# Nurses' Perceptions and Recommendations on the Safe Use of "Copy and Paste" Function in an Electronic Medical Record of a National Tertiary Hospital

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## ABSTRACT

**Background and Objectives.** This study at a national tertiary hospital in Manila, Philippines investigated the use of the "Copy and Paste" Function (CPF) within their Electronic Medical Record (EMR). While CPF has benefits and risks, little is known about its usage patterns and impact on patient safety at the institution. This study explores nurses' perceptions and recommendations on CPF use in this hospital's EMR, assessing its prevalence, impact on patient safety, associations between prevalence and impact, and providing usage recommendations.

**Methods.** A sequential explanatory research design was employed using surveys and semi-structured interviews. Ethical clearance was obtained before data collection. Instruments were adapted from similar studies and have undergone expert validation. Content validity was confirmed, and internal consistency was acceptable (Cronbach's Alpha = 0.77). Stratified random sampling determined the respondents per area. Data analysis included descriptive statistics, Spearman's rho, and thematic analysis.

**Results.** The survey (n = 256) showed CPF use by nurses and doctors, and was confirmed by semi-structured interviews (n = 9). Nurses generally perceived CPF's impact on documentation as neutral (40.17%), leaning towards positive impact. Interviews supported this, revealing both "challenges" and "benefits" of CPF use as themes after thematic analysis. There was no statistically significant association between perceived CPF prevalence and its perceived impact on patient safety (p = 0.164). The theme "considerations for safe CPF use" also emerged from the analysis.

**Conclusion.** This study found mixed perceptions on CPF's impact in healthcare. There is a call to continue its use, but safety measures must be implemented first. Recommendations include order verification, caution, practice standardization, selective CPF usage, additional technological features, and alternative documentation methods. A governance structure to manage EMR-related issues, such as unsafe CPF practices, is also recommended to ensure proper monitoring and response.

*Keywords: patient safety, electronic medical record (EMR), nurses, Philippines*



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## INTRODUCTION

### Background

The widespread adoption of CPF in healthcare is not surprising considering how it is highly regarded by healthcare professionals, especially those from the medical field, from across the globe.[1] The results of one study demonstrated that the amount of unique information in patients' progress reports diminishes from admission to discharge.[2] According to this study, most information is redundant or copy-pasted as time progresses.

CPF's benefits include less time spent completing patient reports and accurate copying of frequently recurring

data, creating an overall image of increased efficiency.[3,4] This ease translates to other benefits; one of the most notable is less frequent feelings of burnout among physicians.[5] Other notable advantages include data collection efficiency, improved timeliness, readability, consistency, completeness, communication, positive outcome measure, and opportunities for medical research and education.[4,6] In general, CPF saves physicians time and allows them to concentrate more on the patient's condition and decision-making.[4]

Despite its broad adaptation, it is not without flaws. Critics of the use of CPF point out the potential for abuse and misuse, affecting patient safety. Data may be indiscriminately copied to future notes even if it is no longer applicable.[7] Data may also be copied without being reviewed.[8] Aside from human errors, software errors may also lead to data integrity and accuracy issues. Data may be inaccurately represented as a result of software errors or glitches.[9] These result to data inaccuracies, which were mentioned from related studies.[1,2,10-14] These data inaccuracies could result to compromised quality of clinical information; errors and inefficiencies in clinical management such as misdiagnosis and readmissions; patient safety issues; and legal and ethical issues.[1,2,4,6,10,15-20]

The Computerized Registry on Admissions and Discharges (RADISH) is a hospital information system that was created by the University of the Philippines-Philippine General Hospital (UP-PGH) with the initial goal of maximizing bed utilization by tracking the census of each unit. It later developed into an EMR during the pandemic to provide remote access to patient charts beyond COVID-designated zones. The adoption did not, however, come without challenges, particularly given how suddenly it was implemented. A number of adjustments have been made over time to bring the old paper-based documentation system into the digital version that it is today.

CPF was previously employed in RADISH, but there were no known studies that described its use or assessed its impact on patient care. CPF allowed health workers at UP-PGH to cope with the fast-paced transition of care. Given this, they are also prone to the risks involved with using CPF. In 2022, two years after the EMR rollout, CPF was prohibited from RADISH due to patient safety concerns. The restriction received mixed reactions from various users, as it had huge implications for their workload, necessitating more time to be allotted for documentation.

### Statement of the Problem

Learning about the patterns and impact of CPF use is necessary to measure how vulnerable users and patients are to patient safety issues. Aside from this, there have been several anecdotal reports about occurrences of bypassing the program prohibiting CPF use, suggesting a persistent attachment to the function. There was a need to understand why these occur and determine what measures to take in order to meet users' needs without compromising patient safety.

UP-PGH nurses detect documentation errors in chart entries whenever they carry out orders. Moreover, they also notice documentation and medication administration errors whenever they do a 24-hour chart review each night. Hence, their perceptions in this matter were essential to fully grasping the depth of the problem. This has put them in a unique position to give recommendations on how to address the issues that were elicited during data collection.

This study was conceptualized knowing that, despite the known patient safety issues with using the CPF, it could still be beneficial in some other ways.

## OBJECTIVES

This study aims to determine the perceptions and recommendations of nurses on using CPF in a national tertiary hospital EMR. Specifically, this study aims to determine the prevalence of CPF use in the EMR as perceived by nurses, determine nurses' perceived impact of CPF use on patient safety, determine the association of nurses' perceived prevalence of CPF use with their perceived impact of CPF use on patient safety, and provide recommendations on the use of CPF in the EMR.

### Significance

As mentioned in the background, many international institutions have studied CPF and its association with patient safety. To the best of our knowledge, the topic has not been widely studied in the Philippines. Currently, there is no known local standard of practice in relation to the use of this function.

This study can help managers, programmers, and RADISH users know how to safely implement CPF in their daily work. Although the study's results cannot be generalized to the public, insights can still be gained from this study that could be used to justify policies promoting a positive work culture. The results of this study could inform policies promoting patient safety in the context of EMR implementation.

Since this is a study in a national tertiary public hospital catering to a huge number of patients with varying conditions, this could indirectly help the Filipino people, particularly the patients, by ensuring that the care provided to them is safe and free from errors.

## METHODS

### Study Design

This study used a sequential explanatory research design, employing surveys and interviews as tools for data collection. Initially, the study identified nurses' experiences, perceptions, and recommendations on using the CPF through a survey tool. Then, semi-structured interviews were conducted to expound on the answers elicited from the survey. Data from the interviews was used to try to explain some of the responses in the survey and get a deeper understanding of the impact of CPF on patient safety.

## Study Setting

The study was conducted at UP-PGH. UP-PGH is the national tertiary hospital and an end-referral center in the Philippines. On average, the nurse-patient ratio is 1:15 in service wards and 1:2-3 in ICUs. This is the setting of the study because it is where RADISH was developed and implemented. The implementation of RADISH could be different from other EMRs on the market since it is a home-grown EMR. Hence, it is not comparable with other EMRs.

