Meeting Required 95 Percent Direct Certification Performance Rate School Year 2013-2014 to School Year 2018-2019



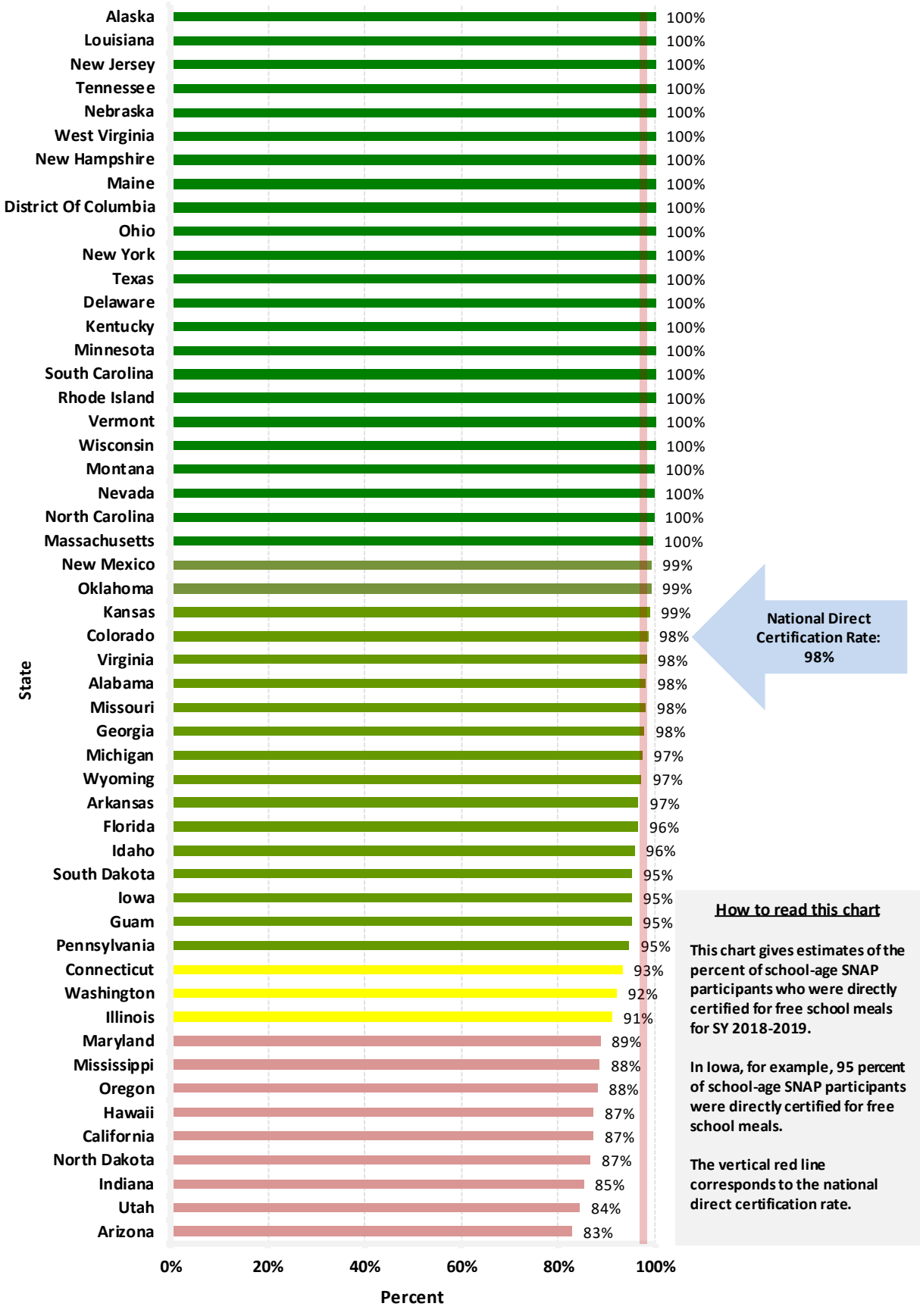
SY 2018-2019 is the third time that the majority of States met the direct certification performance target; also of note, an additional twelve States met the requirement between SY 2016-2017 and SY 2018-2019. The State-level SY 2018-2019 direct certification performance rates are presented in Figure 3. States appearing at the top of the chart with dark green bars represent States with rates of 100 percent.[4]

Lighter green bars represent States that were less than 100 percent, but still met the required 95 percent direct certification threshold. States that fell below the required performance threshold are indicated by yellow (at least 90 and less than 95 percent) and red (less than 90 percent) bars towards the bottom of the chart.

[3] The total count of States includes the District of Columbia and Guam.

[4] States may achieve percentages greater than 100 percent through extended eligibility. Extended eligibility applies when a student in the SFA is deemed categorical eligible via an eligible student in the primary household who has been directly certified with SNAP.

