



DataSpring Provider Data Collective

Provider Data Quality Measurement

Standard for the Evaluation
of Individual Clinician Data in
Provider Directories

Version: 1.0

Last Updated: 10/13/2026



Version Log

Date		Version Summary
V1.0	10/13/2026	Version for publication. Contents determined through a neutral, consensus-based process by the Provider Data Collective.

CONTENTS

1 Introduction4

1.1 Problem Statement. 4

1.2 Solution 4

1.3 Approach..... 4

1.4 Scope..... 4

2 Navigating the Standard for the Measurement of
Provider Directory Quality for Individual Clinicians5

2.1 Standard Make-up and Sections 5

2.2 Conformance 5

3 Evaluation of Individual Clinician Data in Provider Directories6

3.1 Clinician Data. 6

3.2 Field and Form Level Evaluation 6

3.3 Field Level Evaluation 6

3.3.1 Field Level Calculation..... 7

3.3.2 Scoring Criteria for Field Level Evaluation 7

3.3.3 Treatment of Appointment Phone Number 8

3.3.4 Treatment of Incomplete Data (Completeness)..... 8

3.3.5 Treatment of Duplicated Records (Uniqueness)..... 8

3.3.6 Treatment of Virtual Care 8

3.3.7 Crosswalk to CMS Methodology 9

3.4 Form Level Evaluation..... 10

3.4.1 Form Level Calculation 10

3.5 Example Calculations 10

4 Representative Sampling and Cadence of Evaluations 11

4.1 Sampling Technique11

4.1.1 Sample Make-up11

4.1.2 Suppression of Clinicians11

4.2 Statistical Representation 12

4.2.1 Stratification 12

4.3 Frequency of Evaluation (Timeliness) 12

5 Verification	13
5.1 Mode of Verification	13
5.2 Call Guide	13
5.2.1 Secret Shopper Script	14
6 Additional Evaluation Components - Optional	15
6.1 Structural Validity	15
6.1.1 Level of Evaluation	15
6.1.2 Structural Validity Calculation	15
6.1.3 Structural Validity Rules	16
6.2 Structural Consistency	16
6.2.1 Level of Evaluation	16
6.2.2 Consistency Calculation	16
6.2.3 Structural Consistency Rules	16
6.3 Evaluation of Multiple Locations in a Clinician Record	17
6.4 Supplemental Measures and Scores	17

LIST OF TABLES

Table 1: Clinician Data Included in the Evaluation of Individual Clinician Data in Provider Directories	6
Table 2: Scoring Criteria for Field Level Evaluations	7
Table 3: Crosswalk to CMS Methodology	9
Table 4: Scenario Calculation	10
Table 5: Secret Shopper Call Guide	13
Table 6: Crosswalk from Direct Outreach / Secret Shopper Script to Deficiencies	14
Table 7: Clinician Data Element Form and Format	15

1 Introduction

1.1 Problem Statement

Low-quality provider data undermines the operation of the healthcare system and is consistently linked to higher administrative costs, longer clinician onboarding and credentialing timelines, delayed access to care, and unexpected financial burden for patients who unknowingly seek care from out-of-network or unavailable clinicians.

In a recent survey of clinician practices conducted by DataSpring, over one quarter of respondents indicated that they field more than 15 verification calls a month. Forty percent of those calls run longer than 15 minutes; that's a minimum of four hours of staff time lost every month. Among practices that say these calls affect operations, 82% report less time for patient care.¹

In a system already strained by fragmentation and administrative waste, unreliable clinician data compounds the problem. The current state is unsustainable, and coordinated action is required to address it.

1.2 Solution

Improving provider data quality starts with industry alignment on a single, consistent measurement approach. A shared framework enables apples-to-apples comparison of data quality across industry stakeholders and resources, and creates a common foundation needed to design, prioritize, and evaluate improvement efforts.

Sometimes operational realities and other such constraints require deviation from a common framework, when these occur, it is equally essential that changes are justified by consensus and that methodology are transparently reported. These steps help contextualize results and assist with interpretability and replicability.

1.3 Approach

DataSpring, powered by CAQH, convened the Provider Data Collective (PDC) – a multi-stakeholder body representing health plans, industry associations, and clinicians – to develop a common, implementable measurement standard for provider data quality. The Collective began convening in 2026, with an initial focus on the provider directory use case. The requirements that follow represent the PDC's consensus-based standard for industry adoption.

