



## AN OVERVIEW OF DATA QUALITY

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ENSURING DATA QUALITY ACROSS THE WORKERS COMPENSATION INDUSTRY REPRESENTS A TREMENDOUS INVESTMENT OF TIME, RESOURCES, AND ENERGY FROM ALL STAKEHOLDERS—INCLUDING INSURERS, REGULATORS, AND RATING ORGANIZATIONS. AS WITH ANY SUCH INVESTMENT, A TANGIBLE BENEFIT IS EXPECTED.

FOR DATA QUALITY, THAT BENEFIT EQUATES TO CONSTANTLY IMPROVING THE USABILITY AND ACCURACY OF INFORMATION REPORTED ON BEHALF OF THE INDUSTRY.

At NCCI, producing and delivering highly accurate and timely data to workers compensation market stakeholders is a core service; our primary goals are to deliver actuarially valid rate/loss cost filings and experience rating modifications based on credible data. Although perfection is the ultimate goal, it is not practical to expect that all data received by NCCI from hundreds of data providers will be “perfect.” However, NCCI expends tremendous resources on our data collection and reporting practices to ensure that the data used in our core services is credible and that our processes are open and accessible not only to those seeking to report data but also to stakeholders who rely on our data to make accurate and informed market decisions.

The following offers a broad examination of the types, purpose, and value of data that NCCI collects, as well as an inside look at the processes we follow to produce outstanding data products and information.

Among the topics covered are:

- Data Types and Definitions
- Data Quality Considerations
- NCCI's Data Quality Strategy

### DATA TYPES AND DEFINITIONS

NCCI has been collecting detailed information on worker injuries and illnesses for more than 80 years. Employing extensive databases, which are developed to meet the needs of state insurance regulators, NCCI prepares state insurance rate recommendations, prices state and federal legislative proposals, and delivers data services and products to

more than 900 insurance companies and nearly 40 state governments.

As manager of the nation's largest database of workers compensation information, NCCI collects and maintains millions of data records on virtually every aspect of workers compensation insurance. The annual volume of data NCCI collects allows us to provide statistically significant market information to our customers.

Among the type and amounts of data collected annually are:

**Policies**—Roughly 2.6 million policies—the workers compensation coverage that is issued by the insurer to the insured employer and includes coverage data that is integral to ensuring the accuracy and timeliness of unit reporting.

**Unit Statistical Reports**—More than 4 million statistical reports representing the insurance policy experience, including audited payroll, premium, and loss information for each classification on the policy.

**Detailed Claim Information (DCI)**—Information on more than 248,000 DCI claims representing state-specific random samples of indemnity claims. DCI provides the earliest look at claims experience—a full year before the unit statistical report.

**Financial Calls**—More than \$25 billion in premium representing aggregate (summarized) premium, loss, and expense information on insurance company financial results used in the analysis of overall loss cost levels for each state.

#### DATA QUALITY CONSIDERATIONS

There are many challenges to achieving quality data for companies that report data to NCCI. The underlying data itself is the result of many individual processes—each of which can generate potential errors in data reporting due to:

- Challenges with the coordination of policyholder services, including policy issuance, claims handling, and premium audits
- Third party handling of data (such as third party administrators, managing general agents, and bill review companies)
- Company challenges in keeping pace with the increasing demands of compliance reporting, including budgeting, staffing, technology, etc.

Fortunately, perfect and complete data from all data reporters is not needed to produce credible rate filings. For example, consider the following key concepts when thinking of data quality's relationship to the ratemaking process:

- Insurance ratemaking is an estimate of projected costs based on point-in-time historical data, actuarial methodologies, and actuarial judgment.
- Carrier financial data used in the analysis of overall loss cost levels for each state is reported annually, valued as of the end of the calendar year.
- Similarly, class rates are derived from the overall rate level based on a point-in-time extract of unit report data for a state. While new unit report data is received continually by NCCI, its impact will be reflected in the next year's filing.

- The calculation of statistically credible loss cost estimates does not require all data from all carriers; therefore, NCCI can exclude data that is reported late or that does not meet rigorous quality standards.
- No one can predict the future, meaning that among the 600 class loss costs that are estimated, some will be higher than actual future costs, some will be lower, and some may be equal to future costs.
- Due to updates to data as described above, ratemaking is self-correcting. Fluctuations in class rates will resolve themselves through the process over time.