Figure 3: National and State Direct Certification Rates
School Year 2018-2019 (capped at 100 Percent) Sorted from Highest to Lowest Rates



States with red and yellow direct certification rates are less effective at direct certification. School-aged SNAP participants in these States may still be certified for free meals through the application process; however, LEAs and households in these States are likely more burdened with application paperwork.

Table 1 and Table 2 in the appendix present the data elements for each State that are used to produce the direct certification rates in Figure 3 for SY 2017-2018 and SY 2018-2019. A comparison between State-level direct certification rates for the two previous school years is presented in appendix Table 3.

The State maps in Figure 5 in the appendix show increases in the individual State direct certification rates over time. States that are shaded light blue have lower State direct certification rates over time while darker blue States have higher direct certification rates. Growth in direct certification rates by State can be observed as the maps become progressively darker blue in color over time.

Discussion

Children from households with incomes at or below 130 percent of the Federal poverty level are eligible for free school meals. Children from households with incomes between 130 and 185 percent of the poverty level are eligible for reduced price meals.

Eligibility for the NSLP is typically determined through information reported by a parent or guardian on a household application. The household applications include self-reported household income and household size information. LEAs compare this information to the income thresholds for free and reduced price benefits.
Some applicants are deemed categorically eligible based on household participation in one or more means-tested Federal assistance program, including SNAP, Temporary Assistance for Needy Families, and the Food Distribution Program on Indian Reservations. These households submit a case number on a household application. Eligibility is extended to other children in the household if one child participates in one of the above programs. Certain children who are runaway or homeless, in foster care, or enrolled in Head Start are also categorically eligible but their eligibility does not extend to other children in the household.

Under direct certification, instead of a parent or guardian submitting a household NSLP application, states use computer systems to match SNAP program (and other allowable programs) records to school enrollment lists to establish NSLP eligibility.

The 2004 Child Nutrition and WIC Reauthorization Act required LEAs to have a system of direct certification to certify school-aged SNAP participants for NSLP by SY 2008-2009.

Data Limitations

This report relies on data that States and LEAs report to FNS. FNS and States have worked collaboratively over the years to ensure the data go through checks to ensure they meet high quality standards.

The data checks include the use of the FNS electronic Food Program Reporting System, which collects and stores the State submitted FNS-742 and FNS-834 data. Additionally, FNS developed a process to check the FNS-742 and FNS-834 data to identify possible errors by States or LEAs. States also have started to use the edit checks independently to assess their own data before submitting. This improves accuracy and timeliness of the data.

Special circumstances can impact a State's direct certification performance rate. The FNS-834 includes an option for State agencies to indicate that the State has special circumstances that may affect its direct certification rate calculation in a quantifiable way. One special circumstance is the inclusion of school-aged children in SNAP households in the denominator who are not available to be directly certified for meal benefits. These children most often are students attending non-NSLP participating schools, home-schooled children, students attending virtual schools, and students who drop out of school. This means more school-aged SNAP participant children will be included in the denominator than would be possible to capture in the numerator since they do not attend NSLP participating schools. FNS continues to consider these circumstances on a case-by-case basis and is examining potential ways to adjust its methodology for determining State direct certification performance.

Direct certification rates for 15 States were calculated to be slightly over 100 percent. This may be due to extended

categorical eligibility where the LEA is able to identify another household member enrolled to directly certify but the child is not in the SNAP counts. This may also be due to timing and the level at which matches are conducted. For Data Element #3, the matches are done to capture the children who would have been directly certified if the school was not participating in a special provision, this may lead to some children included in the count that may not have actually been matched in the actual direct certification process.

State Best Practices

The 2008 Farm Bill requires that the annual Report to Congress on direct certification includes a section on best practices from States with the best performance or the most improved performance from the previous year.

To assist States in improving direct certification efforts, the Food and Nutrition Service (FNS) formed the Training and Technical Assistance (TTA) team. The TTA team has provided support to States through various opportunities including conference calls, webinars, conference presentations, and on-site visits. The focus of the technical assistance is to share promising practices to assist State agencies and State and local partners improve direct certification performance and effectively and efficiently identify children eligible for school meal benefits in the NSLP. This section presents information concerning the efforts associated with effective linkage methods utilized in the direct certification process, and highlights best practices developed, designed, and employed by State agencies.

The Importance of Data Matching in the Direct Certification Process

Primary to the success of a State's direct certification system is the ability of States and their LEA partners to effectively link children to their appropriate and applicable public assistance or categorically eligible program participant record. This process is dependent on data received from both LEAs and public assistance partners. Affecting the State's use of these data are criteria such as accuracy, completeness, consistency, timeliness, accessibility, and believability - any of which if diminished or compromised may erode the value of the data, and result in decreased recall (call out box 1) and precision (call out box 2) of the State's linkage efforts.

Box 1: Recall

The ability to locate true record pairings. For example, if a linkage method is able to identify 97 of 100 true positive matches the recall would be 97%. The three missed records would be defined as "false negative."

Box 2: Precision

The ability to accurately identify true record pairings and avoid returning records that are not relevant. For example, a linkage method with 97% precision would ensure that 97 of 100 returned record pairings correctly represent a direct certification-eligible child (true positives). The three incorrectly identified children are defined as "false positives."