1.4 Scope

In scope: This standard defines the data elements, measurement criteria, sampling methodology, mode of verification, and optional data standardization criteria used to evaluate the quality of individual clinician data within provider directories. It applies to directories maintained by health plans and/or their business partners, and other organizations responsible for publishing provider directory information, whether online or in print. It includes all clinician specialties that are typically found in a provider directory.

Out of scope: This standard does not address facility-level, organizational, or ancillary provider data; a future version of this standard may extend coverage to those categories. Additionally, the standard excludes individual clinicians that are typically hospital-based, including, but not limited to hospitalists, pathologists, anesthesiologists, that patients would not typically directly book an appointment with.

¹ DataSpring Issue Brief. [Every Call is Time Patients Dont Get Back](#). Published: August 2026.

2 Navigating the Standard for the Measurement of Provider Directory Quality for Individual Clinicians

This section explains how the standard is organized and how its requirements should be interpreted. It provides an overview of the evaluation framework and defines the terms used to indicate whether a provision is required, recommended, prohibited, or optional.

2.1 Standard Make-up and Sections

This standard establishes a consistent framework for evaluating the quality of individual clinician information in provider directories. The framework defines what data elements are evaluated, how data quality is measured, and how evaluations are conducted.

The framework includes:

- **Evaluation of Individual Clinician Data in Provider Directories (Section 3):** Defines the clinician data elements included in the evaluation and the methodology used to assess quality.
- **Sampling and Evaluation Cadence (Section 4):** Defines how a sample is selected, the statistical rigor that must be applied, and how often evaluations are conducted.
- **Verification (Section 5):** Defines the mode and method that SHALL be used to verify the quality of individual clinician information in provider directories.
- **Additional Evaluation Criteria (Section 6):** Defines optional measures for evaluating structural validity, consistency, and other aspects of data quality

Together, these components provide a consistent approach for evaluating provider directory data quality, reporting the results, diagnosing where remediation is necessary, and setting the foundation for real quality improvements

2.2 Conformance

The following terms describe the level of obligation for each provision in this standard:

- **SHALL** means the requirement is mandatory for conformance
- **SHALL NOT** means the action is prohibited
- **SHOULD** means the practice is recommended and is generally expected to be followed. An alternative can be used when it is documented, justified, and achieves an equivalent outcome
- **SHOULD NOT** means the practice is generally discouraged. It can be used in limited circumstances when supported by documented justification
- **MAY** means the provision is optional

3 Evaluation of Individual Clinician Data in Provider Directories

High-quality provider directory data helps patients identify appropriate clinicians for their care needs and better understanding of their care options. This section establishes a consistent approach for evaluating that data by defining the clinician data elements and the field-level and form-level methods used to measure quality.

3.1 Clinician Data

The clinician data elements shown in Table 1 SHALL be used to evaluate the quality of individual clinician data in provider directories. These elements were selected because they directly affect how patients locate, select, and schedule care with a clinician. Additional consideration was paid to how inaccurate data may have unintended consequences for the clinician, such as reputational damage, financial risks, and operational disruptions.

 **Table 1** Clinician Data Included in the Evaluation of Individual Clinician Data in Provider Directories

Data Element	Description	Data Contents
1 Clinician Name	Clinician given names and surname	First Last name
2 Location Address	Physical address where patients are seen	Address Line 1 Address Line 2
3 Phone Number	Appointment phone number	Phone number
4 Accepting new patients	Accepting new patient status	Accepting patients Not accepting patients
5 Clinician specialty	Specialty represented to directory users	NUCC specialty
6 Health plan accepted	Participation in specified health plan network product	Health plan name at the program level (e.g. Medicare)
7 Practice name	Practice name as it appears at physical location	Practice name
8 Gender	Administrative gender	Male female other unknown

3.2 Field and Form Level Evaluation

Provider directory quality for individual clinicians SHALL be evaluated at two levels:

- **Field-level evaluation** assesses the accuracy of each individual data element identified in Section 3.1 and produces an aggregate score that reflects the overall quality of individual clinician records in a directory.
- **Form-level evaluation** assesses the proportion of clinician records within the directory that are entirely free of error, and a single identified deficiency renders the entire record deficient.

Used together, these two levels of measurement provide a complete picture of provider directory data quality — field-level scoring identifies where and how significant errors are, which allows for root cause discovery and targeted remediation. Form-level scoring reflects the patient's real-world experience of encountering an unreliable record.