## Population and Sampling Design

Nurses are the respondents in this study. Letters were sent to head nurses through their chief nurses to get the list of their respective nurses. From there, stratified random sampling was used to get the number of respondents needed for the survey per area. The list was screened for staff nurses (Nurse I and Nurse II) and charge nurses (Nurse III) who were employed for at least two weeks during the conduct of data collection and with at least two weeks of experience using RADISH in documentation and chart review. A minimum of two weeks of experience is required, which is patterned after a similar study.[12] Nurses from the Department of Outpatient Services were excluded since they use RADISH differently from the rest of the nurses.

A total of 868 nurses who were eligible to participate in the study were employed at the time of data collection, excluding those who participated in the pre-testing of the tool. The minimum sample size requirement computed using R version 4.0.3 is 267. Considering a 20% non-response rate, the final computed sample size is 320 participants. Meanwhile, respondents for the interview were sought by asking them in the survey about their willingness to participate. Interviews were conducted until data saturation was obtained.

## Data Collection

Data collection was done in two parts: using self-administered questionnaires and conducting semi-structured interviews.

The self-administered questionnaire was formed based on a similar study.[12] Demographic characteristics, including sex, age, position, area of assignment, and length of service, were collected first through the questionnaire. The second part elicited nurses' practices on CPF use, including their comfort with use, frequency of use, and how they use it. It also elicited their perceived prevalence of CPF use among doctors, asking about how often they encounter it and on which parts of notes they observe it. Their perceived impact, overall opinion, and recommendations on CPF use were measured using a Likert scale. At the end of the questionnaire, the participants were asked if they were interested in participating in a semi-structured interview and to provide contact information if they did.

The guide questions for the semi-structured interviews were adapted from a similar study.[21] The questions explored the answers provided by the survey respondents in their questionnaires. Specifically, it explored their perceptions towards people who use CPF, their positive and negative experiences in using and carrying out orders written using CPF, their perceptions of the impact of CPF on patient safety, and suggestions and best practices for CPF use.

Since the tools were not yet tested for validity and reliability from their original sources, expert validation through a panel of experts knowledgeable and experienced with the topic was done before data collection. The panel was composed of the chief of the Quality Improvement and Patient Safety (QUIPS) Committee, a nurse educator, a nurse manager, a health informatics student, and a psychometrician. Each of them was given a copy of the tools, and they were asked to evaluate each item for the degree of relevance, clarity, and appropriateness. Remarks were also elicited from items that needed to be revised or removed. After collating the answers from the panel, the tools were revised as suggested, while the analysis of relevance, clarity, appropriateness, and internal consistency was sought from a statistician.

The panel agreed that most items were clearly stated. However, thirteen items were considered unclear and were paraphrased according to their suggestions. The panel agreed that most items were relevant to be included in the tool. The following items were removed as they were reported to lack relevance and appropriateness:

- "How do you currently write your nurses' notes?"
- "How has CPF affected the ability of progress notes to facilitate billing?"

After revising the tools, pre-testing was conducted with ten participants from a single unit. A focus group discussion immediately followed the administration of the tool to gather more feedback about the appropriateness of questions, the length of administration, and other concerns. The answers were not included in the final data processing and analysis, and the chosen unit was no longer included in the final sample population.

Overall, the questionnaire had acceptable internal consistency, with a Cronbach's alpha of 0.77. The subscales on "use of copy and paste function", "electronic note reading", and "over-all opinion" have acceptable to excellent internal consistency, respectively. Meanwhile, the subscale on "the future of electronic note writing" have poor internal consistency, while the subscale on "use of computerized nursing documentation" have unacceptable internal consistency. The value of their Cronbach's Alpha is stated in Table 1.

Survey participants were randomly selected by the investigators from the lists gathered from head nurses to avoid sampling bias. Nurses were screened first according to the inclusion criteria. Then, each nurse was assigned a number. Random numbers were generated using a website called Research Randomizer to guide the researchers in identifying who among the nurses is the priority for participant recruitment. The number of participants recruited per area depended on the sample size computed above.

**Table 1.** Internal Consistency of the Questionnaire

| Subscales | Chronbach's Alpha |
|---|---|
| *Use of computerized nursing documentation (Items 1-2)* | 0.3282 |
| *Use of copy and paste function (Items 3-7)* | 0.7267 |
| *Electronic note reading (Items 8-13)* | 0.8329 |
| *Over-all opinion (Items 14-15)* | 0.9082 |
| *The future of electronic note writing (Items 16-17)* | 0.6056 |
| *Global* | **0.7657** |

Each unit was sent an envelope containing the informed consent forms, survey forms, interview invitations, and the names of those selected. Close coordination was done with the participants to ensure that the questionnaires had been answered completely. When a nurse was not able to answer the questionnaire after a week or chose not to participate in the study, the researchers selected another staff member from the same unit, guided by the initial prioritization.

No identifying information was encoded and stored digitally. Instead, each participant was assigned a unique alpha-numerical identifier should cross-referencing be necessary at a later stage of data collection and processing. Contact details of the primary investigator were provided in the survey forms to allow participants to ask questions about the research.

Those who have manifested their interest in the interviews were asked for contact information for meeting coordination. Interviews were done on the dates and times provided by the participants. Their consent for audio recording was sought prior to the interview for later transcription. When the participants did not consent to recording the interview, the investigators performed it while taking notes simultaneously. Six out of the nine sessions had recordings of the proceedings, while the other three were from the notes only. Four of the nine sessions were conducted face-to-face after the participants' working hours at their chosen venue, while the rest were conducted via Zoom. Each interview lasted for about 50 minutes to an hour. Interviews were done separately by investigators NR and CR.

## Data Processing and Analysis

Answers from the questionnaires were encoded via Google Forms. Data was then extracted into a CSV file and endorsed to a statistician for data analysis. Items with no answers were not included in the final analysis. No identifying information was included in the file.

Meanwhile, the data collected from the semi-structured interview was transcribed by the investigators. Cross-checking and verification were done by investigators NR and CR. Then, a thematic analysis was performed by these two investigators to identify common themes from the interviews. The identified themes were then sent to the respondents via email for respondent validation. No one contested the results.

Descriptive statistics were used to summarize the answers gathered from the questionnaires for the demographic data, actual prevalence and frequency of use, perceived prevalence, and perceived impact of CPF use. Items gathering narrative data were analyzed using thematic analysis. Meanwhile, Spearman's rho was used to test the association of the perceived prevalence of CPF use (independent variable) with its perceived impact (dependent variable) on patient safety.

## Data variables and definitions.

### *Perceived Impact of CPF Use*

Using the questionnaires, the impact of CPF use was measured in terms of trustworthiness, accuracy, consistency, difficulty in finding new information, having a basis for clinical decisions, and effects such as confusion and medical errors. During the interview, respondents were asked about aspects of nurses' and doctors' CPF use that are beneficial and are prone to patient safety issues.

