ORIGINAL RESEARCH

Primary Care Providers' Perspectives on Errors of Omission

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Background: **Despite recent focus on patient safety in primary care, little attention has been paid to errors of omission, which represent significant gaps in care and threaten patient safety in primary care but are not well studied or categorized. The purpose of this study was to develop a typology of errors of omission from the perspectives of primary care providers (PCPs) and understand what factors within practices lead to or prevent these omissions.**

Methods: **A qualitative descriptive design was used to collect data from 26 PCPs, both physicians and nurse practitioners, from the New York State through individual interviews. One researcher conducted all interviews, which were audiotaped, transcribed verbatim, and analyzed in ATLAS.ti, Berlin by 3 researchers using content analysis. They immersed themselves into data, read transcripts independently, and conducted inductive coding. The final codes were linked to each other to develop the typology of errors of omission and the themes. Data saturation was reached at the 26th interview.**

Results: **PCPs reported that omitting patient teaching, patient followup, emotional support, and addressing mental health needs were the main categories of errors of omission. PCPs perceived that time constraints, unplanned patient visits and emergencies, and administrative burden led to these gaps in care. They emphasized that organizational support and infrastructure, effective teamwork and communication, and preparation for the patient encounter were important safeguards to prevent errors of omission within their practices.**

Discussion: **Errors of omission are common in primary care and could threaten patient safety. Efforts to eliminate them should focus on strengthening organizational attributes of practices, improving teamwork and communication, and assigning manageable workload to PCPs.**

Conclusions: **Practice and policy change is necessary to address gaps in care and prevent them before they result in patient harm. (J Am Board Fam Med 2017;30:733–742.)**

Keywords: **Errors of Omission, Missed Care, Gaps In Care, Patient Safety, Primary Health Care, Qualitative Research**

Although a large proportion of health care is delivered in primary care settings, research on patient safety in primary care has lagged behind that of acute care.[1,2] Patient safety issues occur as frequently in primary care as in inpatient settings[3], but are not well studied or categorized.[4,5] In 2003, a review of 11 studies found that preventable errors threatening patient safety in primary care are widespread and occur at a rate of 5 to 80 per 100,000 visits.[6] More recently, in 2016, a review of 100 studies and 9 systematic reviews concluded that between <1 and 24 patient safety incidents occur per 100 consultations in primary care.[2] However,

This article was externally peer reviewed.
Submitted 13 April 2017; revised 28 June 2017; accepted 5 July 2017.

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Funding: This study was funded by The Robert Wood Johnson Foundation and the National Institute of Nursing Research.

Conflict of interest: none declared.

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Table 1. Summary of Key Questions in the Interview Guide

1. Describe the care you usually deliver when you have adequate time.
2. If there are times you don't deliver that care, what types of care are omitted?
3. What clinical care is regularly missed? Why is that clinical care omitted? Probes: inadequate staffing? Cannot collaborate with colleagues? Poor communication among staff?
4. How does omitted care affect patients?
5. How can care omissions be prevented?

most patient safety studies focus on errors of commission—doing something incorrectly such as administering the wrong medication or giving wrong diagnosis[7–10] as opposed to errors of omission—failure of right action such as missed care and gaps in care. Even the 2016 review above specifically excluded errors of omission, which it defined as those incidents occurring when there was a lapse in the quality of care.[2] Other researchers have conceptualized these acts of omission as "care omission," "tasks left undone," "missed care" or "gaps in care"[11–18], and many refer to them as errors of omission.[21,22] Errors of omission outnumber errors of commission 2 to 1[19]; yet, they are not well investigated or categorized, precluding their informing quality improvement strategies or designing safety systems to prevent these errors before they harm patients.