Early direct certification matching efforts were found to be challenged by deficiencies in these criteria. Further, the linkage methods employed by States were limited in design and unable to accommodate for these challenges – decreasing opportunities to locate high quality matches. For example, many States incorporated match methodologies which required "exact" matching on all primary attributes (i.e. first name, last name, date-of-birth) without tolerance for simple typos or use of a child's nickname. These strict methodologies struggled to meet adequate recall needs, and predictably many States failed to reach the performance benchmarks.

However, as many States gained experience and a greater understanding of linkage methods, they implemented more robust and advance matching protocols. The implementation of more advanced linkage methods resulted in an improved ability to correctly link records – allowing local-level staff to directly certify eligible children often previously missed. The improved linkage methods led to higher performance rates, as shown in the nationwide SNAP-DC performance rate (see Figure 1. Pg. 3), as well as the number of States meeting the SNAP-DC performance benchmark (see Figure 2. Pg. 2).

Direct Certification Linkage Method Improvements

To conduct the match process, States use one of two linkage algorithms:

Deterministic algorithms (or *rules-based record linkage*) identify the relationship between two records based upon their data attributes through the search for an "exact" comparison between each record's identifiers. Deterministic record linkage is advantageous in data sets with available common identifiers (e.g. first name, last name, date-of-birth) and high quality data.

Probabilistic algorithms compare records in one data set to determine similarity to records in another data set. For probabilistic matching there are several common techniques including "calculated probability matching," "fuzzy logic matching," and "points-based" or "threshold" matching. Probabilistic methods allow for the weighted value of each attribute, e.g. the value of similar birthdates is of greater uniqueness than similar gender. These methods calculate linkage as the probability of similarity, rather than dependent on similarity.

Most initial efforts in direct certification matching employed deterministic match algorithms, and those efforts often resulted in a high number of missed matches (i.e. false negatives) as issues with data quality eroded the ability to effectively link records. The result was the requirement for local-level staff to individually examine (i.e. humanely adjudicate) large numbers of "possible" matches or simply the loss of a pairing (i.e. a non-match).

To address these issues, some States investigated and incorporated probabilistic linkage methods with the resulting improvements discussed above. Other States incorporated probability-based techniques into their existing deterministic protocols to accommodate data quality issues inherent in student and benefit program participant records. Additionally, several States enhanced their deterministic linkage methods by incorporating multiple iterations or "passes" – allowing States to identify exact matches with varying attribute combinations and similarity calculations. State-level Best Practices incorporating several of these methods are presented below. Important to note is that although one linkage method may not work for all States and/or in all situations, all examples presented offer insights into opportunities which may in whole or in part be valuable to States looking to further improve their direct certification performance.

State-level Best Practices

Alabama - Multiple Pass Deterministic Record Linkage: For use beginning in SY 2017-2018, the Alabama State Department of Education (ALSDE) revised the State's direct certification match methodology to address concerns with the degradation of its linkage method performance due to the (potential) loss of social security numbers in the student data record (utilized in the match process). The State now employs a more sophisticated match methodology which conducts twelve deterministic iterations on six data attributes (first name, last name, date of birth, SSN, gender, race) – a noted increase from the State's previous use of three data attributes (an exact match SSN + last name; or SSN + date of birth). Record linkage resulting in an accepted similarity in at least 5 of the 6 data attributes is considered a "match." Additionally, to accommodate for data quality issues (e.g. typos, outdated information) which would result in a false negative, ALSDE employs the use of Jaro–Winkler edit distance string metric algorithm (call out box 3). Further, ALSDE creatively accommodates for errors in date-of-birth entry by accepting similarity in 2 of 3 date-of-birth components (e.g. MM-DD; MM-YYYY) in a calculation which requires increased similarity in remaining attributes, thereby reducing opportunities for false positives. In the future, ALSDE plans to use improved data cleansing techniques and additional algorithm tools with a goal of further increasing the State's 98% SY 2018-2019 SNAP-DC performance rate.

Box 3: String Metrics

String metrics treat two data entries as "strings" of letters or numbers and determines the physical similarity between them. It is most useful for rectifying spelling or typographical errors. Although there are numerous string matching techniques, two of the more popular and widely used (and encountered during the TTA team's site visits) are Jaro Winkler edit distance and Levenshtein edit distance. In general, these techniques should be used later in a matching strategy, and after other techniques have been used. This protocol decreases the number of strings that need to be compared because each individual string must be compared to every other string — resulting in millions of string comparisons that would otherwise be resource-intense to process.

