

MRF Quality Report

s3://talon-storage-private/mrf-feed-uploads/2026-03/2026-03-02_EverPointeElite_in-network_rates.json
Size: 172.27 MB • MD5: a587bb53fc07e353bf66eba7b3c81b14

Payer: **Trilogy Health Solutions** • File Date: **2026-03-02** • Generated: **2026-04-23 23:27 EDT** • Tool Version: **1.0.0** • Elapsed: **48.10s**

65.0

Limited Reliability

score capped at 65.0 — CMS official schema validation failed (see meta for details)

Errors: 2 • Warnings: 6 • Info: 3

TOC Plan References

TOC: s3://talon-storage-private/mrf-feed-uploads/2026-03/2026-03_plan_ref_a665f7780970c54f9b476cdfc31cffcf_index.json • Talon

Canonical: s3://talon-storage-private/mrf-feed-uploads/2026-03/2026-03-02_EverPointeElite_in-network_rates.json

| Plan Name | Plan ID | Issuer / Sponsor | Market |
|------------------|--------------------|------------------|--------|
| EVERPOINTE ELITE | 123456789 (custom) | — | — |

CMS Official Schema Validation

FAILED (exit code 1) — File does not conform to the CMS schema.

Validator output (truncated at 200 lines):

```
warn Schema version v2.1.0 was provided, but file indicates it conforms to schema version 2.1.0. v2.1.0
will be used.
info Running validator container...
info Input JSON is invalid.
Invalid schema: #
Invalid keyword: errors
Invalid code: -1
Invalid message: One or more validation errors have occurred
Invalid document: #
Error report:
{
  "oneOf": [
    {
      "errors": [
        {
          "pattern": {
            "actual": "59",
            "errorCode": 8,
            "instanceRef": "#/in_network/343/negotiated_rates/2/negotiated_prices/0/
service_code/23",
            "schemaRef": "#/definitions/negotiated_price/properties/service_code/oneOf/0/items"
          }
        },
        {
          "pattern": {
            "actual": "01",
            "errorCode": 8,
            "instanceRef": "#/in_network/343/negotiated_rates/2/negotiated_prices/0/
service_code/0",
            "schemaRef": "#/definitions/negotiated_price/properties/service_code/oneOf/1/items"
          }
        }
      ],
      "errorCode": 21,
      "instanceRef": "#/in_network/343/negotiated_rates/2/negotiated_prices/0/service_code",
      "schemaRef": "#/definitions/negotiated_price/properties/service_code"
    },
    {
      "errors": [
        {
          "pattern": {
            "actual": "59",
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            "schemaRef": "#/definitions/negotiated_price/properties/service_code/oneOf/0/items"
          }
        },
        {
          "pattern": {
            "actual": "01",
            "errorCode": 8,
            "instanceRef": "#/in_network/343/negotiated_rates/4/negotiated_prices/0/
service_code/0",
            "schemaRef": "#/definitions/negotiated_price/properties/service_code/oneOf/1/items"
          }
        }
      ]
    }
  ]
}
```

```

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  },
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    "schemaRef": "#/definitions/negotiated_price/properties/service_code"
},
{
    "errors": [
        {
            "pattern": {
                "actual": "59",

```

... (truncated)

Dimension Scores

| Dimension | Score | Weight | Findings |
|------------------|-------|--------|----------|
| Schema Integrity | 70.0 | 30% | 3 |
| Provider Mapping | 100.0 | 15% | 1 |
| Code Coverage | 98.4 | 15% | 1 |
| Pricing Sanity | 68.4 | 40% | 6 |

Schema Integrity — Findings

Score: 70.0

WARNING `file_freshness`

File is 52 days old (`last_updated_on` exceeds the 45-day threshold)

WARNING `expired_prices`

610 `negotiated_prices` have past expiration dates (0.2%)

ERROR `cms_schema_validation`

CMS official schema validator FAILED (exit code 1). File does not conform to the TIC in-network-rates schema.