3.3 Field Level Evaluation

Field-level evaluation SHALL use a weighted deficiency deduction method to assess the accuracy, completeness, and uniqueness of the data elements in a clinician record.

3.3.1 Field Level Calculation

When an evaluation is initiated, each included location in an individual clinician record SHALL have 100 available points. For each deficiency discovered, points SHALL be deducted up to a maximum of 100; a score cannot be less than 0. Deductions SHALL be calculated consistent with the schedule of deficiencies shown in **Table 2**.

Field-level results SHALL be aggregated across the evaluation sample and the accuracy score SHALL be calculated as:

$$\text{Accuracy Score (\%)} = (\text{Total Points Earned Across Sample} \div \text{Total Points Available Across Sample}) * 100$$

3.3.2 Scoring Criteria for Field Level Evaluation

Deficiencies SHALL be deducted according to the scoring criteria in **Table 2**. Each deficiency corresponds to a data element identified in **Section 3.1**.

Deficiency points are weighted by the likelihood that an error will negatively impact a patient's ability to seek or receive care and the opportunity for unintended negative consequences for a clinician. The greater that likelihood, the higher the weighted deduction.

For example, an incorrect phone number carries a higher weighted score than incorrect clinician name, because it is more likely to directly impede a patient's ability to access care or a clinician's to provide it.

 **Table 2** Scoring Criteria for Field Level Evaluations

Deficiency	Deduction	Associated Data Element	Deficient when
1 Clinician should not be listed at location	100 pts	Address	Clinician does not practice at location
2 Appointment phone number needs to be updated	100 pts	Phone number	Patients cannot schedule appointment at provided phone number OR number cannot connect after 3 attempts
3 Accepting New Patients (ANP) status incorrect	100 pts	Accepting new patients	ANP status is incorrect
4 Health plan type, at the health plan name and program level, not accepted at location	75 pts	Health plan accepted	Health plan is not accepted at location
5 Clinician specialty needs updating	75 pts	Specialty	Displayed specialty is incorrect
6 Street address needs update	60 pts	Address	Address Line 1 incorrect
7 Clinician gender needs update	10 pts	Gender	Displayed clinician gender is incorrect
8 Suite number needs update	5 pts	Address	Address Line 2 incorrect
9 Clinician name needs updating	5 pts	Clinician name	Clinician name is incorrect
10 Practice name needs updating	5 pts	Practice Name	Practice name is incorrect

3.3.2.1 Evaluating Deficiencies

Deficiencies SHALL be confirmed following the requirements outlined in **Section 5: Verification**.

3.3.3 Treatment of Appointment Phone Number

An appointment phone number is considered deficient if it cannot be used to make an appointment or the call cannot connect after 3 attempts. Implementers of this standard can use a tracking method of their choosing to log the number of attempts. For the purposes of deduction, failure to connect is defined as a disconnected or unreachable phone line. Unreachable phone lines include those that ring with no response.

The implementer SHALL remediate the disconnected or unreachable phone number using internal business processes not contemplated in this standard.

If a phone number connects to voicemail and allows a message to be left with the clinician that is trying to be reached, the clinician record SHALL be removed from the sample and replaced with another clinician record. This is because the number is valid (i.e. not disconnected or unreachable) but further evaluation cannot be completed at the time of call. The excluded record SHALL be evaluated through business processes not contemplated in this standard.

If the phone number connects to voicemail and allows a message to be left, but with a different clinician than is trying to be reached, the number SHALL be marked as deficient. This is consistent with the criteria that a phone number is deficient if it cannot be used to make an appointment with the clinician [MP1.1] of record.

3.3.3.1 Reachability Score

To track the impact of disconnected and unreachable phone numbers, implementers MAY calculate a reachability score, which represents the proportion of phone numbers that connected during outreach. The reachability score MAY be presented as a contextual score alongside the data quality score calculated in accordance with the methodologies in **Section 3**.

The reachability score SHALL be calculated as:

$$\text{Reachability \%} = (\text{Number of connected phone numbers} \div \text{Total phone numbers attempted}) * 100$$

3.3.4 Treatment of Incomplete Data (Completeness)

A data element that is blank, listed as “unknown,” or listed as “not available” SHALL be treated as inaccurate and assigned the corresponding deficiency deduction in Table 2.

