



Clinical Documentation Burden and Relational Quality of Care

Prof. Christian de Hoogh

Professor, Leipzig University, Germany

Abstract

Clinical documentation is essential for continuity, accountability, communication, billing, quality measurement, and patient safety, yet excessive documentation requirements can compete with the interpersonal work through which therapeutic relationships are established. Electronic health records have increased the availability and organization of clinical information but have also introduced substantial time demands involving data entry, order management, inbox processing, chart review, and after-hours documentation. Earlier time-motion research demonstrated that ambulatory physicians could spend substantially more working time on electronic health record and desk activities than on direct patient interaction, while studies of clinician–computer interaction have shown that gaze patterns and the manner in which the electronic record is used can influence patient participation and perceptions of communication. This simulation-based study examines the relationship between documentation burden and relational quality of care using a hypothetical sample of 240 ambulatory clinical encounters. Documentation burden was categorized as low, moderate, or high according to documentation minutes, number of electronic tasks, after-visit work, and perceived clerical workload. Relational quality was modeled through clinician presence, uninterrupted listening, patient participation, eye-contact continuity, shared decision-making, and patient-reported trust.

Simulated relational-quality scores decreased from 86/100 under low documentation burden to 75/100 under moderate burden and 62/100 under high burden. High-burden encounters also demonstrated less uninterrupted patient-facing time, more documentation multitasking, and lower patient-rated clinician presence. The findings do not imply that electronic documentation is inherently harmful; instead, they illustrate how poorly balanced documentation requirements may reduce the attentional resources available for relationship-centered care. Because all numerical findings are simulated, the study is methodological rather than empirical. Future prospective research should combine EHR event logs, direct observation, validated relational-care measures, patient experience, clinician well-being indicators, and documentation-quality outcomes to determine how documentation can be redesigned without compromising either informational integrity or the human relationship at the center of clinical care.

Keywords: clinical documentation burden; electronic health records; relational quality of care; patient–clinician communication; clinician presence; patient-centered care; administrative burden; health informatics



1. Introduction

Clinical documentation performs several legitimate functions within healthcare. It supports communication across clinicians, preserves diagnostic and treatment reasoning, enables continuity of care, records medication and investigation decisions, and provides an auditable account of professional activity. Digitization has strengthened accessibility and legibility of information, but it has also changed how clinicians allocate their working time. In a time-and-motion study involving ambulatory physicians, Sinsky and colleagues reported that 27.0% of observed office time was devoted to direct clinical face time while 49.2% was spent on electronic health record and desk work. Physicians completing after-hours diaries additionally reported substantial evening EHR work. These observations established documentation burden as more than a subjective complaint; it can occupy a major share of the clinical workday.

Subsequent analyses reinforced concerns about the scale of electronic work. Arndt and colleagues combined EHR event-log data with time-motion observation in primary care and found that clinicians spent nearly two hours performing EHR-related tasks for every hour of direct patient care. Overhage and McCallie later analyzed approximately 100 million outpatient encounters across hundreds of health systems and reported an average EHR-use duration of 16 minutes and 14 seconds per encounter, with chart review, documentation, and ordering accounting for substantial proportions of that time. Although workflow varies considerably across specialties and organizations, these findings indicate that digital documentation occupies a meaningful portion of contemporary clinical activity.

The problem becomes particularly important when documentation competes with relational work. Relationship-centered care depends on sustained listening, responsiveness to emotional cues, appropriate eye contact, conversational continuity, patient participation, shared understanding, and the perception that the clinician is psychologically present rather than merely physically located in the room. Street and colleagues found that patterns of interaction with the electronic health record influenced patient-centered communication and that clinician behaviors around computer use were relevant to the patient's experience of the encounter. Earlier research by McGrath and colleagues similarly suggested that clinicians who introduced short breaks from computer use and re-established sustained eye contact demonstrated more nonverbal communication behaviors than those who continued working on the computer while conversing.