Continually performing recalculations based on new data would not be in the best interest of the workers compensation system. Market stakeholders expect stability of rating values based on set policy periods, so coverage can be quoted and secured with the assurance that the cost of coverage will not change multiple times during the policy period.

While state ratemaking requires periodic snapshots of data for an entire state, experience ratings require a similar snapshot, in this case for the individual insured. In contrast to the calculation of rate indications, experience ratings are recalculated when updated data is received that can affect an employer's experience mod factor. NCCI's Experience Rating Plan requires the inclusion of the most currently available payroll and loss data, leading to the production of the employers' experience ratings. This may include subsequent reports and correction reports, ensuring a stable historical record for the individual

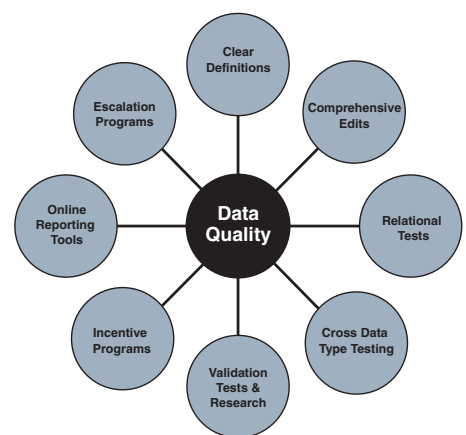
employer. This level of responsiveness tailors the cost of insurance to match the characteristics of the employer, which is an integral part of the final cost of workers compensation and in the best interest of all stakeholders.

Let's take a detailed look at each component of NCCI's extensive data quality strategy.

**NCCI'S DATA QUALITY STRATEGY**

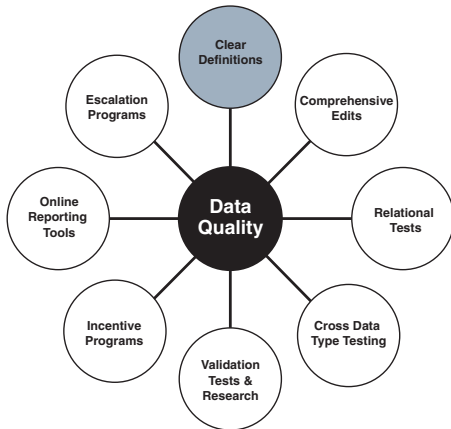
NCCI's comprehensive data quality processes evaluate incoming data on the basis of accuracy, validity, completeness, reasonability, and timeliness. This enables us to work together with our data providers to aim for "quality in, quality out" to provide excellence in our products and services.

The major components of our data quality strategy are represented in the following illustration:



Each component of our data quality strategy assists data providers in achieving and improving data quality and reporting compliance. Data received that fails these rigorous standards and quality tests will be excluded from our core products until corrected by the carrier.

### Clear Definitions

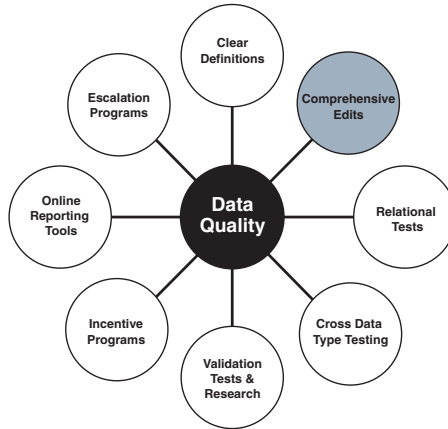


In order for the industry to report data to us in a uniform manner, standards and definitions are required for each company. To achieve this, we actively participate in industry groups to promote data reporting standards that apply to all workers compensation data collection organizations. This is important, since many carriers that write business across the United States must report to NCCI for the many states that we represent, as well as to the independent bureau states.

The wide variety of industry groups that NCCI works with to develop workers compensation standards include the Workers Compensation Insurance Organizations (WCIO) and the International Association of Industrial Accident Boards and Commissions (IAIABC).

Once data reporting standards have been established, NCCI communicates this information to the industry via data reporting manuals and other publications, training opportunities, and on the **ncci.com** Web site.