### *Prevalence of CPF Use*

This was measured by asking how often they encounter notes written using CPF, how often they use CPF in documentation, and their perceived percentage of CPF usage.

## Ethical Considerations

Approval from the University of the Philippines Manila - Research Ethics Board (UPM-REB) was provided before data collection, with UPMREB code 2022-0477-01.

### *Social Value*

Safe practices in the use of CPF and the conduct of nursing care are important in ensuring desirable clinical outcomes. This research can assist managers, programmers, and RADISH users in understanding how to safely utilize CPF in their daily jobs. Although the study's findings could not be applied to the general population, there are still lessons to be learned from them that might be utilized to support policies aimed at fostering a favorable workplace culture. The results of this study could inform policies promoting patient safety in the context of EMR implementation.

### *Informed Consent*

Informed consent was secured by the investigators before the conduct of the study, and its principles were upheld throughout and beyond its completion. The form provided a concise explanation of each subject's participation in the study. It included the study's purpose, methodology, statement of risks and benefits, data protection plan, and contact information of the primary investigator and UPM-REB Panel Chair. The form clearly stated the voluntary nature of their participation, and withdrawal from the study anytime during its course is acceptable. Written consent was no longer needed since answering the questionnaire implies consent. This is guided by the provision of the National Ethical Guidelines for Health and Health-Related Research (2017) about the waiver of informed consent documentation.

### *Risk, Benefit, and Safety*

There is minimal risk for the study participants because they only answered self-administered questionnaires. They, however, were at risk of recalling traumatizing events during the survey or interviews. The investigators had a psychological nurse on standby to de-escalate the situation. Investigators will make a proper referral should the situation not be de-escalated. There is also the risk of breach of confidentiality, which the investigators minimized by using unique identifiers for self-administrated questionnaires and not including names on the recordings of the interviews. Should there be a breach of confidentiality, the primary investigator will report the situation to the institution's data protection officer.

Participants received a token of appreciation after conducting the semi-structured interview. Monetary tokens were not given at any point in the study. The investigators ensured participants' safety against the spread of COVID-19 by using online platforms as much as possible. There was no direct benefit for the study participants. Still, this study could help them alleviate the risks of CPF for patient safety by ensuring that they are presented with reliable data for patient care.

### *Privacy and Confidentiality*

Each participant's identity and private information were handled by observing the principle of confidentiality. The self-administered questionnaire only collected information pertinent to the study. The semi-structured interviews were held in a private online meeting to ensure the privacy of each participant. When the participants opted for a face-to-face interview, they were accommodated in a closed and comfortable room. All data collected for this study, including survey responses, recordings of interviews, and transcriptions of the recordings, are stored in the primary investigator's UP Google Drive, which only the authors of this study can access. Only the primary investigator can share access to this folder. Hard copies of questionnaires and interview guides were stored and secured with a lock in the Division of Nursing Research and Development's (DNRD) office. Data were blinded when the service of a statistician was required. No identifying information will be included in the published study.

**Table 2.** Characteristics of Survey Respondents

| Profile | Median/ Frequency | IQR/ % |
|---|---|---|
| ***Age, years*** | 36 | 12 |
| ***Sex*** | | |
| Male | 57 | 22.4% |
| Female | 198 | 77.7% |
| ***Position*** | | |
| Nurse I | 13 | 5.1% |
| Nurse II | 211 | 82.8% |
| Nurse III | 31 | 12.2% |
| ***Highest educational attainment*** | | |
| College Graduate | 234 | 94% |
| With units for Master's degree | 4 | 1.6% |
| Master's degree holder | 11 | 4.4% |
| ***Area of assignment*** | | |
| Service wards | 76 | 29.7% |
| Pay wards | 44 | 17.2% |
| ICU/ Special units | 72 | 28.1% |
| OR/ PACU | 47 | 18.4% |
| ER Units | 17 | 6.6% |
| ***Length of service, years*** | 8 | 13 |

### *Justice*

Responses that satisfied the inclusion criteria were honored. An ample period of seven days was given to each participant before the questionnaires were collected from their respective areas. During the semi-structured interviews, participants' right to free speech was respected. The researchers, acting as moderators, ensured ample time for the participants to express their sentiments. Therapeutic communication techniques were used to diffuse possible hostilities and ensure participants were given uninterrupted turns to speak.

### *Transparency*

This research is funded by the UP-PGH Expanded Hospital Research Office (EHRO). The researchers declare no conflict of interest. Participants may request a copy of the results of the study within a year of its accomplishment.

## RESULTS

### Survey

A total of 325 questionnaires were distributed to the areas, but only 256 nurses were able to give back the questionnaires with complete answers, which were short by nine respondents compared to the minimum sample size. The survey has a response rate of 78.8%, which is beyond the suggested cutoff for a sufficient response.[22] Table 2 describes the characteristics of survey respondents.

The median age of the respondents is 36 years old, indicating that half of the respondents were below 36 years old and the other half were above 36 years old. The interquartile range is 12, which means that the middle 50% of the respondents fall within a range of 12 years, starting from the 25$^{th}$ percentile to 75% percentile of the respondents. Most of the respondents were female (77.7%), college graduates (94%), Nurse II (82.8%) and from service wards (29.7%). The median length of service in years is eight, with an interquartile range of 13.

Table 3 summarizes the responses of survey respondents to different item groups. The majority of the nurses were comfortable writing their notes electronically in the hospital's EMR (very comfortable: 46.6%; somewhat comfortable: 47.4%). The majority were also knowledgeable about using CPF when entering a note (70.2%). With this, almost one-third (32.4%) were using CPF when writing their notes most of the time, and only a few were rarely (15.2%) or not using it (16.7%). When they do use CPF on their notes, the majority

do not copy the whole note (80.5%). More than half (52.4%) usually copy the plan or interventions; almost half (47.3%) copy the nursing diagnosis; and others copy the subjective cues (29.9%), past medical history (35.9%), and physical exam (36.2%). Almost half used CPF to copy parts of their own notes from the previous day (44%).