If values for suite number and/or gender are intentionally incomplete, such as if a clinician’s location does not have suite number or gender is intentionally marked as ‘unknown’, the data field SHALL be considered complete and will not be treated as a deficiency for the purposes of scoring.

3.3.5 Treatment of Duplicated Records (Uniqueness)

A clinician record SHALL be considered duplicate when it shares identical values for clinician name, location address, phone number, specialty, and practice name with another record in the population. The duplicate record(s) SHALL automatically receive the maximum deficiency deduction available for that record.

The implementer SHALL choose which of the duplicate record(s) to assign the maximum deficiency deduction.

3.3.6 Treatment of Virtual Care

If in an implementer’s directory a clinician is listed as being virtual or telehealth-only at a location selected consistent with the requirements in **Section 4**, an implementer SHALL confirm that the location is accurate consistent with the verification methods in **Section 5** and the scoring criteria in **Table 2**. If accurate, street address and suite number SHALL not be evaluated due to the absence of a brick and mortar location. If inaccurate, street address and suite number SHALL be evaluated.

3.3.7 Crosswalk to CMS Methodology

Table 3 provides a crosswalk from each PDC deficiency to its counterpart under the Centers for Medicare & Medicaid Services (CMS) methodology for evaluating provider directory accuracy. Implementers MAY apply this crosswalk to produce both scores from a single evaluation. The crosswalk operates at the deficiency level. It does not convert a PDC score into a CMS score.

Table 3 Crosswalk to CMS Methodology

#	PDC Data Element	PDC Deficiency	PDC Deficiency Weight*	Mapping to CMS Deficiency	Mapping to CMS Deficiency Weight
1	Address	P1. Clinician should not be listed at location	100 pts	C1. Provider should not be listed at any of the directory-indicated locations	3
				C2. Provider should not be listed in the directory at this location	3
2	Phone Number	P2. Appointment phone number needs to be updated	100 pts	C3. Phone number needs to be updated	3
3	Accepting New Patients	P3. Accepting new patients incorrect	100 pts	C4. Provider is NOT accepting new patients	3
		NOTE: Map to CMS Deficiency C4 or C5, depending on outcome of call		C5. Provider IS accepting new patients	1
4	Health Plan Accepted	P4. Health plan type, specified at plan name and program level, not accepted at location	75 pts	N/A – not in CMS scoring	N/A – not in CMS scoring
5	Specialty	P5. Specialty needs updating	75 pts	C6. Specialty needs to be updated	1
6	Address	P6. Street address needs updating	60 pts	C7. Address needs to be updated	2
		P7. Suite address needs updating	5 pts	C8. Address (suite number) needs to be updated	1
7	Gender	P8. Clinician gender needs updating	10 pts	N/A – not in CMS scoring	N/A – not in CMS scoring
8	Clinician Name	P9. Clinician name needs updating	5 pts	C9. Provider name needs to be updated	0
9	Practice Name	P10. Practice name needs updating	5 pts	N/A – not in CMS scoring	N/A – not in CMS scoring

* PDC deficiency weights are assigned according to how much the error affects a patient's ability to get care.

3.4 Form Level Evaluation

Form level evaluations SHALL use the presence of any deficiency discovered during a field-level evaluation, including those weighted as 0 point deduction, to determine whether individual clinician records in a provider directory are free of errors.

3.4.1 Form Level Calculation

Like field-level calculations, records begin with 100 available points. When a defect is discovered, the clinician record SHALL have 100 points deducted. Form-level accuracy is calculated as follows:

$$\text{Form-Level Accuracy (\%)} = (\text{Total Points Earned Across Sample} \div \text{Total Points Available Across Sample}) \times 100$$

A record is considered defect-free only if no deficiency identified in Table 2 was found during field-level evaluation.

3.5 Example Calculations

Included below is an example of how field, form level and CMS-level evaluations would be calculated in an evaluation of provider data quality for individual clinicians included in provider directories. **Table 4** summarizes the results.

Scenario: A sample of 5 clinician records are randomly selected for evaluation. The findings are:

- Record 1: The clinician does not practice at the selected location.
- Record 2: The record is fully accurate, complete, and unique.
- Record 3: The record is fully accurate, complete, and unique.
- Record 4: Accepting New Patients indicator is incorrect (indicates yes, but no)
- Record 5: The clinician's suite number needs to be updated.