Florida - Multiple Pass Deterministic Record Linkage: The Florida Department of Agriculture and Consumer Services (FDACS) received a Direct Certification Planning Grant and subsequent Direct Certification Implementation Grant to fund the development of a web-based direct certification module and transition to a state-level direct certification match process. A component of the project included the incorporation of a high-performing uniform linkage method. Specific to the match methodology, FDACS conducts sixteen "levels" of deterministic matching calculations utilizing various combinations of data attributes and incorporating a nickname table and phonetic matching algorithm (call out box 4). With access to a social security number as a unique identifier, the method allows for variance in the similarity of other attributes without loss of precision. Further, when social security numbers are absent, the method places stricter requirements on the like-attributes returned and the confidence of these attributes. Additionally, the incorporation of a nickname table accommodating for the use of a child's non-legal name (e.g. Billy for William), and a phonetic algorithm accommodating for common misspellings are important components of this linkage method's success. The successful implementation of this system and process resulted in an impressive improvement in the State's SNAP direct certification performance rate – from 70% in SY 2010-2011, to 96% in SY 2018-2019.

Box 4: Phonetic Algorithms

Phonetic algorithms assign a value to each word that represents the way it would sound if spoken. Similar sounding words are represented by the same value. This is most useful for matching names that have multiple spellings (e.g. Sean vs. Shawn). Common programs include Soundex, Metaphone, and Double Metaphone.

Idaho - **Overcoming Challenges with First Name Data Variants:** A common barrier in the linking of record pairs is the existence of first name challenges such as nicknames, spelling variants, abbreviations, and culture distinctions (e.g. Pablo to Paul). To overcome these issues the Idaho State Department of Education (ISDE) developed and employs the use of an alias table. Alias tables allow for the match program to accept variations of first names entries and convey full or partial credit in an effort to return successfully linked records. For example, ISDE's alias table will accommodate for the use of the formal name "William" with its common nickname "Billy." To demonstrate the extensive depth of ISDE's alias table ISDE has cataloged several names with over 50 variants, with "Jacqueline" topping the list with over 90 variants (e.g. Jacquelyn, Jacquelin, Jacquelynn, Jacquline, Jacklin). ISDE continues to build its alias table as new name variants become available, assisting the State's probabilistic matching algorithm to return high-confidence linked records eligible for direct certification.

Montana – Advanced Probabilistic Record Linkage: The Montana Office of Public Instruction (OPI) linkage method uses a points-based probabilistic linkage method which utilizes a threshold-based classification to identify high-confidence "exact" matches, and a dataset of paired records which require further human adjudication to confirm accurate linkage. Within the linkage method OPI incorporates robust algorithm tools, including Levenshtein edit distance string metric, to increase the precision of its results. OPI is able to incorporate these algorithms due to the use of "pre-filter" or "blocking" (see call out box 5) which eliminates low-probability record pairings, and greatly reduces processing time. The heavy drain on processing resources is often a barrier for use of advanced algorithm tools. Additionally, OPI's nightly matching process links historically available match records and associated benefit program unique identifiers with newly available participant records, thereby further reducing the number of records in need of review. The advantages of the State's robust algorithms is an important component of its linkage method which is a primary contributor to the State's strong SY 2018-2019 SNAP-DC direct certification performance rate – 100%.

Box 5: Blocking

Use of preselection filter to reduce the number of needed comparisons of record pairs. Rejection (or selection) rules are commonly quickly computed calculations because all record pairs can be classified as a "non-match" through these simple requirements. For example, use of a single or short string of initial letters of a last name.

Texas – Accommodating for Data Quality Concerns in Deterministic Record Linkage: Initial matching efforts employed by the Texas Department of Agriculture (TDA) used a deterministic linkage method requiring an exact match on SSN, first name, last name, DOB, and gender.

While student and benefits data were considered to be very high quality (i.e. few spelling errors, fat finger errors, flipped DOB, etc.), the requirement of exact matches on *all* attributes resulted in an outcome allowing for minimal tolerance – and an unacceptable number of false negatives. In response, TDA improved the match algorithm by: (1) reducing the exact match requirement to four of five data attributes (from five of five data attributes); (2) using six passes through the data allowing for varying combinations of
"exact" match determinations; and (3) more thorough data cleansing. As a direct result of these methodology revisions TDA was able to further increase the advantages of access to a stable unique identifier (i.e. the SSN), and accommodate for unintended minor errors in other primary attributes. These improvements assisted in increasing the State's recall performance without eroding precision – allowing the State to directly certify 100% of eligible students.

Match Methodology Opportunities – A Look Forward

The TTA team continues to partner with States to provide assistance in improving direct certification linkage methods and gain knowledge of existing practices that have resulted in high-performing data matching systems. Some techniques and practices are in place in multiple States, while others have just begun to be employed or considered. A collection of these techniques and practices are presented below:

Blocking: Blocking (or pre-selection filtering) allows for the reduction of the number of record pairs that need comparing by bringing forward potentially linkable records. Identifying these linkable pairs is advantageous when using algorithms such as Jaro Winkler edit distance and Levenshtein edit distance as these calculations can be taxing on processing systems. This time and resource requirement is often a barrier to a State's use of these advanced methods. "Blocking" techniques mitigate this barrier by removing low-probability record pairings from the data set, allowing computing resources to be allocated to high-probability record pairings. It is important to remember that match methodologies should not limit linkage opportunities to record pairings which pass pre-selection filters as you may unintentionally remove potential matches. For example, requiring an exact match on the first three letters of the last name could result in a false negative if a typo existed. Rather, blocking should be used as a component of a matching strategy, and other iterations should be available which include other matching rules which would accommodate data errors which inappropriately removed records from the matching universe.