Respondents reported that they encounter a doctor's order containing copied and pasted information most of the time (45.6%) to almost always (26.6%). They, however, do not perceive the whole entry as being copied (59.5%). The portions that they usually perceive as copied most of the time were the medication list (73.6%) and past medical

**Table 3.** Responses to the Different Item Groups

| | Response | n | % |
|---|---|---|---|
| **Use of computerized nursing documentation** | | | |
| ***How comfortable are you writing inpatient notes electronically on your hospital's EHR system?*** | Very comfortable | 115 | 46.6 |
| | Somewhat comfortable | 117 | 47.4 |
| | Somewhat uncomfortable | 11 | 4.5 |
| | Very uncomfortable | 4 | 1.6 |
| ***Do you know how to use the copy and paste function (CPF) when entering an electronic inpatient note?*** | Yes | 177 | 70.2 |
| | No | 75 | 29.8 |
| **Use of copy and paste function** | | | |
| ***How often do you use the copy and paste function (CPF) when writing a nurses' note?*** | Almost always | 31 | 14.8 |
| | Most of the time | 68 | 32.4 |
| | Sometimes | 44 | 21 |
| | Rarely | 32 | 15.2 |
| | Never | 35 | 16.7 |
| ***When you copy and paste a nurses' note, do you copy the whole note?*** | Yes | 40 | 19.5 |
| | No | 165 | 80.5 |
| ***If not, which portion/s do you usually copy?*** | Subjective | 43 | 29.9 |
| | Past medical history | 52 | 35.9 |
| | Physical exam | 54 | 36.2 |
| | Nursing diagnosis | 69 | 47.3 |
| | Plan/ intervention | 77 | 52.4 |
| ***Have you used the copy and paste function (CPF) to do the following things?*** | Parts of own note from previous day | 85 | 44 |
| | Parts of resident or fellow's entry | 51 | 26.4 |
| | Parts of consultant's entry | 31 | 16.2 |
| | Parts of pharmacist's entry | 8 | 4.2 |
| **Electronic note reading** | | | |
| ***Do you ever read electronic inpatient notes?*** | Yes | 229 | 94.2 |
| | No | 14 | 5.8 |
| ***How often do you encounter a doctor's order containing copy and pasted information?*** | Almost always | 66 | 26.6 |
| | Most of the time | 113 | 45.6 |
| | Sometimes | 48 | 19.4 |
| | Rarely | 10 | 4 |
| | Never | 11 | 4.4 |
| ***When you see a copy and pasted doctor's order, do you perceive the whole entry as being copied?*** | Yes | 98 | 40.5 |
| | No | 144 | 59.5 |
| ***If not, which portion/s do you perceive as usually copied?*** | Subjective | 50 | 34.5 |
| | Past medical history | 76 | 51.4 |
| | Physical exam | 54 | 37.2 |
| | Vital signs | 35 | 24 |
| | Lab/ radiology studies | 61 | 41.8 |
| | Assessment | 69 | 45.7 |
| | Problem list | 62 | 42.5 |
| | Medication list | 114 | 73.6 |
| | Plan | 66 | 44.6 |
| ***Have you ever made a mistake in patient care that you feel was a result of being confused by a note that contained copy and pasted text?*** | Yes | 36 | 14.6 |
| | No | 168 | 68.3 |
| | Unsure | 42 | 17.1 |

history (51.4%). Following these closely were assessment (45.7%), plan (44.6%), problem list (42.5%), and laboratory or radiology studies (41.8%).

The majority (68.3%) reported that they have not made a mistake in patient care from being confused by notes containing copied and pasted information. However, we cannot disregard that some (14.6%) admitted that they had made a mistake because of this.

Table 4 summarizes the level of agreement of survey participants with different statements in the survey. It includes statements comparing notes written with and without CPF, statements on their preferences on its future implementation, and recommended restrictions on CPF use.

The impact of CPF on physician and nursing documentation was seen as neither positive nor negative (neutral = 40.2%), as shown in Table 5. However, the combined scores from the opposite sides of the Likert scale indicate that the respondents' perceptions are leaning more towards the positive impact of CPF, with a total percentage of 52.3% (very positive = 18.4%; slightly positive = 33.9%). They perceived that CPF has slightly improved the ability of progress notes to accurately communicate a patient's progress to other healthcare providers (46.3%), document a patient's entire hospital course (40.8%), and document a patient's course for legal purposes (38.4%).

Despite the positive impact of CPF on documentation, several issues were revealed when electronic notes created using CPF were compared to notes written without using CPF. Most of the respondents agreed that notes created using CPF were more outdated (48.1%), inconsistent (48.1%), lack justification for clinical decisions (46.2%), increase the likelihood of a mistake occurring in the care of a patient (43%), and lead to more confusion about the condition, status, or plan of a patient (36.7%). They also agreed that it is more difficult to find new information in notes written using CPF (39.7%). Most of the respondents neither agreed nor disagreed when asked whether the information contained in notes written using CPF is more trustworthy than in notes written without using CPF (40.5%). However, when data from the opposite sides of the Likert scale were combined, the overall sentiment was leaning towards disagreement, with a total percentage of 35.9% (disagree = 28.3%; strongly agree = 7.6%) (Table 4).

Despite these issues, the majority of the respondents agreed that the use of CPF should be continued and facilitated in future documentation systems (41.6%). However, they also

**Table 4.** Level of Agreement of Respondents to the Different Statement Groups

| | Responses, n (%) | | | | |
|---|---|---|---|---|---|
| | SA[a] | A[b] | N[c] | D[d] | SD[e] |
| **Reading inpatient electronic notes that have been created using CPF compared to notes written without using CPF** | | | | | |
| ***The information contained in notes written using CPF is more trustworthy than in notes written without using CPF*** | 16 (6.8) | 40 (16.9) | 96 (40.5) | 67 (28.3) | 18 (7.6) |
| ***It is more difficult to find new information in notes written using CPF*** | 22 (9.3) | 94 (39.7) | 57 (24) | 54 (22.8) | 10 (4.2) |
| ***Notes written using CPF contain more outdated information than notes written without CPF*** | 34 (14.4) | 114 (48.1) | 50 (21.1) | 32 (13.5) | 7 (3) |
| ***Notes written using CPF contain more inconsistent information (Text within a note that clearly contradicts another part of the note: such as 'd/c ASA' and 'continue ASA' in the same note)*** | 38 (16) | 114 (48.1) | 58 (24.5) | 22 (9.3) | 5 (2.1) |
| ***Notes written using CPF lack justification for clinical decisions (such as 'start lasix' without any explanation for this change) more often than notes written without CPF*** | 19 (8.1) | 109 (46.2) | 69 (29.2) | 30 (12.7) | 9 (3.8) |
| ***Notes written using CPF lead to more confusion about the condition, status or plan of a patient than notes written without CPF*** | 39 (16.5) | 87 (36.7) | 62 (26.2) | 37 (15.6) | 12 (5.1) |
| ***Notes written using CPF increase the likelihood of a mistake occurring in the care of a patient compared to notes written without CPF*** | 50 (21.1) | 102 (43) | 39 (16.5) | 36 (15.2) | 10 (4.2) |
| **The future of the copy and paste function (CPF)** | | | | | |
| ***The use of CPF should be continued and facilitated in future documentation systems*** | 75 (30) | 104 (41.6) | 53 (21.2) | 14 (5.6) | 4 (1.6) |
| ***Education should be provided to physicians regarding how to use the CPF responsibly*** | 146 (58.2) | 96 (38.3) | 8 (3.2) | 1 (0) | 0 |
| ***Copy-and-pasted text should be readily identifiable (example: highlighted or in italics)*** | 121 (48.4) | 96 (38.4) | 25 (10) | 6 (2.4) | 2 (0.8) |
| ***Alerts should pop up notifying the provider that a note is not significantly different from an old note*** | 127 (50.8) | 91 (36.4) | 24 (9.6) | 5 (2) | 3 (1.2) |
| **Restriction of CPF** | | | | | |
| ***Don't allow copying and pasting of certain parts of the note (for instance physical exam)*** | 82 (32.3) | 98 (38.6) | 46 (18.1) | 23 (9.1) | 5 (92) |
| ***Don't allow a provider to copy and paste notes from another author*** | 82 (32.4) | 99 (39.1) | 28 (11.1) | 37 (14.6) | 7 (2.8) |
| ***Don't allow the use of copy and paste for certain types of notes (progress notes) but allow for others (discharge summaries)*** | 59 (23.2) | 100 (39.4) | 46 (18.1) | 40 (15.8) | 9 (3.5) |