Provider Mapping — Findings

Score: 100.0

INFO `duplicate_npis`

2101 NPIs appear in more than one provider group

Code Coverage — Findings

Score: 98.4

WARNING `billing_code_format`

455 CPT codes do not match expected format

Pricing Sanity — Findings

Score: 68.4

INFO per_diem_rates

34 per-diem rates (0.0%) — not dollar amounts; excluded from spread analysis

INFO percentage_rates

131 percentage rates (0.0%) — values represent % of a reference rate, not dollar amounts; excluded from spread analysis

ERROR zero_rates

1308 zero-dollar rates (0.43%) — CMS schema requires negotiated_rate > 0 (exclusiveMinimum)

WARNING rate_spread_by_class

billing_class='professional' / negotiated_type='fee schedule': P95/P50 spread is 10.9x (threshold: 5x, N=235,379 (1,000 sampled), high confidence)

WARNING rate_spread_by_class

billing_class='institutional' / negotiated_type='fee schedule': P95/P50 spread is 35.7x (threshold: 10x, N=69,465 (1,000 sampled), high confidence)

WARNING per_code_rate_spread

3406 rate contexts have a max/min ratio exceeding the type-specific threshold (20x professional / 50x facility, min 3 occurrences required). Each context is a unique combination of all 10 rate-key dimensions. n= shows how many distinct provider rates exist for that exact context.

| Code | Code Type | Neg. Type | Billing Class | Arrangement | Setting | Min | Median | Mean | Max | Ratio | n |
|-------|-----------|--------------|---------------|-------------|------------|--------|-----------|-----------|-----------|---------|---|
| 91110 | CPT | fee schedule | institutional | ffs | both | \$0.47 | \$963.86 | \$1143.62 | \$2466.52 | 5247.9x | 3 |
| 20697 | CPT | fee schedule | institutional | ffs | both | \$1.41 | \$2239.00 | \$2718.86 | \$6760.94 | 4795.0x | 5 |
| 91111 | CPT | fee schedule | institutional | ffs | both | \$0.47 | \$1280.60 | \$1165.04 | \$2214.04 | 4710.7x | 3 |
| 93243 | CPT | fee schedule | institutional | ffs | both | \$0.47 | \$344.94 | \$731.80 | \$1850.00 | 3936.2x | 3 |
| 93247 | CPT | fee schedule | institutional | ffs | both | \$0.47 | \$356.69 | \$735.72 | \$1850.00 | 3936.2x | 3 |
| 91112 | CPT | fee schedule | institutional | ffs | both | \$0.94 | \$2332.34 | \$1805.24 | \$3082.43 | 3279.2x | 3 |
| J3520 | HCPCS | fee schedule | professional | ffs | outpatient | \$0.64 | \$1736.04 | \$1259.69 | \$2042.40 | 3191.2x | 3 |
| 36591 | CPT | fee schedule | institutional | ffs | both | \$0.47 | \$75.27 | \$520.59 | \$1343.00 | 2857.4x | 5 |
| 36592 | CPT | fee schedule | institutional | ffs | both | \$0.47 | \$84.32 | \$523.25 | \$1343.00 | 2857.4x | 5 |
| 69209 | CPT | fee schedule | institutional | ffs | both | \$0.47 | \$40.16 | \$509.72 | \$1343.00 | 2857.4x | 5 |

Recommended Actions

1. **schema** cms_schema_validation

P1

CMS official schema validator FAILED (exit code 1). File does not conform to the TIC in-network-rates schema.

2. **pricing** zero_rates

P1

1308 zero-dollar rates (0.43%) — CMS schema requires negotiated_rate > 0 (exclusiveMinimum)

3. **pricing** rate_spread_by_class

P2

billing_class='professional' / negotiated_type='fee schedule': P95/P50 spread is 10.9x (threshold: 5x, N=235,379 (1,000 sampled), high confidence)

4. **pricing** rate_spread_by_class

P2

billing_class='institutional' / negotiated_type='fee schedule': P95/P50 spread is 35.7x (threshold: 10x, N=69,465 (1,000 sampled), high confidence)

5. **pricing** per_code_rate_spread

P2

3406 rate contexts have a max/min ratio exceeding the type-specific threshold (20x professional / 50x facility, min 3 occurrences required). Each context is a unique combination of all 10 rate-key dimensions. n= shows how many distinct provider rates exist for that exact context.

