



Issue Brief

Opportunities to Enhance the Utility of Electronic Health Care Claims

BACKGROUND

According to the 2025 CAQH Index, 98% of health care claims are submitted electronically using the HIPAA-mandated X12N 837. This is among the highest electronic adoption rates of all HIPAA administrative standards, yet providers report ongoing challenges with claim submission.¹ According to the Optum 2024 Revenue Cycle Denials Index, the average initial denial rate across 1,400 hospitals in the United States was 12% in 2023, compared to just 10% in 2020, and 9% in 2016.² On the surface, an increase in denial rates stands in direct opposition to the increase in automation reported in the CAQH Index. Causes of the challenges to successful claim submission are many, some of which are rooted in the use of the health care claim transaction itself.

OPERATING RULES INVOLVEMENT

Operating rules define key infrastructure and data content requirements. Although operating rules have resulted in the widespread automation of several common healthcare transactions, variability remains. One area that lacks standardization is the submission, acceptance, and adjudication of health care claims.



DATASPRING ENGAGEMENT ON HEALTH CARE CLAIMS

Foundational Research and Efforts

The [Health Care Claims Operating Rules](#), first developed in 2016, streamline claim submission and acknowledgment workflows. In 2022, industry organizations approved additional Health Care Claim Attachments Operating Rules, setting a standard-agnostic approach to more uniform exchange of additional documentation needed to support claim submission. With the medical industry exchanging more than 11 billion claims and 142 million claim attachments in 2024, these rules have the potential to reduce cost and burden significantly for providers, health plans, and vendors alike.³

In mid-2022, DataSpring launched an environmental scan to better understand the impact of non-uniform data on first-pass denial rates. Interviews were conducted with a range of industry stakeholders including providers, health plans, vendors, government agencies, and standards development organizations. A DataSpring focus group provided feedback on research findings.

Through this effort, DataSpring found that the industry has a strong technical framework in place to both support claims and drive the automation of attachments; however, further definition of data content within the X12N 837 and its associated transactions could reduce first-pass denial rates.

Research identified that burdensome, manual intervention – such as phone follow-up or email – is still necessary to interpret non-uniform data elements and address submission errors. The DataSpring focus group identified several opportunities to develop operating rules that support a more predictable process and lower denial rates.

The Utility of a More Robust Claim Transaction

Despite an ever-evolving healthcare environment, the use of the health care claim transaction has remained consistent. At the same time, the ability for claims data to promote uniform, streamlined workflows has expanded. Claims data has proven an important tool not only for billing and payment for services, but also to share patient health status and diagnostic information that may not be directly tied to reimbursement. Variability in how this data is included in the X12N 837 reduces utility and harms interoperability.

For example, the importance of Place of Service (POS) reporting requirements for telehealth services became clear after the broad expansion of remote care delivered during the COVID-19 pandemic. Additionally, adoption of value-based payment (VBP) models has expanded the use of claims data to support quality and utilization measurement and the documentation of social determinants of health (SDOH). As emerging technologies and standards take hold throughout the industry, the role of claims continues to evolve, placing critical importance on uniformity of data content.

OPERATING RULE OPPORTUNITY AREAS

Overview

The DataSpring health care claims environmental scan made clear that, although opportunities to streamline claims workflows are within reach, a lack of claims data standardization remains a challenge. Preliminary opportunity areas suggested for consideration for operating rule development included aligning on the use of the 277CA transaction's claim submission, acknowledgement, and error reporting capabilities; standardizing submission of supplementary diagnosis codes to support VBP and SDOH capture; and simplifying guidelines for telehealth claims submission related to POS assignment.

Claim Submission, Acknowledgement, and Error Reporting

The DataSpring environmental scan found that data elements required for claims submission vary between health plans. This increases the administrative burden for providers and their staff as they sort through different health plan requirements and applicable policy. Variability appears in multiple ways and can take the form of how data is formatted, what information is necessary for approval, or how patient demographic information is included. Focus group participants agreed that an opportunity exists for an operating rule to align reporting requirements across health plans, minimizing stakeholder confusion around submission requirements and lowering the need to maintain costly, manual workflows. Ultimately, this would result in a decrease in overall adjudication times and faster billing processes.

Focus group participants also identified opportunities to increase uniformity of pre-adjudication error reporting delivered via the X12N 277CA. The X12N 277CA is an important complement to the X12N 837 transaction and is widely implemented, although not HIPAA mandated.⁴ Despite high adoption, its utility varies in practice. Some vendors and health plans use it as an acknowledgment of submission and acceptance or rejection. Others use a combination of Claim Status Category Codes and Claim Status Codes to communicate greater detail about why a claim was rejected from pre-adjudication systems, helping providers focus on errors and accelerate resubmission. The latter example has clear utility, but code combinations are not uniformly applied between health plans, leading to inconsistencies in error interpretation and the perpetuation of manual workflows.

