Impact Of Close Encounter Checkpoint Notifications on G2211 Billing Accuracy in Primary Care Practices

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BACKGROUND

The implementation of HCPCS code G2211 on January 1, 2024, marks a key step in recognizing the complexity and continuity of outpatient evaluation and management visits.[1] Accurate billing is critical for appropriate reimbursement, reducing administrative burden, and improving clinician satisfaction and patient transparency in healthcare costs.[2,3] However, frequent billing errors highlight inadequate training and the growing complexity of changing regulations.[4] With declining Medicare reimbursement, effective strategies are needed to support primary care sustainability.[5] Integrating automated reminder systems within Electronic Health Records (EHRs) offers a promising approach, as prior studies show EHR-based reminders can enhance care delivery and ensure timely, accurate billing when effectively designed and utilized.[6,7]

OBJECTIVES

This study aimed to implement a close visit validation notification within the enterprise EHR to alert clinicians when encounters qualify for HCPCS code G2211. We hypothesized that this system would improve billing accuracy and timely identification of eligible encounters, building on evidence that EHR-based reminders enhance documentation and care delivery (Table 1). By targeting G2211, the study sought to promote accurate billing and ensure appropriate recognition and reimbursement of clinicians' cognitive effort and longitudinal care.

RESEARCH DESIGN

Study Design

This study used an observational design to perform pre- and post-intervention analysis within a non-profit hospital system that operates several primary care offices in the Northeast to assess the impact of targeted interventions on the billing accuracy and compliance for the G2211 code, focusing on the continuity aspect of this code. We fit a mixed effects logistic regression model with random intercepts by provider to examine the effect of each intervention.

Participants

Participants included 195 clinicians (physicians, nurse practitioners, and physician assistants) in primary care, which included family medicine, internal medicine and geriatric medicine. This study analyzed 189,832 encounters for patients billed under CPT codes 99202-99205, and 92211-99215. The American Academy of Family Physicians (AAFP) 2024 payer matrix guided which insurance types reimbursed G2211 (Table 1). As UnitedHealthcare withdrew endorsement for G2211 for commercial plans, it has been excluded from the study; however, encounters reimbursed by UnitedHealthcare Medicare Advantage remains included.

Intervention

The primary intervention involved the implementation of a close encounter checkpoint notification (Alert), which was introduced on September 5, 2024. The alert was built around the criteria seen in Table 1. The alert targeted encounters reimbursed by Medicare, where encounters reimbursed by other insurances including Medicare advantage plans were used as control.

Procedure/Data Collection

The financial department provided the data from January 1, 2024, through October 5, 2024. Data analysis was conducted using R, with the primary outcome being the number of correctly billed G2211 encounters, where the encounter clinician is the primary care clinician. The data provided by the financial department has been processed and adjusted by Revenue cycles to add or remove modifiers and correct inappropriately added G2211 billing codes.

Table 1: Criteria for G2211 billing

Inclusion Criteria	Insurance Payer	Medicare, Aetna, Anthem, Cigna, Humana, UnitedHealthcare and Medicare Advantage
	CPT Codes	99202-99205, 99211-99215
	Clinician Type	Physicians, Physician Assistants, Nurse Practitioners
	Department Specialty	Internal Medicine, Family Medicine, Geriatric Medicine
	Clinician Role	Encounter Clinicians = Primary Care Clinicians
Exclusion Criteria	Modifier	25 modifiers
	CPT Codes	Wellness visit codes (G0402, G0438, G0439, 99381-99387, 99391-99397)
		Transitional Care Management codes (99495, 99496)
	Department Specialty	Urgent Care
	Additional E/M Code	G2211 (avoid alert fatigue and duplicate billing)
	Vaccine Given	Avoid miscoding

