

Spotlight: Electronic Data Interchange

Health Care Claims

November 2023

Introduction

The Health Insurance Portability and Accountability Act (“HIPAA”) of 1996 was enacted in part to increase efficiencies in health care. The HIPAA Administration Simplification provisions require the U.S. Department of Health and Human Services to adopt national standards and operating rules² for electronic health care transactions (Table 1). Also referred to as electronic data interchange (“EDI”),³ standards govern how data is exchanged from one computer to another.⁴ This enables covered entities (i.e., providers, clearinghouses, and payers) to submit and retrieve information to carry out health care-related financial and administrative activities.⁵ Widespread use of EDI helps eliminate paper-based processes, reduce administrative errors, improve processing times, and bolster privacy and security.⁶ One of the most common transactions is the health care claim (i.e., a request for payment or transmission of encounter information for the purpose of reporting delivery of health care services).⁷ The EDI 837 format is the electronic equivalent of a professional paper claim form used by providers to submit claims to private and government payers; it includes information on the patient, condition(s) related to the treatment provided, services delivered, and cost.⁸

Table 1: Electronic Health Care Transactions¹
Health Care Claim (837)
Retail Pharmacy Claim (NCPDP Telecommunications Standard)
Health Care Claim Status Request/Notification (276/277)
Eligibility, Coverage, and Benefit Inquiry/Information (270/271)
Benefit Enrollment and Maintenance (834)
Health Care Service Review Information (278)
Payment Order/Remittance Advice (820)

About this Spotlight

Annually, select payers⁹ operating in the State report electronic transaction activity to the Maryland Health Care Commission (“MHCC”), as required by COMAR 10.25.09.05, *EDI Progress Report*. The MHCC analyzes reported health care claim counts to assess the percentage submitted electronically and looks at national data made available by the Council for Affordable Quality Health Care.¹⁰ The information provides insights into the health care industry’s accomplishments in automating business processes and helps to identify opportunities that enhance the use of administrative technology.

Claim Submissions

The evolution of health care technology, requirements, and delivery models has propelled the industry to automate most administrative processes.¹¹ This milestone is partly reflected in the percentage of electronic claim submissions among government payers and private payers (Tables 2 and 3). Medicare requires electronic claims submissions (as of October 16, 2003); billing providers must verify eligibility and provide evidence to submit paper claims (e.g., less than an average of 10 claims per month during a calendar year).¹² Electronic dental claim submissions lags health care claims by about 10 percent. The adjudication of dental claims more often requires supporting documentation (e.g., attachments, such as x-rays)¹³ that cannot be accommodated with the EDI 837 format. This results in providers submitting paper claims when attachments are required.

Table 2: Electronic Health Care Claims Maryland and Nation, 2020-2022 % of Total Claims			
Payer	2020	2021	2022
Aetna	95.8	96.6	96.2
CareFirst	97.4	97.7	98.0
Cigna	97.7	97.7	98.2
Kaiser	95.6	93.4	94.1
UnitedHealthcare	94.1	95.0	95.9
Total Private	97.0	97.2	97.8
Medicare	98.9	99.2	99.2
Medicaid	99.5	99.7	99.8
Total Government	99.2	99.4	99.4
Total Private + Government	98.4	98.6	98.9
Total Nation¹⁴	96	97	97

Table 3: Electronic Dental Claims Maryland and Nation, 2020-2022 % of Total Claims			
Payer	2020	2021	2022
Aetna	75.6	78.9	80.9
CareFirst	82.2	86.8	87.6
Cigna	88.2	89.5	89.7
Delta	77.7	79.5	76.3
United Concordia	79.5	82.7	82.7
Total Private	82.8	85.6	85.2
Medicaid	95.8	97.2	97.2
Total Private + Medicaid	84.7	87.5	87.3
Total Nation¹⁵	82	84	86



In December 2022, the Centers for Medicare & Medicaid Services released a Notice of Proposed Rule Making (“NPRM”), *Adoption of Standards for Health Care Attachments Transactions and Electronic Signatures, and Modification to Referral Certification and Authorization Transaction Standard (CMS-0053-P)*;¹⁶ comments were accepted through April 2023.¹⁷ If finalized, the NPRM would adopt long-awaited standards for attachments under HIPAA. Compliance with the new standards would be required within 24 months after the effective date of the final rule.