6. **schema** file_freshness

P2

File is 52 days old (last_updated_on exceeds the 45-day threshold)

7. **schema** expired_prices

P2

610 negotiated_prices have past expiration dates (0.2%)

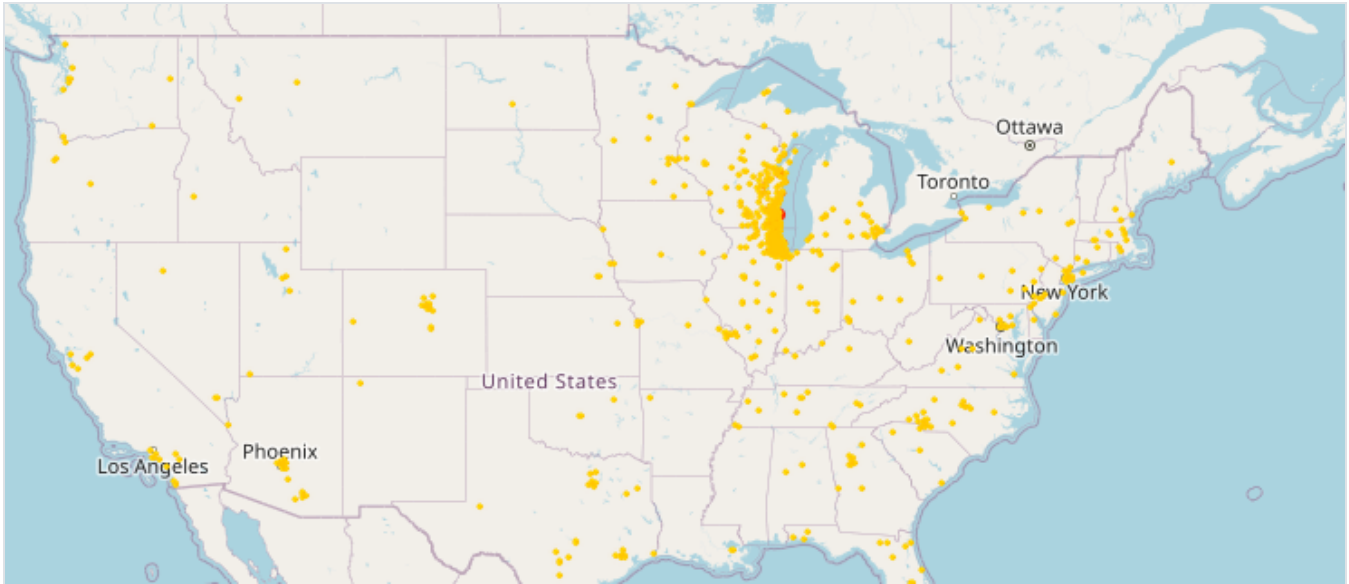
8. **code_coverage** billing_code_format

P3

455 CPT codes do not match expected format

Provider Geographic Coverage

12359 unique NPIs found — 12356 geocoded (100%) — 814 zip codes represented.



Schema Integrity — Metrics

| | | |
|--------------------------------|--------|-------|
| header_missing_fields | | |
| header_conditional_issues | | |
| file_age_days | 52 | |
| items_total | 13996 | |
| items_missing_required_pct | 0.0 | |
| items_empty_rates | 0 | |
| prices_total | 305009 | |
| prices_missing_required_pct | 0.0 | |
| prices_missing_field_breakdown | | |
| prices_missing_service_code | 0 | |
| prices_invalid_billing_class | 0 | |
| rates_without_providers | 0 | |
| negotiation_arrangements | ffs | 13996 |

| | | |
|---------------------------|----------|------|
| billing_code_types | CPT | 9557 |
| | CSTM-ALL | 1 |
| | HCPCS | 3601 |
| | MS-DRG | 725 |
| | RC | 112 |
| expired_prices | 610 | |
| invalid_expiration_format | 0 | |

Provider Mapping — Metrics

| | |
|-------------------------------|-------|
| provider_references_in_file | 92 |
| provider_group_ids_referenced | 92 |
| unresolved_references | 0 |
| resolution_rate_pct | 100.0 |
| npis_validated | 15676 |
| invalid_npi_count | 0 |
| invalid_npi_examples | |
| eins_validated | 176 |
| invalid_ein_count | 0 |
| invalid_ein_examples | |
| empty_npi_groups | 0 |
| groups_without_tin | 0 |
| npis_in_multiple_groups | 2101 |