Importantly, the relationship between electronic documentation and communication is not uniformly negative. Systematic reviews have shown that EHR use can improve information availability and certain aspects of information exchange while creating challenges for patient-centered communication depending on clinician behavior, interface design, room configuration, and workflow. Screen sharing, explicit explanation of computer use, strategic pauses in data entry, and positioning technology so that it becomes part of a shared information space may support communication rather than obstruct it. Research involving linguistically diverse safety-net patients also found that patients generally recognized the value of clinicians using computers but expressed preferences for greater eye contact, verbal explanation before computer use, and opportunities to view the screen. The central problem is therefore not documentation itself but the relationship between documentation demands, interface behavior, time pressure, and clinical attention.



The present study develops a simulation-based framework for examining how clinical documentation burden might influence relational quality of care. No clinicians or patients were recruited, and all numerical results are hypothetical. Documentation burden is operationalized through observed-equivalent documentation time, task frequency, after-visit completion requirements, and perceived clerical demand. Relational quality is modeled through uninterrupted listening, patient-facing attention, participation, trust, shared decision-making, and perceived clinician presence. The study seeks to demonstrate how future health-services research could evaluate the possibility that documentation and relational care are competing demands while also identifying workflow designs capable of preserving both accurate records and meaningful clinical relationships.

2. Objectives of the Study

2.1 To Examine the Relationship Between Documentation Burden and Relational Care

The primary objective is to evaluate whether increasing levels of clinical documentation burden could plausibly correspond with reductions in relational quality during patient encounters. Documentation burden is not represented by typing time alone. The proposed construct incorporates the frequency of electronic tasks, required navigation among screens, documentation completed while the patient is speaking, and work that remains unfinished after the scheduled encounter. This multidimensional definition reflects evidence that clerical workload and electronic-system characteristics contribute to clinician dissatisfaction and professional burnout. Shanafelt and colleagues found that physicians using EHR and computerized order-entry systems reported substantial dissatisfaction with the amount of time spent on clerical tasks and demonstrated associations between clerical burden and burnout.

Relational care is similarly treated as multidimensional. The study does not equate a strong clinician–patient relationship with friendliness or prolonged conversation alone. Instead, relational quality includes whether the patient can complete important explanations without unnecessary interruption, whether the clinician identifies concerns, whether attention shifts repeatedly toward documentation, whether the patient participates meaningfully in decisions, and whether both individuals finish the encounter with a shared understanding of priorities. The objective is therefore to investigate an attentional pathway through which administrative and informational work may influence human interaction.

2.2 To Identify Potential Workflow Mechanisms Linking Documentation and Patient Experience

A second objective is to investigate the specific mechanisms through which documentation burden might affect relational quality. Computer interaction studies suggest that gaze, keystrokes, mouse activity, and the timing of electronic work can influence patient participation. Street and colleagues demonstrated that greater clinician interaction with the EHR, including computer-directed gaze and input activity, was associated with changes in patient participation during medical encounters. The present simulation therefore separates total documentation burden from in-visit multitasking, recognizing that two clinicians with equivalent total documentation requirements may produce different patient experiences depending on when and how documentation is performed.

The study also considers the possibility that relational degradation is not inevitable. Patient-centered EHR behaviors such as screen sharing, explicit transitions between conversation and



documentation, and deliberate “attention resets” may preserve interaction even when electronic work remains necessary. Asan and colleagues demonstrated that EHR screen-sharing behavior can alter nonverbal communication dynamics during primary-care encounters. The analytical framework therefore evaluates documentation burden together with observable relational practices rather than treating computer use itself as the exposure.

3. Review of Literature

3.1 Documentation Time and the Restructuring of Clinical Work

Time-allocation research provides some of the strongest evidence that documentation has become a substantial component of clinical work. Sinsky and colleagues' multicenter ambulatory time-motion study found that physicians spent considerably more office time on EHR and desk work than on direct clinical face time. Arndt and colleagues subsequently used both direct observation and electronic event logs to demonstrate extensive primary-care EHR activity during and after scheduled clinical hours. These studies are important because they quantify workflow rather than relying only on clinician perception.

Specialty-specific investigations provide additional evidence. Read-Brown and colleagues reported that EHR use consumed a substantial portion of ophthalmologists' clinical time and showed considerable variability among clinicians. Overhage and McCallie's large-scale descriptive analysis similarly demonstrated substantial per-encounter EHR time across outpatient practice. Collectively, this literature suggests that documentation workload is not confined to a specific specialty or institution, although its magnitude and form vary considerably.