Impact

Health care spending is influenced by administrative actions and policies. EDI is generally viewed as a cost of doing business and yields greater efficiencies for providers through standardization and automation of data exchange. Medical practices typically generate about 285 claims per week¹⁸ and dental practices approximately 155 claims per week.¹⁹ When these practices use electronic means to submit claims, the processing time is reduced by more than half the amount of time it would take to submit paper claims (Tables 4 and 5). Increased time associated with preparing a paper claim includes, but is not limited to, the time it takes to print (~2 minutes), sign (~3 minutes), and assemble and mail the claim (~17 minutes).²⁰ Practices incur more expense when using paper-based processes to submit claims, which is less efficient due to the increased chance of errors and potential for resubmissions (see Appendix A for more information on cost for all electronic transactions).

Claim Type	Claim		Billing Professional		Weekly Time and Expense to Process Claims		
	Estimated Time to Process	Provider Cost	Average Hourly Rate	Claims per Week	Minutes	Hours	Expense
Paper	22	\$4.69	\$20.00	285	6,270	105	\$1,337
Electronic	10	\$1.73	\$20.00	285	2,850	48	\$493

Claim Type	Claim		Billing Professional		Weekly Time and Expense to Process Claims		
	Estimated Time to Process	Provider Cost	Average Hourly Rate	Claims per Week	Minutes	Hours	Expense
Paper	20	\$3.58	\$20.00	155	3,100	52	\$555
Electronic	8	\$1.53	\$20.00	155	1,240	21	\$237

Notes: Claim processing time and provider cost was obtained from CAQH. The average hourly rate for billing professionals was determined based on review of literature.



Conclusion

EDI is a crucial part of the health care supply chain, enabling providers and payers to operate and communicate more efficiently. Adoption of universal standards that replace paper-based processes has improved data quality and security. While adoption of EDI has peaked, small increases can have a positive impact on administrative workflows. Opportunity exists for private payers to increase the use of electronic transactions to be more in line with government payers, particularly for dental claims.



Appendix A

Average Cost and Savings Opportunity per Transaction by Mode, Medical, 2022 CAQH Index							
Transaction	Mode	Plan Cost	Provider Cost	Industry Cost	Plan Cost Savings Opportunity	Provider Cost Savings Opportunity	Industry Cost Savings Opportunity
Eligibility and Benefit Verification	Manual	\$ 4.50	\$ 8.36	\$ 12.86	\$ 4.46	\$ 7.32	\$ 11.78
	Partial	\$ 0.04	\$ 3.77	\$ 3.81	\$ 0.00	\$ 2.73	\$ 2.73
	Electronic	\$ 0.04	\$ 1.04	\$ 1.08			
Prior Authorization	Manual	\$ 3.72	\$ 10.80	\$ 14.52	\$ 3.67	\$ 5.93	\$ 9.60
	Partial	\$ 0.05	\$ 7.19	\$ 7.24	\$ 0.00	\$ 2.32	\$ 2.32
	Electronic	\$ 0.05	\$ 4.87	\$ 4.92			
Claim Submission	Manual	\$ 1.03	\$ 4.69	\$ 5.72	\$ 0.91	\$ 2.96	\$ 3.87
	Electronic	\$ 0.12	\$ 1.73	\$ 1.85			
Attachments	Manual	\$ 0.91	\$ 5.69	\$ 6.60	\$ 0.80	\$ 2.48	\$ 3.28
	Electronic	\$ 0.11	\$ 3.21	\$ 3.32			
Coordination of Benefits	Manual	\$ 2.20	N/A	\$ 2.20	\$ 1.96	N/A	\$ 1.96
	Partial	\$ 0.24	N/A	\$ 0.24	\$ 0.00	N/A	\$ 0.00
	Electronic	\$ 0.24	N/A	\$ 0.24			
Claim Status Inquiry	Manual	\$ 4.50	\$ 11.18	\$ 15.68	\$ 4.46	\$ 9.15	\$ 13.61
	Partial	\$ 0.04	\$ 5.23	\$ 5.27	\$ 0.00	\$ 3.20	\$ 3.20
	Electronic	\$ 0.04	\$ 2.03	\$ 2.07			
Claim Payment	Manual	\$ 0.57	\$ 5.50	\$ 6.07	\$ 0.48	\$ 3.25	\$ 3.73
	Electronic	\$ 0.09	\$ 2.25	\$ 2.34			
Remittance Advice	Manual	\$ 0.53	\$ 6.14	\$ 6.67	\$ 0.45	\$ 4.02	\$ 4.47
	Partial	\$ 0.08	\$ 5.76	\$ 5.84	\$ 0.00	\$ 3.64	\$ 3.64
	Electronic	\$ 0.08	\$ 2.12	\$ 2.20			