Code Coverage — Metrics

| | |
|--------------------|-------|
| unique_codes_total | 13996 |
| duplicate_codes | 0 |
| duplicate_pct | 0.0 |

| | | | |
|------------------------|----------------------|-------------|--------------------|
| by_code_type | CPT | 9557 | |
| | CSTM-ALL | 1 | |
| | HCPCS | 3601 | |
| | MS-DRG | 725 | |
| | RC | 112 | |
| unknown_code_types | | | |
| format_invalid_by_type | CPT | 455 | |
| codes_not_in_reference | reference_not_loaded | | |
| most_frequent_codes | Type | Code | Occurrences |
| | CPT | 0001U | 1 |
| | CPT | 0002M | 1 |
| | CPT | 0002U | 1 |
| | CPT | 0003M | 1 |
| | CPT | 0003U | 1 |
| | CPT | 0004M | 1 |
| | CPT | 0005U | 1 |
| | CPT | 0006M | 1 |
| | CPT | 0007M | 1 |
| | CPT | 0007U | 1 |
| | CPT | 0008U | 1 |
| | CPT | 0009U | 1 |
| | CPT | 0010U | 1 |
| | CPT | 0011M | 1 |
| | CPT | 0011U | 1 |
| | CPT | 0012M | 1 |
| | CPT | 0012U | 1 |
| | CPT | 0013M | 1 |
| | CPT | 0013U | 1 |
| CPT | 0014U | 1 | |

Pricing Sanity — Metrics

| | |
|----------------------|--------|
| total_prices_checked | 305009 |
| total_rates | 304844 |
| per_diem_rates | 34 |
| percentage_rates | 131 |