3.2 Electronic Documentation and Patient–Clinician Communication

Research examining communication has produced more nuanced findings than time-allocation studies. Street and colleagues showed that the way clinicians interacted with the EHR influenced patient-centered communication, supporting the idea that technology changes the structure of interpersonal attention. Their later work examining keystrokes, mouse clicks, and computer-directed gaze further demonstrated associations between physician EHR behavior and patient participation. These findings suggest that relational quality may depend less on whether the computer is present than on whether electronic interaction repeatedly interrupts conversational exchange.

Alkureishi and colleagues' systematic review concluded that electronic medical record use can influence the patient–doctor relationship in both beneficial and adverse ways, with communication outcomes depending heavily on patterns of use. Farber and colleagues similarly examined EHR use and patient satisfaction, while Marmor and colleagues found that physician EHR use did not necessarily produce lower patient satisfaction in every setting. This mixed evidence cautions against technologically deterministic interpretations. Documentation systems may support high-quality relationships when they are integrated skillfully, but burdensome workflows can consume attentional resources that would otherwise support patient interaction.



3.3 Clerical Burden, Clinician Well-Being, and Relational Capacity

Documentation burden also has implications beyond the individual encounter. Shanafelt and colleagues identified associations between clerical burden, dissatisfaction with electronic systems, professional satisfaction, and physician burnout. Arndt and colleagues similarly described growing non-face-to-face and administrative work as an important component of primary-care workload. Burnout is multifactorial and should not be reduced to EHR exposure alone, but these findings indicate that documentation requirements contribute to the broader environment in which relational care occurs.

The relational consequences may be indirect. A clinician who enters an encounter already carrying unfinished documentation, inbox messages, orders, and administrative tasks may have less cognitive capacity for nuanced listening even when visit duration remains unchanged. Patient-computer interaction research provides a plausible behavioral pathway by showing that screen-directed gaze and continuous data entry can alter participation and nonverbal communication. The remaining research gap concerns how these elements combine: few studies have simultaneously measured objective documentation burden, observable clinician attention, patient-reported relationship quality, and documentation quality within the same analytical design.

4. Research Methodology

4.1 Study Design and Simulated Sample

The study adopts a simulation-based cross-sectional encounter design involving 240 hypothetical ambulatory consultations. Eighty encounters are assigned to each of three documentation-burden strata: low, moderate, and high. The modeled encounters represent general adult outpatient care and are not attributed to a specific hospital, country, specialty, or actual patient population. Each simulated visit has a nominal duration of 20 minutes.

Documentation burden is classified using four dimensions: minutes devoted to EHR activity during the visit, number of discrete electronic documentation tasks, proportion of the patient narrative occurring simultaneously with clinician data entry, and amount of documentation remaining after the scheduled encounter. Low-burden encounters are modeled as having streamlined documentation with minimal redundancy; moderate-burden encounters represent conventional EHR workflows; high-burden encounters include multiple required fields, repeated task switching, and substantial incomplete documentation at visit closure.

Table 1: Simulated Research Design and Measurement Framework

Component	Low Burden	Moderate Burden	High Burden	Measurement
Simulated encounters	80	80	80	Study sample
Mean in-visit documentation time	4.8 min	7.6 min	11.2 min	Direct observation equivalent
Mean documentation tasks per encounter	7	12	19	EHR-event equivalent



Component	Low Burden	Moderate Burden	High Burden	Measurement
Documentation while patient speaking	14%	31%	53%	Encounter proportion
Mean after-visit documentation	2.4 min	5.7 min	10.1 min	Post-visit
Uninterrupted listening episodes	High	Moderate	Low	Structured observation
Patient-facing attention	Percentage	Percentage	Percentage	Structured observation
Relational quality score	0–100	0–100	0–100	Composite outcome
Patient trust	0–10	0–10	0–10	Patient-reported
Shared decision-making quality	0–100	0–100	0–100	Structured rating

Note: All encounter characteristics and outcome values are simulated for methodological illustration and do not represent observations from patients or clinicians.

4.2 Relational Quality Measurement

Relational quality is modeled as a composite score comprising six domains: clinician presence, uninterrupted listening, patient participation, continuity of eye contact, shared decision-making, and patient trust. Each component is standardized before aggregation to a 0–100 score. The construct is intentionally broader than satisfaction because a patient may report satisfaction despite limited participation, while a high-quality relationship should include meaningful attention, understanding, and involvement in decisions.