*[a]Strongly Agree, [b]Agree, [c]Neutral, [d]Disagree, [e]Strongly Disagree*

agreed that certain restrictions must be followed if this is to be continued. They agreed that healthcare providers must not be allowed to copy and paste certain parts of the note (38.6%), copy and paste notes from another author (39.1%), and use CPF on certain types of notes like progress notes (39.4%). Other measures to address these issues include training physicians regarding the responsible use of CPF (strongly agree = 58.2%), the use of indicators to readily identify copied and pasted texts (strongly agree = 48.4%), and the use of alerts to notify providers that a note is not significantly different from an old note (strongly agree = 50.8%) (Table 4).

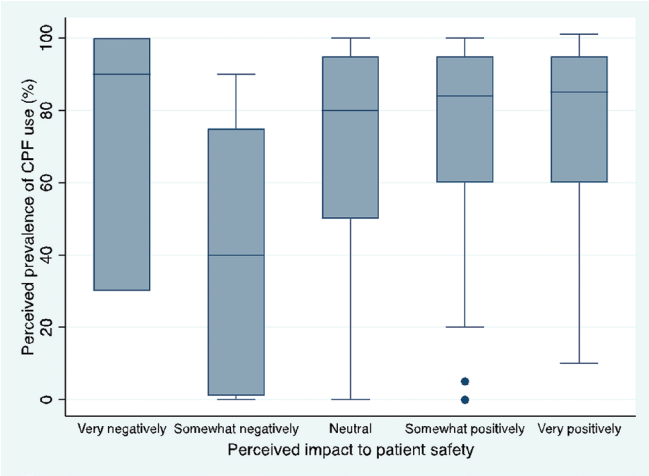


**Figure 1.** Perceived prevalence of CPF and perceived impact to patient safety.

The median perceived prevalence of CPF use was 80%. Using Spearman's rho to correlate the perceived prevalence with the perceived impact on patient safety, it yielded a score of 0.1642 (95% confidence interval). This means that the perceived prevalence has a low to negligible correlation with the perceived impact on patient safety. This is demonstrated in Figure 1.

## Semi-structured Interviews

Meanwhile, semi-structured interviews were conducted for a total of nine sessions. Data saturation was reached on the seventh session, and an additional two sessions were conducted to ensure that no additional information would be elicited. The characteristics of the participants are presented in Table 6.

The results of the thematic analysis on the perceived impact of CPF on patient safety revealed three major themes, which further demonstrated the pros and cons of CPF. These themes were expounded further using sub-themes and categories, which are listed in Table 7. Illustrative quotes were translated into English for the purpose of publication.

**Table 5.** Perceived Impact of the Respondents

| | Responses, n (%) | | | | |
|---|---|---|---|---|---|
| | GI[a] | SI[b] | NE[c] | SW[d] | GW[e] |
| ***How has CPF affected the ability of progress notes to serve the following functions?*** | | | | | |
| To accurately communicate patient's day to day course to other current inpatient providers | 66 (27.1) | 113 (46.3) | 45 (18.4) | 15 (6.2) | 5 (2.1) |
| To document patient's entire hospital course | 89 (36.3) | 100 (40.8) | 39 (15.9) | 13 (5.3) | 4 (1.6) |
| To document a patient's course for legal purposes | 81 (33.1) | 94 (38.4) | 50 (20.4) | 15 (6.1) | 5 (2) |
| | VP[f] | SP[g] | N[h] | SN[i] | VN[j] |
| ***How do you think the CPF has impacted physician/nursing documentation?*** | 44 (18.4) | 81 (33.9) | 96 (40.2) | 13 (5.4) | 5 (2.1) |

*[a]Greatly improved, [b]Slightly improved, [c]No effect, [d]Slightly worsened, [e]Greatly worsened, [f]Very positively, [g]Somewhat positively, [h]Neutral, [i]Somewhat negatively, [j]Very negatively*

**Table 6.** Characteristics of Interviewees

| Identifier | Age | Sex | Highest educational attainment | Type of area | Position | Years of service |
|---|---|---|---|---|---|---|
| ***Nurse A*** | 29 | Female | Bachelor | Special Unit | Staff nurse | 2 |
| ***Nurse B*** | 54 | Female | Bachelor | Service ward (Pedia) | Charge nurse | 20 |
| ***Nurse C*** | 53 | Female | Bachelor | Service ward (Adult) | Staff nurse | 24 |
| ***Nurse D*** | 52 | Female | Bachelor | Service ward (Adult) | Staff nurse | 16 |
| ***Nurse E*** | 36 | Female | Master | Service ward (Pedia) | Charge nurse | 12 |
| ***Nurse F*** | 34 | Female | Bachelor | Pay ward | Charge nurse | 13 |
| ***Nurse G*** | 31 | Male | Master | Special Unit | Charge nurse | 7 |
| ***Nurse H*** | 32 | Female | Bachelor | Service ward (Adult) | Staff nurse | 8 |
| ***Nurse I*** | 29 | Male | Bachelor | Service ward (Adult) | Staff nurse | 6 |