Evidence on gaps in care is slowly growing. Researchers mainly focus on acute care settings demonstrating that significant aspects of patient care, such as preparing patients for discharge or ambulating them, is often missed.[20,21] This leads to negative patient outcomes including patient falls, infections, readmissions, and dissatisfaction.[22–24] Challenging environments and inadequate organizational structures in hospitals characterized by poor communication, lack of resources, and staffing shortages, and increasing demand and complexity of patient care contribute to such errors of omission.[25,26]

Primary care practices are also vulnerable to errors of omission due to the nature of care delivery: care is delivered by various types of primary care providers (PCPs), such as physicians and nurse practitioners (NPs), whose scope of practice often overlaps, in teams that have variable and less defined structures compared with teams in specialized outpatient and inpatient settings.[27] PCPs also manage a wide range of increasingly complex conditions through short encounters in primary care practices, which are often strained because of increased care demands due to the aging population[28] and chronic disease epidemics.[29] Therefore, understanding what aspects of primary care are left undelivered and what factors within practices lead to or prevent these gaps in care are the first steps to potentially preventing such omissions and improving patient care. To date, we know very little about errors of omission in primary care.

Current knowledge is particularly missing input from PCPs, such as how they report and categorize errors of omission, which is important for increasing awareness about such errors and developing patient safety interventions and systems to effectively address PCPs' needs in care delivery.[30] To address this gap, we conducted a qualitative study with PCPs (physicians and NPs) about errors of omissions to develop a typology that is meaningful to PCPs. In addition, we identified practice factors associated with these gaps in care and offer recommendations to help primary care practices address these errors before they harm patients.

Methods

A qualitative descriptive design was used to collect data through individual face-to-face interviews with PCPs. This inductive design is appropriate as limited insights are available about errors of omission in primary care.[31] The study was approved by the Institutional Review Board of Columbia University Medical Center. We developed an interview guide drawing from the existing evidence on primary care, patient safety, and errors of omission[32–34], which was reviewed by a PCP physician and NP who were not interviewed. The guide's questions were designed to gather information about missed clinical care from the perspectives of PCPs. They concluded that the questions were clearly framed and relevant for PCP practice. Overarching questions guiding the interviews are included Table 1. The first few questions were designed to break the ice and initiate the interview. The guide contained semistructured, open-ended questions, and probes.

Purposive sampling procedures were employed to recruit PCPs working in primary care practices in the New York State (NYS) until data saturation was reached (ie, participants provided no new information).[35,36] We specifically selected PCPs as they would provide rich information. Eligible PCPs included English proficient physicians and NPs who practice in primary care settings in NYS. Flyers containing detailed study information including its purpose, the voluntary nature of participation, and invitation to participate were distributed in several primary care practices. We also shared flyers with colleagues who publicized the study in their practices. This multifaceted recruitment strategy resulted in 26 PCPs being interviewed—12 physicians and 14 NPs. Given that we were conducting the data collection and data analysis simultaneously, after 26th interview, no new information was provided by PCPs. Thus, we concluded we achieved saturation and after the 26th interview, we stopped recruitment.

Interested PCPs contacted the researchers (LP and AAN), who kept a list of all candidates and scheduled individual face-to-face interviews, which took place at a convenient location for participants. One researcher (AAN) with expertise in qualitative interview techniques and experience as a PCP consented and interviewed the PCPs individually with no one else present in the room. The interviews, which lasted between 25 and 45 minutes, were audiotaped. PCPs also completed a demographic form regarding their age, sex, education, work title, and experience. Data collection took place in the summer-fall of 2016. Each participant received a $20 gift care incentive.

Data analysis started after the first interview and continued concurrently with the data collection. A professional transcriptionist transcribed verbatim the interview audio recordings. Transcribed data were imported into the ATLAS.ti software package, Berlin; 3 of us (LP, AAN, AN) independently read each transcript and coded them using both deductive and inductive processes. We specifically searched the text data indicating omissions based on existing evidence (preset codes). In addition, we coded most common key word repetitions and searched for metaphors or links between codes. We reviewed the data line by line and assigned a code when a construct became apparent. Furthermore, we used constant comparison to refine codes and identify new codes, and had regular conference calls to resolve discrepancies and achieve consensus on the final codes. We linked the codes to develop a typology of errors of omission; we also listed and described factors leading to these gaps in care and their safeguards.[37] Other research team members, including a physician, a psychologist, and a nurse with expertise in qualitative research design methods, provided ongoing feedback on the codes, categories, and themes to assist with the data analysis. We also conducted a comparative analysis of concepts in different participant groups (physicians and NPs) to explore whether certain concepts were reported differently in 1 group compared with another. To confirm interpretive validity (ie, how well researchers report the description of participant perspectives)[38], 2 randomly selected participants (1 NP and 1 physician) reviewed findings and commented on whether the findings were true to their description, after which the final description was formulated. We used descriptive statistics to characterize PCP demographic data.