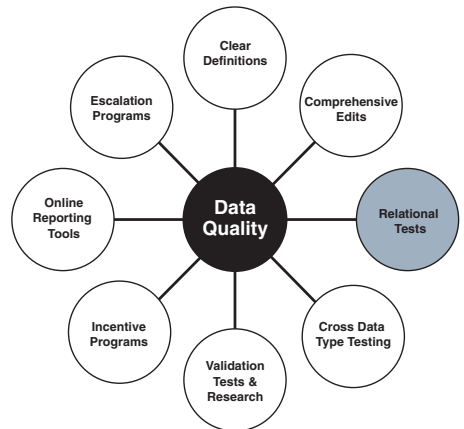
### Comprehensive Edits



A fundamental tenet of data quality is the need to perform system checks (edits) on the information reported to us. NCCI's editing process is critical to ensure that data submitted is consistent with reporting requirements and meets quality standards. Through this process, we communicate to our data providers any errors or potential errors in their data.

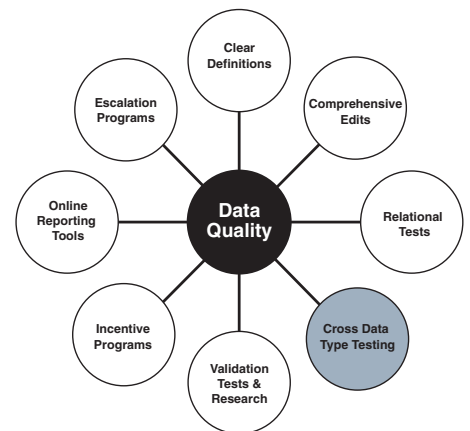
Several hundred edits exist for each of the four primary data types, including over 400 for unit statistical data and over 360 for Financial Call data. Today, there are many types of edits, including Field Edits, to ensure that the data field is being reported correctly, and Logical Edits, to check the accuracy of one data field in relation to another data field on the same unit report.

### Relational Tests



Relational tests are used to ensure that data makes sense in relation to other data contained in the same submission and/or with data that is stored in our databases. These relational tests check one set of data values against other data values in order to test whether the values are within reasonable, acceptable parameters.

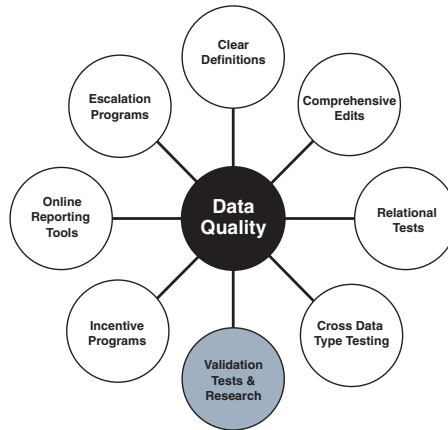
### Cross Data Type Testing



Another powerful type of data quality testing involves comparing a given data provider's reporting performance from one data type to another. Cross data type testing can be used to verify the completeness of overall reporting results. For example, Financial

Call data reporting results are compared with unit statistical data results to check for any reporting differences in terms of premium and claim volumes by policy year.

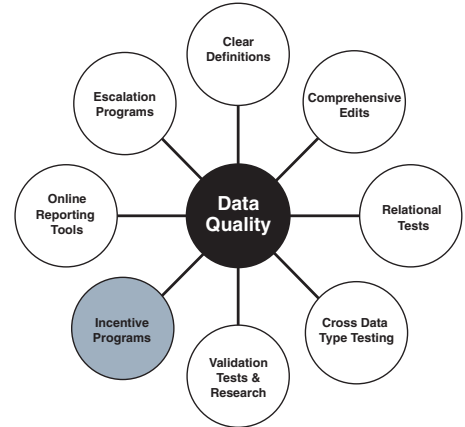
### Validation Tests and Research



Another level of reasonability tests is performed as a part of NCCI's data validation procedures. These reasonability tests are performed on a large amount of data, such as an entire year of unit report receipts for a given population. When data is examined in aggregate, patterns or anomalies that were not detectable when editing individual data submissions are more likely to become apparent.

Test results are provided to data providers contributing to these issues through an online notification process via **ncci.com**.

### Incentive Programs



NCCI utilizes a variety of monetary and nonmonetary incentives to promote data quality and to improve the timeliness and accuracy of data provider reporting performance.