**Table 7.** Results of the Thematic Analysis

| Themes | Subthemes | Categories | Illustrative Quotes |
|---|---|---|---|
| ***Challenges and negative consequences of CPF in healthcare*** | **Documentation inaccuracy and patient safety**<br>Discrepancies, inaccuracies, or omissions that occur in patient records have the potential to create confusion among the healthcare team and pose risks to patient safety by potentially leading to medical errors, treatment delays, or inappropriate care decisions. | Accomplished orders are still being reordered. | *"For example, 'calcium gluconate x 4 doses.' The dose had been completed that day but the same order still appears on their new order. Why was that ordered again?"* (Nurse B, Charge Nurse, Pedia Service Ward) |
| | | Entries are not edited or updated after CPF use. | *"I find it more of a problem when the charting is so copy-pasted and not edited to make it more particular and tailored to the patient. If what they did is use copy-paste without editing, of course I feel irked. That is something inappropriate for me."* (Nurse E, Charge Nurse, Pedia Service Ward) |
| | | CPF use causes confusion among the healthcare team. | *"We sometimes get confused and always end up asking them, 'Is this supposed to be discontinued or continued still?'"* (Nurse A, Staff Nurse, Special Unit) |
| | | CPF leads to errors in documentation. | *"I have encountered several doctors' entries for patient B that should have been for patient A. If you do not know your patients, you may end up carrying out the misplaced order."* (Nurse I, Staff Nurse, Adult Service Ward) |
| | | CPF may lead to patient safety events. | *"Those kinds of shortcuts are what causes errors on our part, like overdosing. We've had a number of those, such as when they order something that had already been done."* (Nurse E, Charge Nurse, Pedia Service Ward) |
| | **Inefficiencies at work**<br>Documentation inaccuracies from CPF use can result in orders not being carried out as efficiently or optimally as possible. | CPF causes delays in health management. | *"It resulted in a delay in treatment. There was confusion to the point of needing to call the attention of the resident-in-charge (RIC) because the event was quite complicated."* (Nurse G, Charge Nurse, Special Unit) |
| | | The need to clarify orders is an added workload. | *"We then need to spend time looking for the doctor to verify if another set of correction doses needs to be given or that part of the order was merely copied and pasted."* (Nurse I, Staff Nurse, Adult Service Ward) |
| | **Tarnished reputation**<br>Perceptions towards CPF users are negative due to suspicions of unethical or unprofessional behavior, laziness, and over-reliance on CPF. | CPF promotes documentation fraud. | *"On the part of residents, I think it makes their jobs simpler because they don't have to do bedside rounds anymore…We didn't see them do bedside care or evaluation but they have new orders. Patients are not really properly assessed from head to toe. What happens is, because their orders are technically orders, we, as nurses, carry them out even if the residents did not do proper bedside rounds."* (Nurse C, Staff Nurse, Adult Service Ward) |
| | | Copying entries of other healthcare workers is disrespectful. | *"It seems unfair since the primary author made an effort to chart and then some people will just copy them."* (Nurse A, Staff Nurse, Special Unit) |
| | | CPF affects the image of its users. | *"Let's say I mentioned on my charting that the patient has an IVF, but turns out it had already been discontinued. We will be questioned why we stated such. It will appear as if we did not assess properly. Nurses' assessment skills and competence will be questioned."* (Nurse A, Staff Nurse, Special Unit) |
| | | Users of CPF are overly reliant on its use. | *"The downside really is when copy-paste is used without re-reading the entry, or being too reliant on copy-paste."* (Nurse G, Charge Nurse, Special Unit) |
| ***Benefits of CPF in healthcare*** | **Enhanced patient care and management**<br>CPF allows for improved quality of care by providing more effective oversight of a patient's health status and treatment plan. | CPF helps in writing comprehensive orders. | *"Maybe only for the format, just so the orders are complete. What I mean is, when they use copy-paste, they put effort on the first time they did charting and all the pertinent parts of an order are there like the assessment, history, medications, monitoring, etc."* (Nurse E, Charge Nurse, Pedia Service Ward) |
| | | CPF assists in monitoring patients' prognosis and health management. | *"For example, the [certain] service has long comprehensive documentation, for them to really see the progress of their patients, day to day."* (Nurse I, Staff Nurse, Adult Service Ward) |
| | **Error reduction and accuracy in documentation**<br>CPF helps ensure the accuracy of documentation when incorporating information from one source into another by reducing the need for manual data entry and transcription. | Errors in transcription are prevented through CPF. | *"I think nurses using CPF for transcribing is good, actually. It is because what appears on their entry is what the doctor actually wrote."* (Nurse G, Charge Nurse, Special Unit) |
| | | CPF helps in incorporating entries of other services into their own entries. | *"I actually don't know their reasoning behind it but, most of the time the primary service copies the orders of [service A] and [service B] to confirm their orders and for us to carry them out."* (Nurse C, Staff Nurse, Adult Service Ward) |

**Table 7.** Results of the Thematic Analysis *(continued)*

| Themes | Subthemes | Categories | Illustrative Quotes |
|---|---|---|---|
| ***Benefits of CPF in healthcare*** | **Efficiency and time savings** Workflow is optimized with the use of CPF, allowing healthcare providers to allocate more of their time for patient care. | The convenience brought by CPF use helps with workload. | *"Maybe not out of laziness but because we're busy. Since we are a high activity area, we need to hasten our work."* (Nurse B, Charge Nurse, Pedia Service Ward) |
| | | CPF helps accomplish documentation faster. | *"I feel that they are required to chart with quality or format their chart in a lengthy way. Since they are short on time because of numerous bedside tasks then having to do charting in that lengthy and comprehensive manner, they are left with no choice but to use copy-paste."* (Nurse E, Charge Nurse, Pedia Service Ward) |
| | | Saved time from documentation can be allotted to patient care. | *"It reduces time spent using EMR. Primarily, it increases time spent on patient care instead of clerical work."* (Nurse I, Staff Nurse, Adult Service Ward) |
| | | CPF helps save time in documentation for recurring entries such as history, laboratories, procedures, and interventions. | *"On the last part of their orders, that pertaining to bundles of care and common interventions, those I feel are safe to copy and paste since almost all of those are applicable to our area's patients, excluding medications, labs, and assessment."* (Nurse A, Staff Nurse, Special Unit) |
| ***Strategies and considerations for safe use of CPF in healthcare*** | **Order verification and caution** Healthcare professionals should exercise diligence and take proactive measures to prevent misunderstandings in reading and carrying out orders. | Be cautious when carrying out orders. | *"Frustrating. As a charge nurse or whenever we carry out orders, we do not just carry out. We also need to evaluate whether their orders are appropriate or not."* (Nurse E, Charge Nurse, Pedia Service Ward) |
| | | Confirm confusing orders. | *"On an entry, let's say it has an order for correction. In the previous entry, there's already an order for such. And then there's another order for correction on the other one. When you see it had been copy-pasted, that it had been previously ordered, you have to see on the upper parts of their orders of the assessment if they were able to check the latest magnesium levels. Let's say a magnesium correction had just been completed, and you see on the upper section that the magnesium result is still pending; in that case, you need to check and verify the order with the doctor."* (Nurse D, Staff Nurse, Adult Service Ward) |
| | **Standardization of practice** The healthcare setting should establish and enforce consistent procedures, guidelines, or protocols in relation to CPF. | Create policies for safe CPF use. | *"Orient the user on the EMR do's and don'ts. Use penalties for not following directions."* (Nurse I, Staff Nurse, Adult Service Ward) |
| | | Highlight changes in orders. | *"What I recommend is to allow CPF with some restrictions, highlight changes, then have a section for new orders."* (Nurse I, Staff Nurse, Adult Service Ward) |
| | | Countercheck or update chart entries. | *"Maybe when you use copy-paste, review the entry you intend to copy and if you can still edit it. Once you have submitted that, you can no longer erase it."* (Nurse B, Charge Nurse, Pedia Service Ward) |
| | **Selective CPF usage** There should be a deliberate and cautious approach to choosing when and where to use CPF in documentation. | CPF is not recommended for certain cases. | *"Charting, for me, I don't recommend, especially for beginners. Second, if the case is critical. Third, if the case is highly sensitive, for example medico-legal matters, I really don't recommend it."* (Nurse G, Charge Nurse, Special Unit) |
| | | Do not use CPF on certain sections of documentation. | *"For the medication section, I think it's better to enter them manually."* (Nurse H, Staff Nurse, Adult Service Ward) |
| | **Additional technological features** Certain functionalities, tools, or programs must be incorporated into the electronic medical record to improve the safe use of CPF. | Incorporate IT-related interventions for safe CPF use. | *"Create a fixed section in RADISH for history that could be displayed, collapsed, and edited as necessary."* (Nurse F, Charge Nurse, Pay Ward) |
| | | Use visual indicators to signify that the information is copy-pasted. | *"Different font size for copy-pasted words. Larger font or bold or italic for newly-updated information."* (Nurse I, Staff Nurse, Adult Service Ward) |
| | **Alternative documentation methods** Use different approaches or practices that healthcare professionals can adopt instead of using CPF to create documentation. | Do not use CPF. | *"As much as possible, I would rather have no one use it."* (Nurse A, Staff Nurse, Special Unit) |
| | | Use traditional methods in documentation. | *"But if you are trained in the classical way, or traditional way of writing entries, not that I'm biased, but I think it captures more when it comes to the clinical documentation process."* (Nurse G, Charge Nurse, Special Unit) |
| | | Go back to the checklist instead. | *"Maybe go back to the use of checklists to avoid copy-paste."* (Nurse D, Staff Nurse, Adult Service Ward) |
| | | Use templates instead. | *"Maybe for the residents, make it similar to ours which has labels. Ours have parts such as assessment, procedures, and nursing interventions, right? So when they order or need to make an entry, they don't need to use copy-paste; they have a ready-to-fill guide, like a template. Because I feel the main reason they use copy paste is to make their charting or orders complete. So if they have a template for that, they could easily complete their orders."* (Nurse E, Charge Nurse, Pedia Service Ward) |