| negative_rates | 0 | | | | | | | | | | | | | | | | | | | | | |
|----------------------------------|--|-------------------------|--------|-------------------------------|---------|-----------------|------|-----------------------|-------------------------------|-----------------------------|--------|-------------------------|---------|----------------------------------|-----------|--------------------------------|--------------------|--------------------------------|---------|--------|---------|------|
| zero_rates | 1308 | | | | | | | | | | | | | | | | | | | | | |
| extreme_high_rates | 163 | | | | | | | | | | | | | | | | | | | | | |
| extreme_low_rates | 0 | | | | | | | | | | | | | | | | | | | | | |
| rate_distribution | <table border="1"> <tr> <td>sample_n</td> <td>304844</td> </tr> <tr> <td>sample_k</td> <td>5000</td> </tr> <tr> <td>confidence</td> <td>high</td> </tr> <tr> <td>p5</td> <td>7.7890000000000001</td> </tr> <tr> <td>p25</td> <td>73.295</td> </tr> <tr> <td>p50</td> <td>359.875</td> </tr> <tr> <td>p75</td> <td>1365.2125</td> </tr> <tr> <td>p95</td> <td>6817.4485000000003</td> </tr> <tr> <td>p99</td> <td>20147.0</td> </tr> </table> | sample_n | 304844 | sample_k | 5000 | confidence | high | p5 | 7.7890000000000001 | p25 | 73.295 | p50 | 359.875 | p75 | 1365.2125 | p95 | 6817.4485000000003 | p99 | 20147.0 | | | |
| sample_n | 304844 | | | | | | | | | | | | | | | | | | | | | |
| sample_k | 5000 | | | | | | | | | | | | | | | | | | | | | |
| confidence | high | | | | | | | | | | | | | | | | | | | | | |
| p5 | 7.7890000000000001 | | | | | | | | | | | | | | | | | | | | | |
| p25 | 73.295 | | | | | | | | | | | | | | | | | | | | | |
| p50 | 359.875 | | | | | | | | | | | | | | | | | | | | | |
| p75 | 1365.2125 | | | | | | | | | | | | | | | | | | | | | |
| p95 | 6817.4485000000003 | | | | | | | | | | | | | | | | | | | | | |
| p99 | 20147.0 | | | | | | | | | | | | | | | | | | | | | |
| by_billing_class | <table border="1"> <thead> <tr> <th>Class / Type</th> <th>Count</th> <th>Median</th> <th>p25</th> <th>p75</th> <th>p95</th> <th>Confidence</th> </tr> </thead> <tbody> <tr> <td>professional/ fee schedule</td> <td>235,379</td> <td>324.6</td> <td>66.0</td> <td>1175.9</td> <td>3539.6</td> <td>high</td> </tr> <tr> <td>institutional/ fee schedule</td> <td>69,465</td> <td>497.2</td> <td>78.8</td> <td>2693.6</td> <td>17769.0</td> <td>high</td> </tr> </tbody> </table> | Class / Type | Count | Median | p25 | p75 | p95 | Confidence | professional/ fee schedule | 235,379 | 324.6 | 66.0 | 1175.9 | 3539.6 | high | institutional/ fee schedule | 69,465 | 497.2 | 78.8 | 2693.6 | 17769.0 | high |
| Class / Type | Count | Median | p25 | p75 | p95 | Confidence | | | | | | | | | | | | | | | | |
| professional/ fee schedule | 235,379 | 324.6 | 66.0 | 1175.9 | 3539.6 | high | | | | | | | | | | | | | | | | |
| institutional/ fee schedule | 69,465 | 497.2 | 78.8 | 2693.6 | 17769.0 | high | | | | | | | | | | | | | | | | |
| negotiated_types | <table border="1"> <tr> <td>fee schedule</td> <td>304844</td> </tr> </table> | fee schedule | 304844 | | | | | | | | | | | | | | | | | | | |
| fee schedule | 304844 | | | | | | | | | | | | | | | | | | | | | |
| unique_rate_contexts | 595614 | | | | | | | | | | | | | | | | | | | | | |
| rate_key_dimension_validity | <table border="1"> <tr> <td>invalid_negotiated_type</td> <td>0</td> </tr> <tr> <td>invalid_negotiated_types_seen</td> <td>{}</td> </tr> <tr> <td>invalid_setting</td> <td>0</td> </tr> <tr> <td>invalid_settings_seen</td> <td>{}</td> </tr> <tr> <td>invalid_severity_of_illness</td> <td>0</td> </tr> <tr> <td>severity_on_non_apr_drg</td> <td>0</td> </tr> <tr> <td>institutional_with_service_codes</td> <td>0</td> </tr> <tr> <td>invalid_service_code_format</td> <td>0</td> </tr> <tr> <td>billing_code_modifier_too_long</td> <td>0</td> </tr> </table> | invalid_negotiated_type | 0 | invalid_negotiated_types_seen | {} | invalid_setting | 0 | invalid_settings_seen | {} | invalid_severity_of_illness | 0 | severity_on_non_apr_drg | 0 | institutional_with_service_codes | 0 | invalid_service_code_format | 0 | billing_code_modifier_too_long | 0 | | | |
| invalid_negotiated_type | 0 | | | | | | | | | | | | | | | | | | | | | |
| invalid_negotiated_types_seen | {} | | | | | | | | | | | | | | | | | | | | | |
| invalid_setting | 0 | | | | | | | | | | | | | | | | | | | | | |
| invalid_settings_seen | {} | | | | | | | | | | | | | | | | | | | | | |
| invalid_severity_of_illness | 0 | | | | | | | | | | | | | | | | | | | | | |
| severity_on_non_apr_drg | 0 | | | | | | | | | | | | | | | | | | | | | |
| institutional_with_service_codes | 0 | | | | | | | | | | | | | | | | | | | | | |
| invalid_service_code_format | 0 | | | | | | | | | | | | | | | | | | | | | |
| billing_code_modifier_too_long | 0 | | | | | | | | | | | | | | | | | | | | | |

Scoring Methodology

Embedded in this report at generation time.

Overall Score

Weighted sum of four structural dimensions, normalized to a 0–100 scale.

| Normalized Weights | | |
|--------------------|------------------|-----|
| | Schema Integrity | 30% |
| | Provider Mapping | 15% |
| | Code Coverage | 15% |
| | Pricing Sanity | 40% |

| Confidence Bands | | |
|------------------|---------------------|-----|
| | High | ≥90 |
| | Usable With Caution | ≥75 |
| | Limited Reliability | ≥60 |
| | Not Usable | <60 |

| Score Caps | | |
|------------|---|---|
| | Raw Json Errors Only → 74.0 | Native JSON syntax errors in the unpatched source file. File must be re-exported by the payer; scoring reflects auto-patched data only. |
| | Cms Validation Failure Only → 65.0 | CMS official schema validator reports the file does not conform to the TIC spec. |
| | Both Raw Json Errors And Cms Failure → 59.0 | Both native JSON syntax errors and CMS schema validation failure present. |