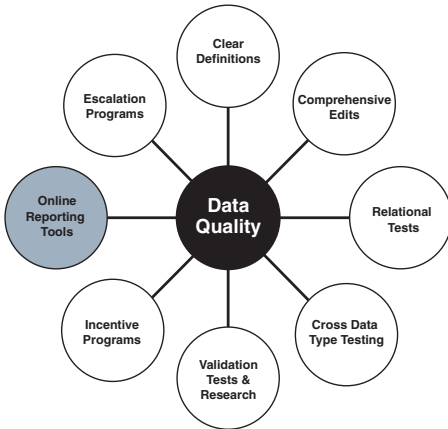
With monetary incentive programs, data providers receive incentives for superior reporting performance. However, companies that impact NCCI's state advisory role are required to pay *extra* fees to NCCI for *inferior* reporting performance. These programs focus on the timeliness and quality of company reporting results.

Examples include:

**Financial Calls**—For the Financial Calls used in state ratemaking (rates and loss costs), companies with reporting issues are subject to monetary fines; the magnitude of these fines is based on reporting performance by state.

**Unit Statistical Reports**—For the unit statistical reports used to develop experience rating modifications and class ratemaking, companies with reporting issues pay higher NCCI data management fees.

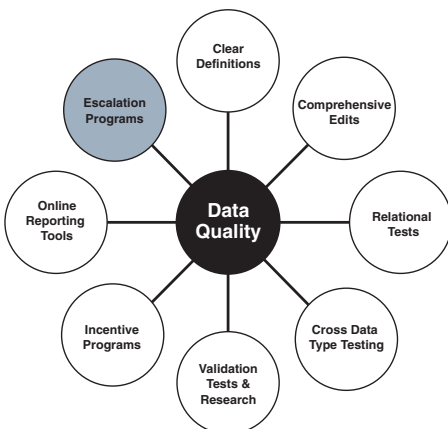
### Online Reporting Tools



NCCI provides its customers with options for Web-based online reporting to make data reporting easier and more convenient, and to improve the two-way communication required for the resolution of data reporting issues. Our data tools have increased the frequency of electronic reporting. For example, 99.9% of unit statistical and Financial Call data is submitted to us electronically.

Data tools available via **ncci.com** include **DCA Access® Online**, **Financial Calls Online**, and **Data Manager Dashboard**.

### Escalation Programs



The vast majority of NCCI's reporting companies' reporting performance is within the acceptable range of timeliness and quality standards. However, there are occasions when data reporting performance does not meet the minimum standards, and we must notify one or more state regulators of the issue.

Escalation programs are the last resort for NCCI, when all the other data quality measures described earlier have proven to be unsuccessful in resolving company data reporting issues. Additionally, these programs respond to the requirements of our state regulatory community, and we have put into place several regulatory notification processes, which vary according to the severity of the issue.

These include the annual Carrier Data Quality Report, the monthly Regulator Exception Report, the State Quarterly Compliance Summary Report, and the Data Quality Remediation Program.

#### SUMMARY

We have reviewed the elements of the data collection and data quality practices and considerations at NCCI. Data quality is an investment that offers its most tangible rewards to the workers compensation system when the most complete and accurate data is provided.

In describing NCCI's data practices, it is important to note that data quality, timeliness, and accuracy are considered to be core NCCI services—meaning that improving data quality is one of our primary ongoing corporate priorities.

As such, NCCI is constantly reviewing and implementing opportunities for improvements to further raise NCCI standards and to assist our data reporting customers. Our efforts have had a measurable effect on the quality and timeliness of our data-based products.

As NCCI and our industry partners work together to pursue the ultimate goal of providing “perfect” data, NCCI will strive to enhance our data quality through the development of cutting-edge tools for the industry, increasing our level of communications and industry training and, most important, listening to all stakeholders and responding to their needs.



*Michael B. Spears is chief data officer of NCCI Holdings, Inc. His division, Data Resources, is responsible for NCCI's data collection operations, quality*

*validation, industry data liaison activities, and the development and deployment of data technology and provider tools. Mr. Spears joined NCCI in 1993 and has held a variety of management positions within the areas of information technology, business development, experience rating, customer service, and assigned risk.*