### Theme 1: Challenges and Negative Consequences of CPF in Healthcare

Several issues related to the use of CPF were mentioned during the interviews. Documentation inaccuracy and its effect on patient safety were the most significant issues raised by the participants. Specifically, reordering of accomplished orders was seen as a threat to patient safety. Some aspects of documentation that were repeatedly pointed out in relation to this were completed medications, completed fluid and electrolyte corrections, and accomplished laboratories or diagnostic studies.

The patient safety events that were commonly identified were medication errors and overcorrection of electrolytes. In terms of errors in documentation, one notable statement was related to a doctor's order written for the wrong patient.

Users of CPF tend to have tarnished reputations because of suspicions of unethical or unprofessional behavior, laziness, and over-reliance on CPF. Some healthcare workers were reported to write their notes without conducting an assessment first, leading to documentation fraud and a negative perception of the person's image.

### Theme 2: Benefits of CPF in Healthcare

Despite the challenges and negative consequences that users reported, they still recognize the benefits CPF brings to documentation and workflow. One notable remark of an interview was about how CPF could help doctors write a comprehensive order faster.

Overall, CPF allows doctors to ensure the comprehensiveness of their orders by helping them document the daily progress of their patients, incorporate entries of other services into their orders, and prevent portions from being overlooked or missed. It allows for faster documentation, which could imply a lighter workload and more time for patient care.

### Theme 3: Strategies and Considerations for Safe Use of CPF in Healthcare

Based on what has been presented so far, CPF has positive and negative effects on healthcare. This is why we need to identify when we draw the line in its implementation. Certain strategies and considerations were specified during the interviews regarding this matter. These strategies suggest that a collaborative approach involving the doctors, nurses, IT office, and management is needed to ensure that the issues are addressed adequately.

Policies have to be in place if CPF is to be used in documentation. One nurse recommended that orientation be conducted for the use of CPF. This nurse also recommended that penalties be considered if unsafe CPF use was observed. A deliberate and cautious approach to choosing when and where CPF should be used was also suggested. However, nurses' perceptions of which sections are safe for CPF use vary.

One interesting IT-related suggestion that could minimize the use of CPF was to create a separate and collapsible section for patient's medical histories since these do not change frequently but are sometimes still included in the daily notes. There were also recommendations on what copied and pasted information should look like in documentation. Indicators such as different font sizes and the use of words identifying copied and pasted portions were cited as examples.

Meanwhile, we also have to note that four out of the nine respondents believe that CPF should no longer be used in documentation and suggest using the traditional, narrative way in documentation. The nurses who suggested that CPF use be stopped have mixed characteristics; most were charge nurses or Nurse III.

## DISCUSSION

### Perceived Prevalence of CPF Use in the EMR

It is important to recognize that despite the institution's efforts to program the EMR to prohibit the use of CPF in documentation, several nurses still observe instances of copied and pasted information in entries. This is evidenced by the reported perceived prevalence of use, actual use by the nurses, and actual encounters with doctors' orders. These results may imply that there is a persistent attachment to the tool, probably because of the benefits it brings to the users in terms of practice and workload, which were mentioned in the thematic analysis.

This study, however, did not examine the specific methods healthcare workers use to employ CPF despite the program restrictions, since this was not within the scope of the study. These findings imply a need for further research to understand how healthcare workers were able to bypass institutional mandates.

Respondents to the survey failed to rank the portions that they usually copy in a note since some used check marks while others used the same numbers all throughout the items, even if the tool explicitly said to rank the items. This was an issue during the pilot testing of the tool but was addressed by paraphrasing the instructions and emphasizing the word "rank" in the instructions. The researchers then opted to interpret them as counts by coding each marked item as one. It still yielded results in the sections of notes that are most frequently copied and pasted.

For the nurses, the portion of a note most commonly copied were the interventions, which were the same across a number of patients in some cases. In terms of doctors' notes, the portions most commonly perceived as copied were laboratory or radiology studies, problem list, plan, assessment, past medical history, and medication list, similar to the findings of some studies.[10-13,15-21,23] One of the advantages of CPF in healthcare, according to our thematic analysis, is its assistance in saving time for documenting recurrent entries such as these portions. Three nurses from the interview, however, mentioned that CPF should not be used for writing the medication and assessment parts of the entries. These

findings underscore the need for establishing guidelines on which sections of notes are safe for CPF use.

### Perceived Impact of CPF Use on Patient Safety

Survey respondents' perceptions of the impact of CPF on documentation are generally positive, but there is a significant neutral sentiment. The survey says that the accuracy of communicating the patient's progress and documenting it has slightly improved with CPF use. It has also slightly improved the way healthcare workers document patient's course in the hospital.

The repeated use of CPF, however, was also found to affect the quality of information negatively, similar to the results of other studies.[1,4,6] This highlights the result of another study saying that the amount of unique information in patient's progress reports diminishes over time.[2] Similar findings from another study were noted when most of the survey respondents reported that notes are outdated and inconsistent, contrasting what has been discussed about the accuracy of information.[12] This may be from using CPF without editing or updating the entries, which was elicited from the thematic analysis. The issue may be compounded by repeatedly passing on erroneous data with every CPF use, as mentioned in the previous studies.[1,7] This affects the trustworthiness of the notes, which further leads to another issue of added workload for verifying orders.