N/A = Not Applicable
 Note: Costs include the labor time required to conduct the transaction, not the time and cost associated with gathering information for the transaction and follow-up. Does not include system costs. All participants were asked to report cost for each transaction by the three modes of completion (manual, partial electronic, electronic). For some transactions, partial costs were not reported.

Source: CAQH. 2022 CAQH Index, A Decade of Progress, 2023. Available at: www.caqh.org/sites/default/files/2022-caqh-index-report%20FINAL%20SPREAD%20VERSION.pdf.



Average Cost and Savings Opportunity per Transaction by Mode, Dental, 2022 CAQH Index

Transaction	Mode	Plan Cost	Provider Cost	Industry Cost	Plan Cost Savings Opportunity	Provider Cost Savings Opportunity	Industry Cost Savings Opportunity
Eligibility and Benefit Verification	Manual	\$ 3.23	\$ 7.11	\$ 10.34	\$ 3.21	\$ 5.63	\$ 8.84
	Partial	\$ 0.02	\$ 3.82	\$ 3.84	\$ 0.00	\$ 2.34	\$ 2.34
	Electronic	\$ 0.02	\$ 1.48	\$ 1.50			
Claim Submission	Manual	\$ 0.45	\$ 3.58	\$ 4.03	\$ 0.35	\$ 2.05	\$ 2.40
	Electronic	\$ 0.10	\$ 1.53	\$ 1.63			
Coordination of Benefits	Manual	\$ 0.39	N/A	\$ 0.39	\$ 0.28	N/A	\$ 0.28
	Partial	\$ 0.11	N/A	\$ 0.11	\$ 0.00	N/A	\$ 0.00
	Electronic	\$ 0.11	N/A	\$ 0.11			
Claim Status Inquiry	Manual	\$ 3.23	\$ 9.30	\$ 12.53	\$ 3.21	\$ 7.42	\$ 10.63
	Partial	\$ 0.02	\$ 4.85	\$ 4.87	\$ 0.00	\$ 2.97	\$ 2.97
	Electronic	\$ 0.02	\$ 1.88	\$ 1.90			
Claim Payment	Manual	\$ 0.23	\$ 3.07	\$ 3.30	\$ 0.22	\$ 1.54	\$ 1.76
	Electronic	\$ 0.01	\$ 1.53	\$ 1.54			
Remittance Advice	Manual	\$ 0.22	\$ 3.45	\$ 3.67	\$ 0.20	\$ 1.77	\$ 1.97
	Partial	\$ 0.02	\$ 3.40	\$ 3.42	\$ 0.00	\$ 1.72	\$ 1.72
	Electronic	\$ 0.02	\$ 1.68	\$ 1.70			

N/A = Not Applicable

Note: Costs include the labor time required to conduct the transaction, not the time and cost associated with gathering information for the transaction and follow-up. Does not include system costs. All participants were asked to report cost for each transaction by the three modes of completion (manual, partial electronic, electronic). For some transactions, partial costs were not reported.