Data Cleansing: Student and benefit records employed in the direct certification match process often suffer from deficiencies such as inconsistencies, missing values, or "noisy data" (random errors far outside of the normal range of values such as a Date-of-Birth that would give an age of 110). These occurrences can impact the quality of data employed in the match process, and degrade a State's ability to successfully link students with their applicable benefits record. Therefore, preparing data for use is an important first step in the direct certification match process. Best practices employed in this preparation return "clean" or "sanitized" data sets – providing an environment favorable to a high recall, high precision match process. Noted best practices include the removal or "stripping" of special characters (e.g. hyphens, Jr, apostrophes); validation of birthdates (e.g. all entries conform to MM-DD-YYYY format); standardization of address format; and assurance of population of all critical data fields. States may also perform integrity checks to verify the "correctness" of attributes. For example, verifying whether the age calculated using the record's date-of-birth is within the possible age range for the grade; e.g., it is highly unlikely that a 15-year-old is in the first grade. Flagged items may be pulled for resolution to protect against a resulting false negative or false positive.

To further assist, some States incorporate data governance rules for the entry of source data. For example, the use of a student's name as presented on a birth certificate rather than a nickname. Although these rules are most likely established and under the authority of non-Child Nutrition Program areas (e.g. Student Data, Information Technology), it is highly beneficial for Child Nutrition staff to be knowledgeable of these governance standards, and encourage employment of these standards with their LEA partners to foster uniformity of data across data sets and assist data cleansing efforts.

Date-of-Birth Accommodations: The date-of-birth attribute often encounters data integrity issues due to data entry errors or simply lack of knowledge of the exact date of birth. Errors on this attribute most often result in

flipped date of birth (i.e. the date and month are in the "global" form); day of birth slightly off (e.g. parent/guardian believes birthday is the 2nd, and is actually the 3rd); and simple typos on entry. To address these errors, State agencies may incorporate rules which allow for flipped month-and-day, a day range in place of an exact date (e.g. +1/-1 from record date), and partial date-of-birth attribute fields (e.g. match on month and year only). State agencies are reminded that when making accommodations for variances in date-of-birth that strictness of other data attributes should be balanced to prevent against false positives.

Iterations: Most initial matching processes were limited to a single calculation to identify record pairings. This limitation prevented flexibility in determining similarity and usage of algorithmic tools. To combat these restrictions, States employ the use of multiple iterations or "passes." With multiple passes, States are able to incorporate varying calculations and algorithmic tools allowing for flexibility in accommodations for diminished data quality. This allows for more opportunities to link records and produce high-quality matches. Of importance, when employing multiple iteration protocols State agencies are encouraged to order calculations in a manner where the greatest number of matches are identified in the initial passes, and more extensive calculations are incorporated in later iterations as the numbers of pairs are reduced. This protocol ensures the least amount of processing time and resource requirements.

Nickname Tables: Many States and LEAs report two common scenarios that cause nicknames to appear in official records in place of the legal first name: (1) parents tell school registrars the nickname when asked for the first name; and (2) registrars enter the nickname even when they know the legal name so that staff will refer to the child by the name he/she is commonly called. These scenarios occur even when schools are required to examine birth certificates when entering data. SNAP agencies typically have tighter rules that require the name entered to match exactly with a Social Security Administration record as taken from a birth certificate. The entry of nicknames into student databases creates inconsistencies that disrupts data matching algorithms.

Nickname (Pseudonym) matching is a way to find similarities between the first names attribute in two records where other methods would not. It does this by using a supplemental lookup table containing common nicknames to determine similarity.

The methodology is useful because common nicknames most often derive from the full name itself. Both commercially and freely available lookup tables allow searching of common nickname derivatives in addition to the recorded name. With the use of one of these table, a match algorithm gains the ability to recognize a full legal first name such as "William" as a match with "Will", "Willy", "Bill", "Billy", etc. instead of only considering an exact name match. These tables should not be viewed as exhaustive since not all nicknames are common and derived from the full name. There is no set of rules or boundaries for nicknames to follow, and many have no relationship at all to a person's actual name. However, incorporated in a well-designed match process these tables can greatly assist State and LEAs identify direct certification-eligible children previously missed.

Phone Number: The use of a household's landline for the data attribute "telephone number" limits its use as a dependable primary attribute in matching efforts. This is because when a household moves they may receive a new phone number based upon their new location, resulting in dissimilar data across data sets. However, with the now common use of cell phones for this record field, this attribute can be used as a unique identifier. Specifically, cell phone numbers are portable, and moving from city to city no longer results in the need for a new telephone number. Therefore, the telephone number may be seen as a 10-digit code specific to an individual which remains stable across data sets and time – and if employed as a unique primary attribute can greatly assisting in high confidence matching.