Table 4 Scenario Calculation

Method Applied	Point Allocation	Record 1	Record 2	Record 3	Record 4	Record 5	Total	Score
PDC Field Level	Available Points	100	100	100	100	100	500	59%
	Point Deduction	100	0	0	100	5	205	
	Points Earned	0	100	100	0	95	295	
PDC Form Level	Available Points	100	100	100	100	100	500	40%
	Points Deducted	100	0	0	100	100	300	
	Points Earned	0	100	100	0	0	200	
CMS Methodology	Available Points	3	3	3	3	3	15	53%
	Points deducted	3	0	0	3	1	7	
	Points Earned	0	3	3	0	2	8	

4 Representative Sampling and Cadence of Evaluations

A consistent sampling approach helps ensure that audits are representative of the clinician population included in a provider directory. This section defines how clinicians are selected for evaluation, how sample size and representation are determined, and how frequently evaluations must be conducted to support ongoing measurement of provider directory data quality.

4.1 Sampling Technique

Implementers SHALL employ random selection applied at the individual clinician and location level to construct a sample for the evaluation of provider directory data quality. Meaning the sample SHALL consist of at least one randomly selected location per every randomly selected individual clinician.

The sampling frame SHALL consist of the full population of contracted individual clinicians with whom patients are able to make advance appointments and are displayed in an implementer's online or print provider directories. The sample SHALL be made-up in accordance with the requirements specified in **Section 4.1.1.** and associated subsections.

When an implementer applies the optional structural validity requirements in **Section 6**, the applicable value sets and code systems identified in that section SHOULD be used to classify clinician types and specialties for sampling and stratification.

4.1.1 Sample Make-up

The sample SHALL be inclusive of the clinician types, specialties, and lines of business as described in Sections 4.1.1.1. – 4.1.1.3.

4.1.1.1 Clinician Types

The sample SHALL include all clinician types represented in the provider directory. Clinician type SHALL be defined at the professional credential level (e.g., M.D., D.O., N.P., P.A., etc.).

4.1.1.2 Specialties

The sample SHALL include all clinical specialties for individual clinicians displayed in an implementer's provider directory. For the purpose of constructing a representative sample, clinician specialty SHALL be defined at the specialty grouping level (e.g., Medical/Surgical, Behavioral Health, Dental, Vision, etc.).

Within the sample, individual, facility-based specialties SHALL NOT be included. This includes, but is not limited to clinicians such as radiologists, pathologists, anesthesiologists, and hospitalists, who would not typically be contacted by a patient for an advance appointment using a provider directory.

4.1.1.3 Lines of Business

The sample SHALL include all lines of business represented in the provider directory. Line of business SHALL be defined at the program level (e.g., commercial, Medicare Advantage, Medicaid managed care, marketplace/exchange, etc.).

4.1.2 Suppression of Clinicians

This standard SHALL NOT supersede any existing agreements to suppress a clinician from an evaluation sample.

4.2 Statistical Representation

The random sample size SHALL be statistically representative of the individual clinician population in the provider directory. Sample size SHALL be calculated using a 95% confidence level and a margin of error no greater than 5%, using the following formula:

$$n = \frac{Z^2 \cdot p(1 - p)}{e^2}$$

Where:

- $Z = 1.96$ (95% confidence)
- $p = 0.5$ (unless a documented prior estimate is used)
- $e = 0.05$ (5% margin of error)

For contracted clinician populations fewer than 50,000, implementers SHALL apply the finite population correction:

$$n_{adjusted} = \frac{n}{1 + \frac{n - 1}{N}}$$

Where N is the total contracted clinician population.

Implementers SHALL document:

- the population size (N)
- the calculated sample size
- the confidence level and margin of error used

4.2.1 Stratification

When determining a statistically representative sample size, implementers SHOULD stratify their sample by the requirements in Sections 4.1.1.1. – 4.1.1.3.

Implementers MAY further stratify by characteristics specific to their operations, such as but not limited to, geographic regions.

Implementers SHALL document whether stratification was applied in their sample.

4.3 Frequency of Evaluation (Timeliness)

Provider directory data may change over time. Accordingly, each evaluation represents the accuracy of the directory at the time the evaluation is conducted and may not capture changes that occur between evaluation periods.

Implementers SHALL conduct audits of provider data quality for individual clinicians in provider directories at least every 90 days (quarterly).