Source: CAQH. *2022 CAQH Index, A Decade of Progress, 2023*. Available at: www.caqh.org/sites/default/files/2022-caqh-index-report%20FINAL%20SPREAD%20VERSION.pdf.



Endnotes

¹ Centers for Medicare and Medicaid Services, *About Administrative Simplification*. Available at: www.cms.gov/files/document/health-care-transactions-basics.pdf.

² Operating rules are business rules for the electronic exchange of information and help improve interoperability and establish uniformity in how transactions are conducted across the health care industry. More information is available at: www.cms.gov/files/document/introductionadminsimp.pdf#:~:text=The%20Administrative%20Simplification%20provisions%20of%20HIPAA%20require%20the,and%20other%20administrative%20aspects%20of%20health%20care%20delivery.

³ EDI is foundational in the automation of business processes across many industries. Automation allows data to be shared rapidly instead of hours, days, or weeks when using paper documents or other methods. More information is available at: www.ibm.com/topics/edi-electronic-data-interchange.

⁴ Cleo. *Electronic Data Interchange (EDI) Transactions Guide*. Available at: www.cleo.com/blog/knowledge-base-edi-transactions#:~:text=EDI%20transactions%20are%20standardized%20electronic,EDI%20order%20to%20another%20organization.

⁵ Prior to HIPAA, covered entities used proprietary transaction formats.

⁶ CMS.gov. *Adopted Standards and Operating Rules*. Available at: www.cms.gov/Regulations-and-Guidance/Administrative-Simplification/HIPAA-ACA/AdoptedStandardsandOperatingRules.

⁷ CAQH. *2022 CAQH Index, A Decade of Progress*, 2023. Available at: www.caqh.org/sites/default/files/2022-caqh-index-report%20FINAL%20SPREAD%20VERSION.pdf.

⁸ The CMS-1500 form is the standard paper claim form to bill private payers, Medicare Fee-For-Service, and some Medicaid State agencies when a paper claim is allowed. More information is available at: www.cms.gov/files/document/837p-cms-1500pdf.

⁹ Payers, as defined by COMAR 10.25.09.02(11), includes those operating in the State whose premium volume exceeds \$1,000,000 as reported in the most recent annual statement in the hands of the Maryland Insurance Administration each calendar year. Medicare and Medicaid voluntarily report information to MHCC.

¹⁰ The Council for Affordable Quality Healthcare is a non-profit organization dedicated to the simplification of administration in health care a publishes an annual index report that is the industry source for tracking use of electronic transactions. More information is available at: www.caqh.org/insights/caqh-index-report.

¹¹ See n. 7, *Supra*.

¹² Centers for Medicare and Medicaid Services. *Administrative Simplification Compliance Act Self-Assessment*. Available at: www.cms.gov/Medicare/Billing/ElectronicBillingEDITrans/ASCASelfAssessment.

¹³ Dental Claim Support. *Why attachments are important in dental insurance claims*, February 4, 2022. Available at: www.dentalclaimsupport.com/blog/why-attachments-dental-insurance-claims-important.

¹⁴ See n. 7, *Supra*.

¹⁵ *Ibid.*

¹⁶ *Ibid.*

¹⁷ Centers for Medicare and Medicaid Services. *Events and Latest News*. Available at: www.cms.gov/about-cms/what-we-do/administrative-simplification/hipaa/events-latest-news.

¹⁸ Based on a physician seeing about 15 patients per day and an average practice having 3.8 physicians. More information is available at: www.elationhealth.com/resources/blogs/how-many-patients-does-a-doctor-have-a-day.

¹⁹ Based on a dental practice seeing 31 patients per day. More information is available at: www.cloud Dentistry.com/faq/how-many-patients-dentist.

²⁰ Practice Solutions, *Cost-Benefit Analysis of Paper vs. Electronic Claims*. Available at: www.practicesol.com/single-post/2017/08/07/cost-benefit-analysis-of-paper-vs-electronic-claims.