Overall, research participants strongly agreed that X12N 837 data content requirements will be important in standardizing submission

requirements and avoiding rejections downstream. Then, if transactions are rejected, X12N 277CA data content requirements can outline consistent error messaging for providers to review and use when reworking and resubmitting a claim for payment. Together, the two transactions will streamline claim submissions and minimize costly manual workflows associated with addressing errors and resubmitting claims.

Value-based Payment and SDOH

VBP models are increasingly common fixtures across the medical industry as health plans, providers, and other stakeholders attempt to incentivize the quality of the care being delivered, as opposed to the volume. With rare exception, VBP models are built using a fee-for-service structure that leverages the convenience and durability of health care claim transactions to calculate risk adjustment, patient attribution, financial benchmarks, quality measurement, and other methodologies. Claims further play a role in supporting emerging and innovative priorities in VBP, such as the incorporation of methodologies to collect, analyze, and use SDOH data to combat health inequities.⁵

These methodologies and innovations are supported through the submission of supplementary diagnosis and procedure codes that detail chronic conditions, non-clinical factors influencing care, and services provided during evaluation and management visits. For example, social risk factors can be recorded using ICD-10-CM Z-codes that record potentially harmful patient characteristics such as homelessness, food insecurity, financial difficulties, or other factors that affect care planning and delivery. Further, the inclusion of specialized procedure codes on a claim, like CPT II, are used to support quality reporting and measurement by detailing the delivery of preventative or non-interventional care, such as smoking cessation or end-of-life planning.

The electronic submission of supplementary diagnosis codes is facilitated by the X12N 837 transaction, but inclusion of these codes on claims can be rare – particularly when it comes to the documentation of SDOH using ICD-10 Z-codes. The causes of low uptake are varied, but a limitation on the number of diagnosis codes that can be included on a claim is a major contributing factor. Research and interviews showed that submitters will de-prioritize supplementary diagnoses in favor of those more closely related to the current clinical presentation when opportunities for documentation are finite. Though pathways exist to use the X12N 837 to submit claims containing supplemental diagnoses recorded during the same encounter as the initial claim, implementation of required data elements varies between health plans, complicating automation.

Industry stakeholders expressed initial support for aligning pathways and data elements used in the submission of an X12N 837 containing supplementary diagnoses, believing it could encourage a more robust medical record that, in turn, benefits data quality and integrity, and contributes to value-based payment methodologies. Additional information about the application of this process and other relevant topics to VBP can be found on the DataSpring website under “[Priority Topics](#).”

Telehealth Place of Service

Telehealth services provide flexibility in care delivery for providers and patients. The growth of telehealth over the past few years introduced

complex requirements to indicate where services were delivered and how. Providers use the X12N 837 transaction to indicate these data points, but minor differences in reporting requirements between health plans necessitate costly, manual intervention to confirm what POS codes are required for a claim to be accepted. Industry variability has persisted beyond the expiration of the Public Health Emergency (PHE), and certain services may qualify for telehealth permanently.

The environmental scan identified opportunities to align POS or modality reporting requirements across health plans via operating rules, allowing stakeholders to streamline telehealth claim submission and easily address errors or rejections. Participants agreed operating rules can also provide stabilization to an industry preparing to contend with confusion around regulatory requirements driven by the expiration of COVID-19 era flexibilities.

CONCLUSION

A majority of those who participated in the health care claims environmental scan agreed that claim submission, acknowledgement, and error reporting; VBP and SDOH; and telehealth POS assignment are high priorities for operating rule development. Research confirmed areas within the health care claims workflow where data uniformity can have the greatest impact on reducing administrative burden.



About DataSpring Advisory Services

Advisory is your trusted partner in curbing inefficient administrative activities that drive up costs, contribute to burnout, and detract from patient care. Built on nearly three decades of commitment to simplifying healthcare, DataSpring Advisory helps organizations navigate a complex landscape, balancing regulatory mandates with innovative, voluntary solutions to achieve meaningful efficiency.

We apply a data-centric approach that advances automation, interoperability, and data quality to empower transformation and accelerate value. We deliver through an ROI-focused model using research, actionable policy and requirements guidance, and standards-based design and optimization to support informed decision-making and effective implementation of our identified solutions. Whether your needs are large or small, let our tailored advisory services deliver results, contact advisory@dataspring.com.

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