5 Verification

Verification establishes whether the clinician information displayed in a provider directory is accurate at the time of evaluation. Implementers SHALL verify the applicable data elements through direct outreach to the clinician's using the requirements in this section.

5.1 Mode of Verification

Implementers SHALL use announced or secret shopper direct outreach to verify the quality of individual clinician data in provider directories. Implementers SHOULD use a secret shopper method, as it represents an industry best practice and mimics patient experience. Under this approach, the evaluator contacts the clinician as a prospective patient and confirms the directory information needed to identify, locate, contact, and schedule with the clinician.

Because secret shopper and announced direct outreach can produce different results, implementers SHALL document the method of direct outreach used when performing an evaluation. This assists with transparency, replicability, and interpretability of results across contexts.

Implementers MAY simultaneously test other methods of verification, such as claims-level analysis, but they MAY NOT eschew direct outreach. If other modes of verification are employed, they SHALL be documented by the implementer.

5.2 Call Guide

Implementers MAY follow the call guide included in Table 5. This call guide is meant to structure the call, ensuring that each data element and associated schedule of deficiencies are evaluated. Implementers MAY use this as a framework and expand on or omit questions to match operational needs.

The call guide MAY be addressed in any order to match the conversation's flow. Best practice is to save 'terminator' questions — those that could reasonably end the call (e.g., a clinician not accepting new patients) — for after lower-deduction elements are covered, maximizing the information gathered.

 **Table 5** Secret Shopper Call Guide

Data Element	Question	Deficiency Deduction
Address	Should the clinician be listed as practicing at the location?	100 pts
Appointment Phone Number	Can a patient book an appointment at the provided phone number?	100 pts
Accepting New Patients	Is the clinician accepting new patients?	100 pts
Health Plan Accepted	Does the clinician accept the health plan?	75 pts
Clinician specialty	Is the clinician the specialty indicated in the directory?	75 pts
Address	Is the street address correct?	60 pts
	Is the suite number correct	5 pts
Clinician gender	Is the clinician's gender correct in the directory?	10 pts
Clinician name	Is the clinician's name correct?	5 pts
Practice name	Is the practice name correct?	5 pts

5.2.1 Secret Shopper Script

If secret shopper outreach is used, implementers MAY choose to follow the standardized script below to facilitate the call.

The script provides a consistent approach for verifying individual clinician data directly with the clinician's practice. Changes to the wording MAY be made to support a natural conversation, provided that all applicable deficiencies are evaluated.

"Hi, I am trying to schedule an appointment, but I wanted to check on a few things first – do you have a quick minute?"

1. Great, I'm looking for [Clinician Name] at [Practice Name], located at [Address] – is that the correct name, practice and address?
2. Do they accept [Health Plan] at this location?
3. Is [he/she/they] currently [Accepting new patients]?
4. Is this the [Phone Number] I'd call to schedule?
5. Are they a [Specialty] or something else?

That's everything I needed – thank you for your help!

5.2.1.1 Crosswalk of Script to Deficiency Evaluation

Each question in the standardized script is used to evaluate one or more deficiencies identified in Table 2.

Table 6 shows the relationship between the script questions, the data elements verified, and the applicable deductions.

When a response indicates that directory information may be inaccurate, the evaluator SHALL document the information provided by the practice and determine the applicable deficiency.

 **Table 6** Crosswalk from Direct Outreach / Secret Shopper Script to Deficiencies

Script Line	Deficiency	Deduction
1	Clinician should not be listed at location	100 pts
	Address Line 1 needs update	60 pts
	Address Line 2 needs update	5 pts
	Clinician Name Incorrect	5 pts
	Practice Name Incorrect	5 pts
2	Health plan type, at the name and program level, not accepted at location	75 pts
3	ANP Incorrect	100 pts
	Gender needs update	10 pts
4	Appointment phone numbers needs to be updated	100 pts
5	Clinician specialty needs update	75 pts

6 Additional Evaluation Components - Optional

The quality of individual clinician data in provider directories encompasses more than just accuracy, completeness, uniqueness, and timeliness. It also considers whether data follows expected formats when it is shared and/or displayed and is aligned across the systems in which it appears, and remains accurate across multiple locations associated with the same clinician.

- Structural validity evaluates conformance with defined formats, value sets, or code systems used in the exchange and display of data.
- Structural consistency evaluates alignment of the same data across different systems or sources.
- Evaluation of multiple locations provides implementers the option to assess provider directory data quality across more than one randomly selected location per clinician record.