State–Local Partnership: The TTA team strongly encourages State staff who are responsible for linkage method revisions to ensure an on-going collaboration with their LEA partners when reviewing the performance of the centralized match solution and any future revisions needed to enhance the process. Notably, LEA staff are closely familiar with occurrences of false negatives and false positives, and are able to provide valuable insight. To demonstrate the effectiveness of this practice, the Nebraska Department of Education employed the participation of eight Food Service Directors to review the effectiveness of the State's linkage method, as well the

features and functionality of the new system. The result of this partnership is a high-performing match process affording the State a 100% SNAP-direct certification performance rate since SY 2015-2016.

Appendix

Figure 4: Direct Certification Data Elements School Year 2013-2014 to School Year 2018-2019

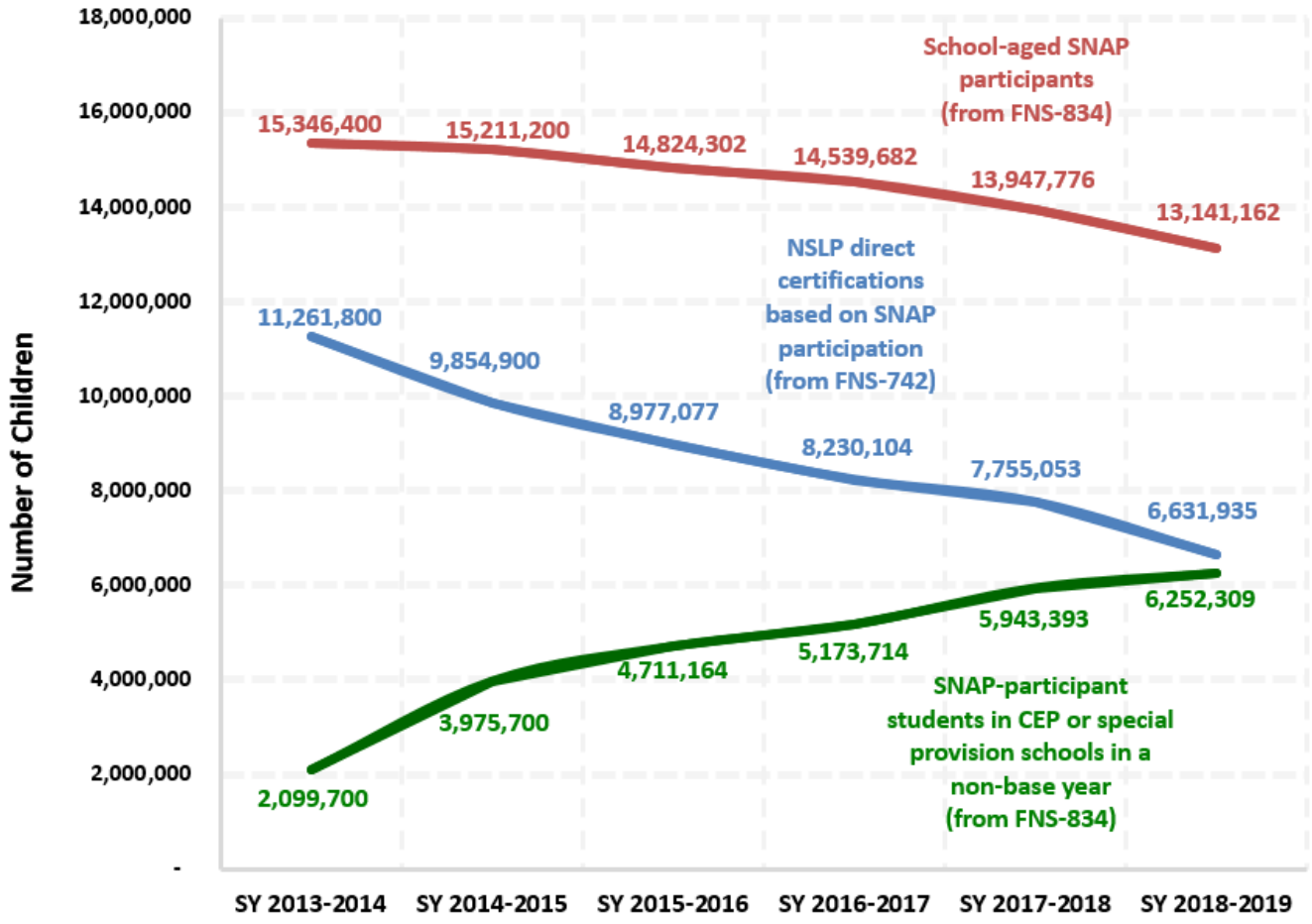


Figure 5: Direct Certification Rate State Maps School Year 2013-2014 to School Year 2018-2019