Table 2: Clinician Characteristics by G2211 Billing

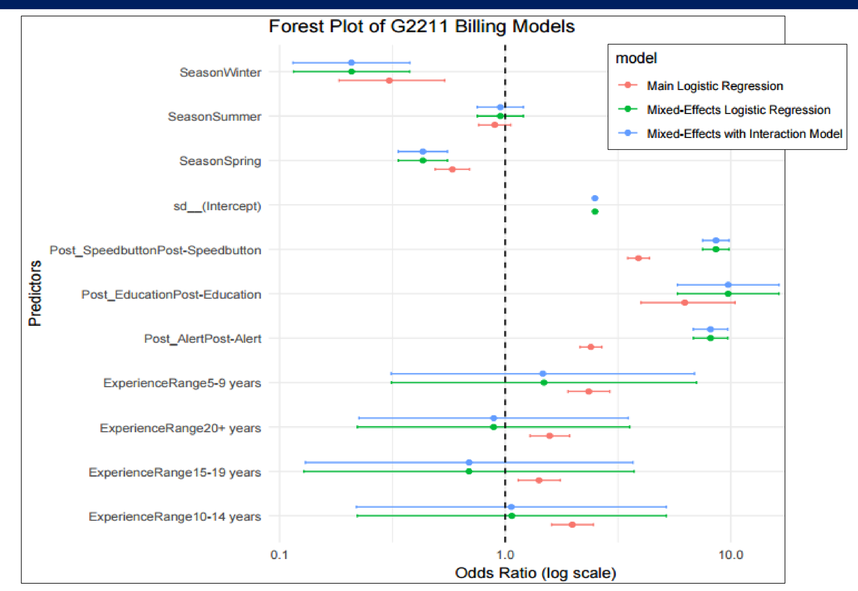
Variable	Category	No N = 169[1]	Yes N = 26[1]	p-value[2]
Experience Range				0.086
	<5 years	12 (7.1%)	5 (19%)	
	5–9 years	26 (15%)	7 (27%)	
	10–14 years	29 (17%)	2 (7.7%)	
	15–19 years	21 (12%)	1 (3.8%)	
	20+ years	81 (48%)	11 (42%)	
Specialization				0.3
	Family Medicine	109 (64%)	15 (58%)	
	Geriatric Medicine	7 (4.1%)	1 (3.8%)	
	Internal Medicine	23 (14%)	2 (7.7%)	
	Nurse Practitioner	25 (15%)	8 (31%)	
	Physician Assistant	5 (3.0%)	0 (0%)	
Licensure				0.11
	DO	72 (43%)	6 (23%)	
	MD	66 (39%)	12 (46%)	
	NP	26 (15%)	8 (31%)	
	PA	5 (3.0%)	0 (0%)	
Education				<0.001
	Pre-Education	91 (54%)	0 (0%)	
	Post-Education	78 (46%)	26 (100%)	
Speedbutton				<0.001
	Pre-Speed button	113 (67%)	3 (12%)	
	Post-Speed button	56 (33%)	23 (88%)	
Alert				<0.001
	Pre-Alert	164 (97%)	16 (62%)	
	Post-Alert	5 (3.0%)	10 (38%)	

[1] n (%)
[2] Fisher's exact test

RESULTS

This study evaluated the effectiveness of the close visit validation notification on G2211 billing accuracy, accounting for two prior interventions—Education (3/27/2024) and Speed button implementation (4/29/2024). Across all encounters, billing rates increased progressively after each intervention, with the highest proportion of eligible encounters billed following EHR-integrated tools. Improvements were most pronounced among Medicare encounters, where billing rose from 0.9% pre-education to 32.2% post-notification. In regression analyses, each intervention independently predicted higher odds of accurate G2211 billing in the main logistic model (post-education OR = 6.25; post-speed button OR = 3.90; post-alert OR = 2.40; all $p < 0.001$), and these effects were directionally consistent—and larger—after accounting for clustering in mixed-effects models (education = 9.7; speed button = 8.6; alert = 8.1; all $p < 0.001$). Adding interaction terms did not materially change point estimates or significance, supporting primarily additive intervention effects. Provider experience was not significant once random effects were included.

Collinearity diagnostics showed modest adjusted GVIFs for main effects in models without interactions (e.g., Post Education = 2.29–2.60; Post Speed button = 1.13–1.20; Post Alert = 1.22–1.31; Season=1.43–1.52), indicating acceptable multicollinearity. In the interaction model, adjusted GVIFs for main effects were similar, while fully crossed post-intervention interactions produced infinite GVIFs with Df = 0. This is an expected artifact of linear dependencies among highly correlated indicators. Additionally, effect sizes and CIs were stable across specifications, so we retained the interaction model for completeness while basing primary inference on the non-interaction mixed-effects results.