The requirements in this section describe OPTIONAL methods for conducting these evaluations.

6.1 Structural Validity

Implementers MAY evaluate provider data records for structural validity — that is, whether each data element conforms to a standardized format. Structural validity evaluation MAY be applied to the data elements identified in Section 3.1, using the expected data structures shown in Table 7. Consistent with Section 6.3, implementers MAY use other data structures than what is indicated in Table 7 to assess structural validity.

The value sets included in Table 7, however, are recommended based on their inclusion in an existing industry-defined resource, the HL7 Da Vinci PDEX Plan Net Implementation Guide. The implementation guide represents industry consensus and has a regulatory basis for adoption.²

 **Table 7** Clinician Data Element Form and Format

Data Element	Data Contents	Data Structure / Format
Clinician Name	First Last name	String
Location Address	Address Line 1 Address Line 2	String
Phone Number	Phone number	String
Accepting new patients	Accepting patients Not accepting patients	Accepting Patients Codes VS
Clinician specialty	NUCC specialty	Specialty VS
Health plan accepted	Health plan name	String
Practice name	Practice name	String
Gender	Male female other unknown	Gender VS

6.1.1 Level of Evaluation

Structural validity MAY be calculated at the record level.

6.1.2 Structural Validity Calculation

The structural validity score reflects the percentage of evaluated data elements that meet the applicable validity rules.

Structural validity SHALL be calculated as:

$$\text{Structural Validity Score (\%)} = (\text{Number of Data Elements Passing Validity Rules} \div \text{Total Number of Data Elements Evaluated}) \times 100$$

² Strongly recommended for adoption in the CME-0057 Final Rule and included as a requirement for adoption in the CMS-0062 Proposed Rule.

6.1.3 Structural Validity Rules

Validation rules establish how each data element is assessed for conformance with the expected format, value set, or code system.

Implementers MAY document the specific validation rules applied to each data element (e.g., regular expression patterns, permitted value sets, required field formats) and MAY report these rules alongside the structural validity score.

6.2 Structural Consistency

Implementers MAY evaluate provider data records for structural consistency — that is, whether data elements are concordant across the different systems and sources in which they appear (for example, comparing how a clinician's information appears in a public-facing provider directory versus in a credentialing or claims system). Structural consistency evaluation MAY be applied to the data elements identified in Section 3.1, using the data structures shown in Table 4.

6.2.1 Level of Evaluation

Structural consistency MAY be calculated at the **record** level. Each evaluation of structural consistency SHALL be limited to the comparison of two sources.

The implementer MAY choose which source is authoritative to support the facilitation of updates.

The evaluation MAY be completed multiple times to facilitate comparison across two or more additional sources.

6.2.2 Consistency Calculation

The consistency score reflects the percentage of evaluated data elements that are concordant across the two sources being compared.

Structural consistency SHALL be calculated as:

$$\text{Consistency Score (\%)} = (\text{Number of Data Elements Concordant Across Sources} \div \text{Total Number of Data Elements Evaluated}) \times 100$$

6.2.3 Structural Consistency Rules

Consistency rules establish how data elements are compared and when they are considered concordant across sources.

Implementers MAY document the rules used to determine concordance between sources (e.g., exact match, normalized match, fuzzy match thresholds) and SHALL report these rules alongside the structural consistency score.

6.3 Evaluation of Multiple Locations in a Clinician Record

Consistent with the requirements in Section 4.1, an implementer MAY evaluate more than one location per clinician record, up to three locations. Each location evaluated SHALL follow the calculation methodology outlined in Section 3.3.1, with results aggregated into the clinician record's overall sample accuracy score.

For example, a clinician with three evaluated locations would have an available point total of 300. Deductions would be recorded for each deficiency found at each independently selected location, and total deductions would not exceed 300 points. Both the total available points and total earned points for that clinician record would be included in the aggregate calculation of accuracy for the sample.

If an implementer evaluates more than one record per randomly selected clinician, this decision must be transparently documented to contextualize results and increase the opportunity for replicability.

6.4 Supplemental Measures and Scores

Supplemental measures and scores may provide additional insight based on an implementer's specific operational or reporting needs.

An implementer MAY calculate and report additional measures, including proprietary scores. Any supplemental measure or score MAY be clearly identified as separate from the measures required by this standard and MAY NOT replace, modify, or affect required reporting outputs.