Patient-facing attention is defined as time during which the clinician is oriented primarily toward the patient rather than the computer or another administrative task. Computer use is not automatically classified as relationally negative. Screen sharing, reviewing information together, or entering a decision that has just been discussed can remain part of a patient-centered interaction. This distinction reflects evidence that electronic systems can both facilitate and constrain communication depending on how clinicians incorporate them into the encounter.

4.3 Statistical and Analytical Approach

Descriptive analysis compares documentation burden across the three strata and evaluates differences in relational quality, trust, patient participation, and patient-facing attention. The primary hypothetical association is the change in relational-quality score as documentation burden moves from low to

moderate and high. Secondary analyses examine whether documentation multitasking shows a stronger relationship with relational quality than total documentation time.

In an empirical study, multilevel regression would be preferable because encounters would be nested within clinicians and clinicians within organizations. Potential confounders would include encounter complexity, patient age, new versus established patient status, language discordance, clinician experience, specialty, clinic workload, staffing support, and EHR configuration. Event-log metrics could be integrated with direct observation or video-coded communication data. The present simulated analysis does not perform causal inference and should be interpreted only as a demonstration of a testable methodological framework.

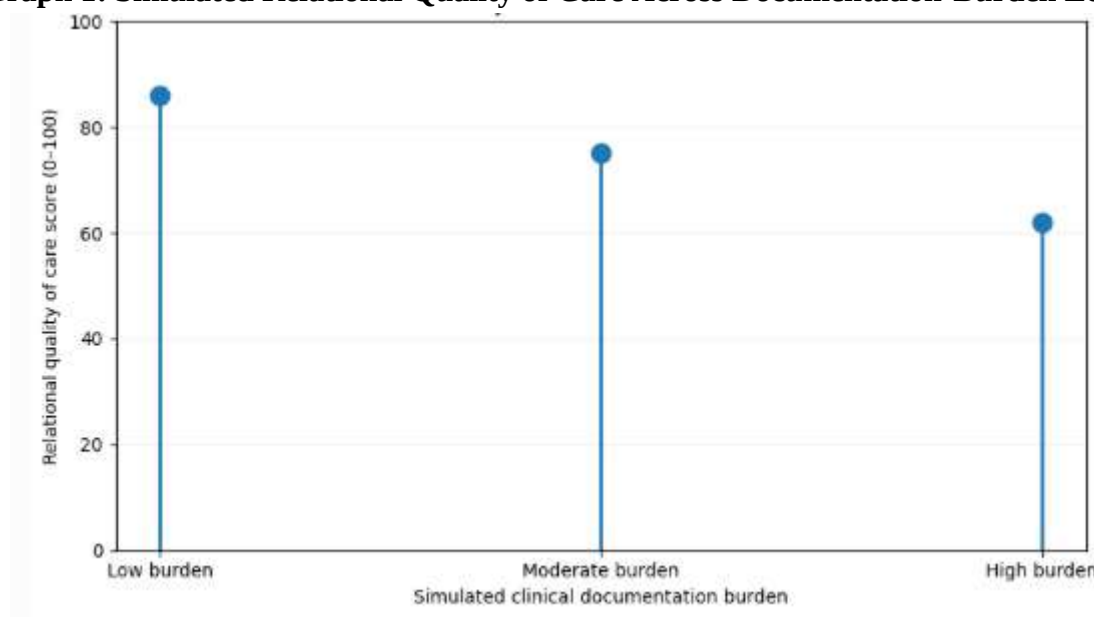
5. Analysis

5.1 Relational Quality Across Documentation-Burden Levels

The simulated composite relational-quality score is 86/100 in low-burden encounters, 75/100 in moderate-burden encounters, and 62/100 in high-burden encounters. The modeled difference between low and high burden is therefore 24 points. The decline is accompanied by progressive reductions in patient-facing attention and uninterrupted listening, suggesting that the relationship is not generated by a single patient-experience item.

The pattern should not be interpreted as evidence that completing documentation causes relational care to deteriorate by a predetermined amount. Instead, the simulation illustrates a plausible dose-response hypothesis. Documentation becomes most disruptive when it is simultaneously time consuming, fragmented, and performed during clinically important patient narrative. This interpretation is consistent with research showing that patterns of EHR-directed gaze and interaction can influence patient participation.