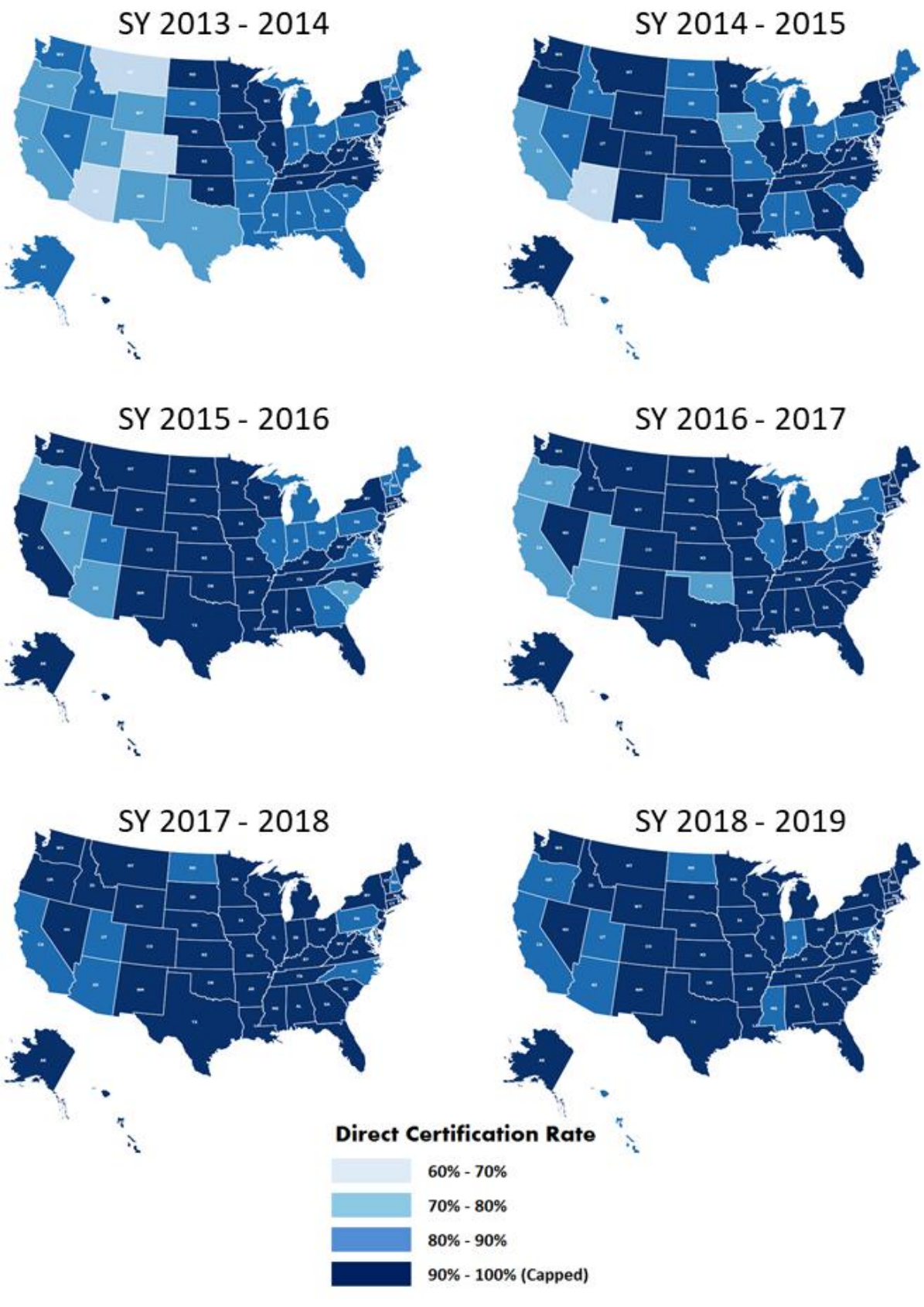


Table 1: Rate Inputs - SNAP Participation, Direct Certifications, and SNAP-Participant Students in CEP and Special Provision Schools in a Non-Base-Year, School Year 2017–2018 (thousands)

	School-age SNAP participants (from FNS-834)	NSLP direct certifications based on SNAP participation (from FNS-742)	SNAP-participant students in CEP or special provision schools in a non-base year (from FNS-834)
U.S. Total	13,948	7,755	5,943
Alabama	273	159	106
Alaska	30	17	18
Arizona	341	197	81
Arkansas	131	106	35
California	1,551	984	321
Colorado	164	145	20
Connecticut	110	56	50
Delaware	48	23	31
District of Columbia	29	3	30
Florida	991	800	460
Georgia	541	267	304
Guam	15	3	13
Hawaii	51	34	17
Idaho	60	46	13
Illinois	599	205	343
Indiana	246	164	63
Iowa	126	92	33
Kansas	84	71	11
Kentucky	206	36	170
Louisiana	294	71	219
Maine	50	33	14
Maryland	224	133	55
Massachusetts	200	93	153
Michigan	387	194	168
Minnesota	151	116	29
Mississippi	191	87	88
Missouri	257	172	76
Montana	37	22	13
Nebraska	64	62	4
Nevada	137	82	50
New Hampshire	27	23	0
New Jersey	267	197	83
New Mexico	156	46	109
New York	804	188	638
North Carolina	497	238	208
North Dakota	18	13	3
Ohio	439	226	203
Oklahoma	202	127	87
Oregon	148	95	55
Pennsylvania	523	210	256
Rhode Island	40	36	8
South Carolina	257	123	112
South Dakota	32	22	9
Tennessee	315	126	250
Texas	1,674	1,012	614
Utah	83	69	4
Vermont	19	11	6
Virginia	273	167	81
Washington	247	188	44
West Virginia	98	22	89
Wisconsin	229	135	98
Wyoming	11	10	1