Rate Context Key — 14-Tuple Field Coverage

Every rate in a CMS TIC MRF file is described by a 14-field tuple. Fields 1–10 form the rate-context key used to group and compare rates across the system. Fields 11–12 (provider, expiration date) are validated separately and excluded from the grouping key for analytical reasons. Each of the four scoring dimensions validates a distinct slice of this tuple — together they cover all 14 fields.

| Field | Validated by |
|-----------------------------|--|
| 1 billing_code_type | Schema (required field) + Code Coverage (enum + format validation) |
| 2 billing_code_type_version | Schema (required field) |
| 3 billing_code | Schema (required field) + Code Coverage (format, duplicates, reference lookup) |
| 4 billing_code_modifier | Pricing (modifier length, key normalization) |
| 5 service_code | Pricing (POS format, normalization, institutional-class check) |
| 6 negotiated_type | Pricing (CMS TIC enum validation) |
| 7 billing_class | Schema (CMS TIC enum validation) + Pricing (spread thresholds) |
| 8 negotiation_arrangement | Schema (CMS TIC enum validation) + Pricing (FFS vs bundle/capitation gating) |
| 9 severity_of_illness | Pricing (APR-DRG only, valid values 1–4) |

| Field | Validated by |
|-----------------------------|---|
| 10 setting | Pricing (CMS TIC enum validation) |
| 11 provider (NPI/EIN) | Provider Mapping (Luhn checksum, IRS prefix, group resolution) — excluded from grouping key |
| 12 expiration_date | Schema (date validity, far-future sanity) — excluded from grouping key |
| 13 additional_generic_notes | not validated (free-text) |
| 14 negotiated_rate | Pricing (negative/zero/extreme-value checks, spread analysis) |

- Fields 1–10 are the grouping key. Each unique combination is a distinct rate context — rates with different modifiers, POS codes, or arrangements land in separate buckets and are never compared against each other.
- Provider (field 11) is excluded from the key: the spread check is cross-provider by design. Partitioning by provider produces singleton buckets and eliminates the spread signal.
- Expiration date (field 12) is excluded because it is a contract lifecycle attribute, not a clinical context. Rates for the same service should be comparable regardless of when they expire.
- service_code (field 5) arrays are flattened and normalized before keying: '1' → '01', and a rate with ['11','22'] contributes to both the '11' and '22' buckets so rates are compared apples-to-apples by place of service.

Schema Integrity

Validates required fields, enum values, conditional requirements, and date validity per the CMS TIC in-network-rates schema. Also checks file freshness and expiration date sanity.

Method: Penalty-based deductions from 100, capped per category.

| | |
|-----------------------------------|---------------|
| per_missing_required_header_field | 5 |
| per_header_conditional_issue | 2 |
| freshness_warn | 5 |
| freshness_error | 10 |
| item_missing_fields_pct | ×5 (cap 30) |
| empty_rates_pct | ×0.5 (cap 5) |
| price_missing_fields_pct | ×10 (cap 30) |
| rates_without_providers_rate | ×200 (cap 20) |
| expired_prices_pct | ×0.5 (cap 5) |
| file freshness warn days | 45 |
| file freshness error days | 90 |
| expiry far future years | 3 |

Provider Mapping

Verifies that all provider_group_id references in in_network items resolve to an entry in the provider_references array. Validates NPI integrity via Luhn checksum and EIN integrity via IRS-issued 2-digit prefix.

Method: Weighted component sum (not purely penalty-based).

| | |
|----------------------------------|---|
| provider_resolution (60%) | $\text{resolution_rate\%} \times 0.60$ |
| npi_validity (30%) | $(100 - \text{invalid_npi_pct} \times 5) \times 0.30$ |
| ein_validity (10%) | $10 - \min(\text{invalid_ein_count} \times 0.2, 10)$ |

Code Coverage

Tracks every (billing_code_type, billing_code) pair and flags unrecognized CMS TIC code types, format violations for CPT/HCP/PCS/NDC, and duplicates (same code appearing in multiple in_network items).