Graph 1: Simulated Relational Quality of Care Across Documentation-Burden Levels





Graph Note: Values are simulated and represent a hypothetical composite relational-quality score ranging from 0 to 100.

Interpretation: Relational quality declines progressively as modeled documentation burden increases. The reduction is moderate between low and medium burden and becomes more pronounced under high-burden conditions.

Key Finding: The simulated relational-quality score decreases from 86 to 62 points, corresponding to a 24-point difference between low- and high-documentation-burden encounters.

5.2 Patient-Facing Attention, Listening, and Trust

Patient-facing attention declines from 78% of encounter time under low documentation burden to 65% under moderate burden and 49% under high burden. The proportion of encounters in which the patient completes the initial problem narrative without clinically unnecessary documentation interruption is modeled at 84%, 67%, and 43%, respectively. Patient-reported trust follows a similar pattern, decreasing from 9.0 to 8.1 and then 7.0 on a ten-point scale.

These outcomes illustrate the difference between documentation performed around the relationship and documentation performed through the relationship. When clinicians explain that they are entering information, briefly pause data entry during sensitive disclosures, share the screen when clinically useful, and visibly return attention to the patient, necessary electronic work may remain compatible with relational care. Patient research has shown preferences for eye contact, explanation of computer use, and screen-sharing practices, particularly in linguistically diverse populations.

Table 2: Simulated Documentation and Relational-Care Outcomes

Outcome	Low Burden	Moderate Burden	High Burden	Low-to-High Difference
Relational quality score, 0–100	86	75	62	–24
Patient-facing attention	78%	65%	49%	–29 percentage points
Initial narrative completed without avoidable interruption	84%	67%	43%	–41 percentage points
Patient participation score, 0–100	88	77	63	–25
Shared decision-making score, 0–100	85	76	64	–21
Patient trust, 0–10	9.0	8.1	7.0	–2.0
Clinician perceived presence, 0–100	89	76	60	–29



Outcome	Low Burden	Moderate Burden	High Burden	Low-to-High Difference
Documentation remaining after encounter	2.4 min	5.7 min	10.1 min	+7.7 min

5.3 Documentation Multitasking as a Potential Mechanism

The simulation identifies documentation performed while the patient is speaking as a particularly important mechanism. High-burden encounters contain simultaneous documentation during 53% of patient speaking time, compared with 14% under low burden. Relational quality is modeled as substantially lower when continuous typing persists through emotionally or diagnostically important parts of the patient's narrative.

This result is conceptually consistent with observational research. McGrath and colleagues found that clinicians who created short computer-free intervals and established sustained eye contact demonstrated more nonverbal communication cues. Street and colleagues likewise reported that patterns of EHR interaction affected patient participation. The implication is that reducing relational harm may require redesigning the timing of documentation rather than merely reducing the total number of minutes spent using the record.

6. Discussion

6.1 Documentation Burden as an Attentional Problem

The simulated findings frame documentation burden primarily as a competition for attention. Clinical relationships require clinicians to notice not only factual statements but hesitation, emotion, uncertainty, priorities, and changes in the patient's narrative. Documentation, in contrast, frequently demands precise categorization, navigation, reading, typing, ordering, and verification. Performing both simultaneously may divide cognitive and visual attention even when the clinician remains verbally responsive.

Existing time-motion evidence makes this concern plausible. Sinsky and colleagues documented extensive EHR and desk-work time within ambulatory practice, while Arndt and colleagues found a large volume of EHR activity relative to direct patient care. These studies do not themselves establish deterioration in relational quality, but they demonstrate the size of the competing workload. The present simulation extends that evidence by proposing specific relational outcomes that future empirical research could measure alongside event-log data.

The relational consequences should also be distinguished from simple visit duration. A 20-minute encounter containing several periods of uninterrupted presence may be perceived as more attentive than a longer encounter in which the clinician continuously switches between the patient, inbox, orders, alerts, and documentation fields. The quality of temporal attention may therefore be as important as its absolute quantity.