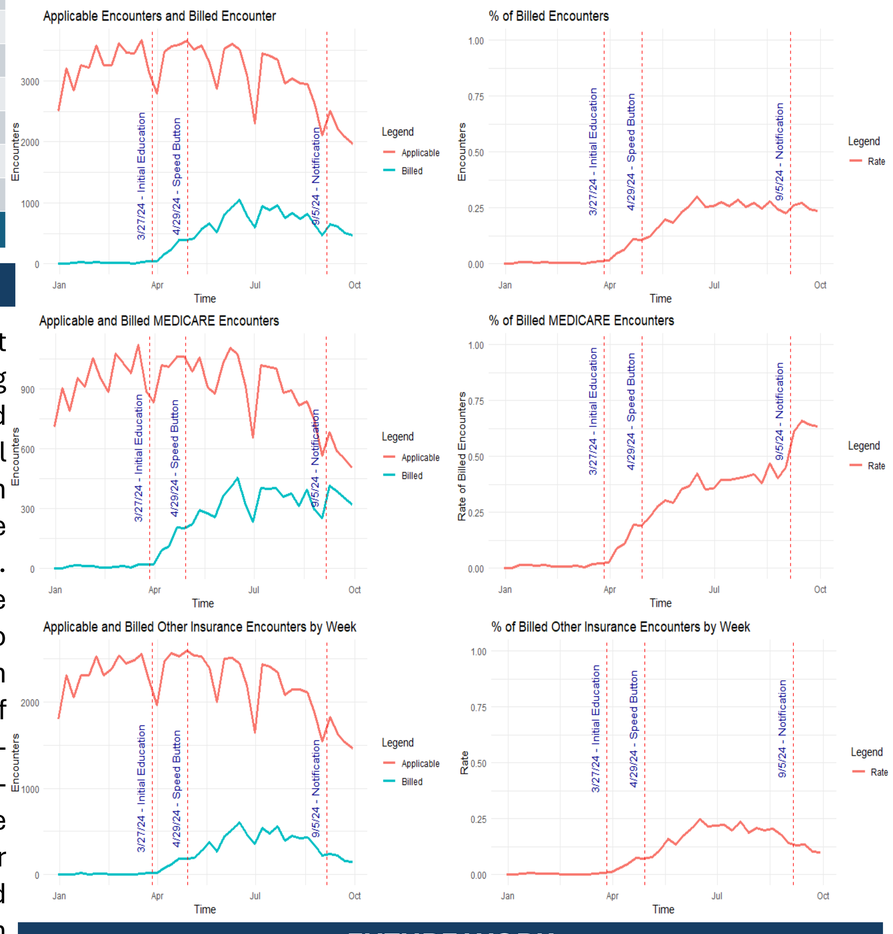
CONCLUSION

Conclusion

Implementation of a close visit validation notification within the EHR significantly improved G2211 billing accuracy and timeliness. Sequential interventions—education, speed button integration, and automated alerts—were each associated with increased billing rates, with the largest gains observed after EHR-based tools were introduced. Mixed-effects logistic regression confirmed these interventions as strong predictors of appropriate G2211 billing, independent of provider experience or season. These findings highlight the effectiveness of EHR-embedded reminders in enhancing billing compliance, supporting clinician recognition, and promoting more equitable reimbursement practices.

Limitations

The short data collection period and limited control over the Education intervention across phases warrant cautious interpretation. While improvements among Medicare patients were notable, reliance on alerts may have emerged, emphasizing the need to expand such systems to other payer groups. Addressing billing disparities across populations and customizing interventions for diverse settings and clinician types will be key. Integrating education, EHR optimization, and targeted alerts may best support accurate G2211 billing, promote equity, and reduce administrative burden.



FUTURE WORK

Future research should expand to include additional billing codes, insurance types, and care models to provide broader insight into billing practices. Longer study periods with stronger control of external factors, such as timing of educational interventions, are needed to validate results. It is important to note that, given the observational nature of the data, we cannot infer causation between the interventions and observed changes in outcomes. Evaluating clinician reliance on alerts and ensuring effectiveness across diverse settings will be key to optimizing long-term impact.

REFERENCES & ACKNOWLEDGEMENTS