Method: Penalty-based deductions from 100.

| | |
|-----------------------------------|---|
| per_unknown_code_type | 3 pts each (cap 20) |
| format_invalid_pct | $\times 0.5$ (cap 10) |
| duplicate_code_pct | $\times 2$ (cap 20) |
| codes_not_in_reference_pct | $\times 0.5$ (cap 30) — only when reference set is loaded |

Pricing Sanity

Detects invalid rates (negative, zero, extreme-value) and distribution anomalies (per-class P95/P50 spread, per-code max/min ratio, flat-rate distributions). Exact counts are used for all validity checks (negative, zero, extreme, dimension validity). Percentile-based checks (spread, IQR) use reservoir sampling — $k=5\,000$ global, $k=1\,000$ per (billing_class, negotiated_type) bucket — so memory stays bounded on large files. Per-code max/min spread is exact (all rates seen, no sampling).

Method: Penalty-based deductions from 100.

| | |
|---|--|
| negative_rate_pct | $\times 5$ (cap 20) |
| zero_rate_pct | $\times 3$ (cap 15) |
| extreme_rate_pct | $\times 5$ (cap 25) — ffs only |
| class_spread_excess | $(\text{spread} - \text{threshold}) \times 2$, max across (billing_class, negotiated_type) buckets (cap 15) |
| per_code_high_spread_count | $\times 0.1$ (cap 15) |
| invalid_negotiated_type_pct | $\times 3$ (cap 10) — rates silently dropped |
| invalid_setting_pct | $\times 1$ (cap 5) — silently defaults to wildcard |
| invalid_severity_pct | $\times 1$ (cap 5) — silently normalised to '' |
| institutional_with_service_codes_pct | $\times 1$ (cap 5) — extra key variation |
| invalid_service_code_pct | $\times 2$ (cap 5) — encode raises ValueError |
| extreme high by billing class | professional: 25000.0, institutional: 2000000.0, both: 2000000.0, default: 500000.0 |

| | |
|--|--|
| extreme low | 0.01 |
| spread warn p95 over p50 by class | professional: 5, institutional: 10, both: 10, default: 5 |
| per rate context max min ratio | professional_codes: 20, facility_drg_codes: 50 |
| flat rate iqr p75 threshold pct | 5.0 |
| flat rate min rates to check | 100 |
| spread min n to flag | 50 |
| per code min n to flag | 3 |

Dashboard: MRF Identity Key

(ingest-time — not stored in report JSON)

The dashboard assigns a persistent `mrf_key` to each MRF so that all validation runs of the same file are grouped together in the score-history view, even if the payer re-exports the file at a new URL.

| | |
|----------------------------------|--|
| Tier 1 — entity + plan_id | Used when both <code>reporting_entity_name</code> and <code>plan_id</code> are present. Key input: <code>plan <entity> <plan_id_type> <plan_id></code> . Stable across monthly re-exports. |
| Tier 2 — URL hash | Fallback when <code>plan_id</code> is absent. Key input: the raw file location URL/path. Entity name alone is not used — a payer publishes multiple distinct plans under the same entity name and without <code>plan_id</code> they cannot be safely distinguished. A URL change produces a different key. |

The key is a 16-character MD5 hex digest of the input string (case-insensitive, whitespace-stripped). **This run:** `mrf_key = 78716258aaedc85b · entity = Trilogy Health Solutions · tier = 2 (URL hash)`

Provider Geographic Coverage

(supplemental — does not affect score)

Geographic analysis is a supplemental feature computed on demand after scoring completes. It does not affect any scoring dimension — it is an observational overlay to assess the breadth and distribution of in-network providers.

| | |
|-----------------------|---|
| NPPES | CMS National Plan and Provider Enumeration System — monthly full-replacement CSV. Maps each NPI to its primary registered ZIP code. |
| ZCTA centroids | GeoNames US postal code file. Maps each 5-digit ZIP to a (latitude, longitude) centroid for map placement. |

Process: Extract all NPIs from the MRF file → resolve each NPI to its primary practice ZIP via NPPES → aggregate provider count per ZIP → map each ZIP to a lat/lon centroid via ZCTA → render as a weighted heatmap (intensity ∝ provider count per ZIP).

Limitations: NPIs absent from NPPES (recently issued, test NPIs, EINs) are excluded and reduce the geocoding match rate. Location reflects the provider's NPPES-registered primary address, not necessarily where they accept this specific plan. Map viewport covers the bounding box of ZIP codes representing 90% of total provider count, dropping sparse geographic outliers.