6.2 Technology Should Be Integrated Into, Not Positioned Against, the Relationship

The analysis does not support abandoning electronic documentation. EHR systems provide important informational functions, and previous literature shows that electronic records can improve information

exchange while producing variable effects on interpersonal communication. The practical objective should be to design documentation workflows that support the clinical relationship rather than require clinicians to choose between adequate records and adequate presence.

Several relational strategies follow from existing research. Clinicians can explain why they are looking at the screen, share relevant information with the patient, position the monitor so that it becomes a common visual workspace, pause typing during emotionally important disclosures, and deliberately restore eye contact after data-entry tasks. Asan and colleagues found that screen sharing influenced nonverbal communication patterns, while patients in Khoong and colleagues' qualitative research expressed preferences for eye contact, explanation, and greater transparency around computer use. These strategies may not reduce documentation quantity, but they can change how electronic work is incorporated into the encounter.

System-level redesign is equally important. Clinician communication training alone cannot compensate indefinitely for duplicative documentation, excessive mandatory fields, inefficient templates, poorly configured alerts, or administrative requirements that do not contribute meaningfully to patient care. Shanafelt and colleagues' findings concerning clerical burden and burnout reinforce the importance of organizational as well as individual responses. Documentation-quality improvement should therefore include simplification, delegation where appropriate, removal of unnecessary duplication, better interface design, and protected mechanisms for completing unavoidable documentation.

6.3 Implications, Limitations, and Future Research

The central implication is that documentation quality and relational quality should be treated as simultaneous design outcomes. Reducing documentation indiscriminately could damage continuity, safety, medico-legal integrity, or interdisciplinary communication. Conversely, maximizing documentation completeness without considering the human encounter may create records that are administratively detailed but relationally costly. The appropriate target is high informational value with minimal unnecessary cognitive and clerical burden.

The present study has substantial limitations because every encounter and outcome is simulated. No physician, nurse, allied health professional, or patient was observed, and no EHR event logs were analyzed. The relational-quality score is a proposed composite rather than an externally validated empirical measure in this dataset. The simulation also simplifies the relationship between documentation and care by categorizing burden into three levels, whereas actual documentation demand varies continuously and is strongly affected by case complexity, professional role, organizational policy, and specialty.

Future empirical studies should integrate multiple sources of evidence. EHR event logs can quantify active documentation, chart review, order entry, inbox work, and after-hours activity. Direct observation or video analysis can measure gaze, interruptions, task switching, listening behavior, and screen sharing. Patient-reported instruments can assess trust, perceived empathy, involvement, and understanding, while clinician measures can assess cognitive workload and professional well-being. Documentation quality itself must also be evaluated so that reductions in burden do not simply shift risk



elsewhere. Such a design would provide a stronger basis for determining whether documentation redesign improves both clinician sustainability and the relational quality of patient care.

7. Conclusion

Clinical documentation is indispensable to modern healthcare, but the processes used to produce documentation can consume substantial amounts of clinician time and attention. Time-motion and electronic-log research conducted before 2021 established that physicians may spend large portions of the working day interacting with electronic records and performing desk work, including considerable activity outside scheduled patient-facing hours. These demands create an important health-services question: how much informational work can be imposed on the clinical encounter before it begins to interfere with the human relationship required for effective care?

The present simulation suggests a progressive decline in relational quality as documentation burden increases. High-burden encounters demonstrate less patient-facing attention, more documentation multitasking, lower patient participation, weaker shared decision-making, and reduced perceived clinician presence. The most important modeled mechanism is not computer use itself but continuous competition between documentation and listening.

The findings therefore support a balanced approach to clinical informatics. Electronic records should remain accurate, complete, and clinically useful, but documentation processes should be designed around the realities of human attention. Workflow simplification, reduction of low-value clerical requirements, appropriate delegation, improved interface design, strategic screen sharing, and deliberate periods of undivided patient attention may help preserve relational quality without compromising documentation integrity.

Because the numerical results are entirely simulated, empirical validation is essential. Future research should examine objective documentation workload together with directly observed communication and validated patient-experience outcomes. If real-world evidence confirms the proposed relationship, documentation burden should be recognized not only as an efficiency and clinician-well-being issue but also as a potential determinant of relational care quality. The most effective clinical information system would therefore be one that records care accurately while leaving sufficient cognitive and interpersonal space for clinicians to remain fully present with the people for whom that record exists.

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