Note: The U.S. total for each column might not equal the sum of the individual State values due to rounding.

Table 2: Rate Inputs - SNAP Participation, Direct Certifications, and SNAP-Participant Students in CEP and Special Provision Schools in a Non-Base-Year, School Year 2018–2019 (thousands)

	School-age SNAP participants (from FNS-834)	NSLP direct certifications based on SNAP participation (from FNS-742)	SNAP-participant students in CEP or special provision schools in a non-base year (from FNS-834)
U.S. Total	13,141	6,632	6,252
Alabama	260	150	105
Alaska	28	17	22
Arizona	314	174	86
Arkansas	124	99	21
California	1,446	632	628
Colorado	158	136	20
Connecticut	98	38	54
Delaware	47	17	32
District Of Columbia	29	4	28
Florida	963	564	364
Georgia	547	232	303
Guam	16	0	15
Hawaii	49	28	15
Idaho	56	42	11
Illinois	583	194	337
Indiana	227	126	67
Iowa	117	75	37
Kansas	78	67	11
Kentucky	197	32	171
Louisiana	294	76	265
Maine	48	32	20
Maryland	204	126	55
Massachusetts	199	93	106
Michigan	361	134	218
Minnesota	140	118	26
Mississippi	178	75	82
Missouri	247	164	78
Montana	34	22	12
Nebraska	64	68	3
Nevada	134	77	56
New Hampshire	24	26	0
New Jersey	250	194	86
New Mexico	149	43	104
New York	762	163	644
North Carolina	497	297	199
North Dakota	17	12	3
Ohio	396	212	209
Oklahoma	201	132	67
Oregon	159	88	52
Pennsylvania	509	209	273
Rhode Island	39	30	10
South Carolina	238	127	117
South Dakota	31	19	10
Tennessee	300	133	203
Texas	1,455	813	703
Utah	75	56	7
Vermont	16	11	5
Virginia	247	152	90
Washington	227	164	45
West Virginia	89	15	84
Wisconsin	209	118	91
Wyoming	10	9	1

Note: The U.S. total for each column might not equal the sum of the individual State values due to rounding.

Table 3. Calculated National and State Direct Certification Rates School Year 2017-2018 and School Year 2018-2019 (capped at 100 Percent)

	Direct Certification Rate SY 2017-2018	Direct Certification Rate SY 2018-2019
U.S. Total	98%	98%
Alabama	97%	98%
Alaska	100%	100%
Arizona	81%	83%
Arkansas	100%	97%
California	84%	87%
Colorado	100%	98%
Connecticut	96%	93%
Delaware	100%	100%
District of Columbia	100%	100%
Florida	100%	96%
Georgia	100%	98%
Guam	100%	95%
Hawaii	100%	87%
Idaho	98%	96%
Illinois	92%	91%
Indiana	92%	85%
Iowa	99%	95%
Kansas	99%	99%
Kentucky	100%	100%
Louisiana	99%	100%
Maine	94%	100%
Maryland	84%	89%
Massachusetts	100%	100%
Michigan	93%	97%
Minnesota	96%	100%
Mississippi	91%	88%
Missouri	96%	98%
Montana	94%	100%
Nebraska	100%	100%
Nevada	96%	100%
New Hampshire	87%	100%
New Jersey	100%	100%
New Mexico	99%	99%
New York	100%	100%
North Carolina	90%	100%
North Dakota	90%	87%
Ohio	98%	100%
Oklahoma	100%	99%
Oregon	100%	88%
Pennsylvania	89%	95%
Rhode Island	100%	100%
South Carolina	91%	100%
South Dakota	95%	95%
Tennessee	100%	100%
Texas	97%	100%
Utah	89%	84%
Vermont	90%	100%
Virginia	91%	98%
Washington	94%	92%
West Virginia	100%	100%
Wisconsin	100%	100%
Wyoming	100%	97%

For More Information:

Ranalli, Dennis, Templin, Joe, & Applebaum, Maggie, (2021). Direct Certification in the National School Lunch Program, State Implementation Progress Report to Congress, School Year 2017-2018 & School Year 2018-2019. Prepared by the U.S. Department of Agriculture, Food and Nutrition Service, Office of Policy Support and Child Nutrition Division, Alexandria, VA. Available online at: https://www.fns.usda.gov/usda-foods/state-origin-usda-foods