The thematic analysis reveals contrasting themes on CPF's impact on documentation, suggesting both potential for errors and error prevention. Some survey respondents admitted that they had made a mistake because of the confusion brought by copied and pasted information. Although this number is very small, we still cannot disregard it since this is a concern for patient safety. The majority of the respondents agree that CPF use increases the likelihood of a mistake occurring in the care of the patient and leads to more confusion about the condition, status, or plan of the patient, all of which are consistent with other study findings.[1,4,6,10,15-20]

This study recognizes CPF's assistance in enabling healthcare professionals to allot more of their time to patient care by decreasing their time for documentation, just like what has been noted in a similar study.[4] However, this study also highlights that this same tool for convenience and efficiency can also be a threat to patient safety.

### Association of Perceived Prevalence with the Perceived Impact on Patient Safety

It is noteworthy that the study did not find a statistically significant association between the perceived prevalence of CPF use and its perceived impact on patient safety, suggesting a complex relationship that might be influenced by many other factors. Suffice it to say that there is not enough evidence to assume that the perceived impact of CPF on patient safety increases as nurses' encounters with copied and pasted information also increase.

### Recommendations on the CPF use in the EMR

While most of the survey respondents believe that CPF should still be implemented in the institution's EMR, restrictions must still be put in place to ensure its safe use. Selective CPF usage was one of the recommendations from the interviews, which are consistent with the survey responses to not allow CPF on certain parts of a note and kinds of cases. Copying from another author was frowned upon both in the survey and interviews, but an exception might be considered when we talk about reiterating the orders of other services to incorporate them into the current management of patients.

In 2016, an international collaborative effort involving multidisciplinary stakeholders produced a toolkit for the safe use of CPF.[24] Their recommendations were to (a) provide a mechanism to make copy and pasted information easily identifiable, (b) ensure that the origin of copy and pasted information is readily available, (c) ensure adequate staff training and education on the appropriate and safe use of CPF, and (d) ensure that CPF practices are regularly monitored, measured, and assessed. Two of these recommendations were elicited from the interviews and were suggested to address certain issues from CPF use. The other two indirectly relate to the recommendations on creating policies for CPF use.

Note bloat was considered one of the issues related to CPF use.[1,6,11,14] We can assume that this phenomenon is apparent in the institution since the majority of the survey respondents agreed that new information is more difficult to find in notes written with CPF. We may address this by following the suggestions of the interviewees to highlight important changes in entries through the use of color markers or a different font style or size. The use of indicators to identify copied and pasted information was also elicited both from the survey and interviews, and was consistent with other studies.[4,21,23,25]

Training for the responsible use of CPF was elicited both from the survey and interview participants. This was also suggested in similar studies.[4,21,23] Upholding the professional integrity of CPF users must be given ample consideration since there are reported cases of documenting false information by skipping the actual assessment of patients and just copying assessment findings from the previous day.

The importance of counter checking the information and updating the pasted notes should be highlighted when we recommend the continued use of CPF, since this has been mentioned very frequently during the interviews. Overall, this study highlights the need for a balanced approach to CPF use that maximizes efficiency while minimizing potential risks to patient care and documentation quality.

## CONCLUSIONS

This study revealed the prevalence and practices of CPF use by nurses and doctors in the institution. Overall, this study found mixed perceptions about the impact of CPF on documentation, workload, and patient safety. This study

has found no statistically significant association between perceived CPF prevalence and its perceived impact on patient safety.

This study has national significance since it involves an EMR from a national public tertiary hospital. Adapting the recommendations of this study may greatly affect the care delivered by this institution to a huge number of Filipino patients in terms of safety and efficiency. As a study that could potentially be the first to explore this subject in the Philippines, this study may serve as a reference for the policies to be implemented about CPF use in the country.

## Recommendations

This study recommends a balanced approach to CPF implementation within the institution's EMR. While most survey respondents advocate for continued CPF use, there is a strong call for restrictions to ensure safe and responsible usage. Now that CPF is already restricted in the institution, clear guidelines and an implementation plan must be developed first if we are to honor the call for its continued use.

Taking into account the recommendations offered by the international stakeholders through their toolkit, this study offers a more detailed approach to safe CPF use.[24] However, further studies may be needed in order to determine when and which sections of notes are safe for CPF. Specifying this will aid in the development of more targeted and effective CPF usage policies.

This study may further recommend the development of a governance structure dedicated to managing EMR-related issues, such as unsafe CPF practices, so that these issues may be properly and regularly evaluated, addressed, and monitored. This governing body could also take the lead in developing and implementing policies aimed at monitoring compliance, delivering proper user training, and providing clear guidelines for safe CPF use within the institution.

Further studies must be conducted to explore how users manage to use CPF in spite of the program restrictions within the EMR. These workarounds may affect the integrity of information as well as the system itself, necessitating the need to provide countermeasures. This study recognizes that physicians may also have a different perspective on this matter, suggesting a similar study targeting them as the respondents.

Another study may also be done to assess the actual prevalence of CPF use by identifying the percentage of unique information in notes and comparing it over time. This may help the institution gauge the extent of CPF adoption and its impact on documentation practices. This was an initial plan for this study but was perceived as not feasible considering the current resources that the researchers have. A collaborative approach involving IT personnel is needed for this kind of study.

In summary, mixed perceptions on CPF use suggest a balanced approach to CPF implementation. The recommendations aim to enhance the responsible use of CPF within the healthcare institution, ultimately contributing to improved patient safety and the quality of medical documentation.

## Strengths and Limitations

This study offers valuable insight into the practice of nursing, informatics, and research, shedding light on the complex dynamics surrounding the use of CPF in healthcare. Notably, it stands as one of the first studies to report the validity of the tool used for examining the healthcare worker's attitude toward and practices using CPF. This can be used as a reference for further studies about the use of CPF in healthcare.

The use of a mixed-methods design allowed the investigators to take a deeper look at the reasons, impacts, and preferences for the use of CPF in the institution. The semi-structured interviews were instrumental in obtaining significant responses that the questionnaires could not elicit.

This study involved nurses as the only respondents, as they have a unique viewpoint in this scenario, as stated earlier. Although it would also be helpful to gather other users' perspectives, primarily physicians', this was not feasible at the time of the study due to time constraints.

Self-administered questionnaires were used for data collection. This limited the answers of the respondents to what was being asked in the tool. Moreover, the investigators were not able to verify the accuracy of their answers. They only had a chance to expound on their answers when they chose to participate in the semi-structured interviews that were conducted after the survey.

It is beyond the scope of the study to create a policy based on the findings. It could, however, inform the policies that address issues surrounding the use of CPF. By implementing this study, it could hopefully provide a basis for these policies by shedding light on the patterns, consequences, and preferences of users.

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## Statement of Authorship

All authors certified fulfillment of ICMJE authorship criteria.

## Author Disclosure

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