The interdisciplinary research team included a health services researcher, a family physician, primary care NPs, a patient safety researcher, and a psychologist with strong qualitative research and content expertise. Their combined expertise assured that different viewpoints are taken into consideration in the interpretation of the study findings.

Results

Participant Characteristics

Twenty-six participants, 12 physicians and 14 NPs, delivering primary care were interviewed (Table 2). The mean PCP age was 43 years, 77% were female, and the mean experience was 9 years. The participants predominantly practiced in New York City and in the surrounding region, which made it possible to conduct face-to-face interviews. Sixty-two percent of participants practiced in internal medicine delivering care to adult patients. Thirty percent of participants were family practitioners who delivered primary care to both adults and children. Participants delivered care in practices located in urban (n = 17), suburban (n = 8), and rural (n = 1) communities. Their practice types included private physician offices (n = 5), university-affiliated practices (n = 9), hospital-affiliated clinics (n = 11), and a federally qualified health center (n = 1).

Table 2. Characteristics of the Study Participants (N = 26)

Demographics	Participants
Occupation, N (%)	
Physician	12 (46)
Nurse practitioner	14 (54)
Age (years), mean (SD)	43.46 (11.16)
Experience (years), mean (SD)	9.63 (7.5)
Sex (women), N (%)	20 (77)
Highest degree, N (%)	
Master's	5 (19)
Post-master's	3 (12)
MD	11 (42)
Doctorate (PhD; DNP; PhD/MD)	7 (27)
Practice characteristics	
Main practice site, N (%)	
Private practice	5 (19)
University-affiliated clinic	11 (42)
Hospital-affiliated clinic	9 (35)
Federally qualified health center	1 (4)
Geographic location, N (%)	
Urban	17 (65)
Suburban	8 (31)
Rural	1 (4)

SD, Standard Deviation.

Findings from the Interview Data

Themes surrounding the typology of errors of omission, factors leading to these gaps in care, and their safeguards are presented in Table 3.. We did not find consistent differences in responses between NPs and physicians regarding these areas or themes; thus, findings were combined.

Typology of Errors of Omission

Four main themes emerged that constituted the typology of errors of omission. They included patient teaching, patient followup, emotional support, and mental health needs.

Patient Teaching

Many PCPs reported most often omitting patient teaching and being unable to properly educate patients about their conditions, medications, or how to self manage their illness to maintain quality of life. PCPs emphasized that patient teaching has tremendous value for patient safety by assuring that patients adhere to treatment plans and properly use their equipment. However, patient teaching often is limited. One PCP described, "I want to make sure that the patient is going to follow through because they understand why they are taking the medicine, or why they are doing the treatment, or why I am sending them to referral. And a lot of times . . . it is very, very quick what I have to tell them. And when I think they totally understand, and maybe the next day I get a phone call back—'why am I going there?' Then I realize wow, I should have had more time with that, or there should have been a better way to explain it." PCPs also reported being unable to assess patients' knowledge needs and individualize the care accordingly. One PCP said, "only 50% of the time" care was individualized.

Patient Followup

PCPs reported they often fail to follow up with patients regarding their care or check whether the patient adheres to the treatment plan. Followup was missed both during and after the patient visit. For example, during the visit, they did not ask whether the patient made referral appointments, and after the visit, they did not inform patients about test results. One PCP provided an example: "to really follow up on . . . did they see the cardiologist? . . . did they see whoever?" Such omission of followup during the patient visit subsequently yielded to additional actions as described by 1 PCP: "Not assessing thoroughly whether or not the patient did follow up with the cardiologists, or did get their colonoscopy done. . . . Now I have to call the patient to have them go further . . . that is something that happens frequently."

Some PCPs attempted to quantify the occurrence of the omissions. One PCP said: "I get very concerned on that [follow-up] because . . . on the occurrence . . . I mean, I will refer patients, but I do not follow up to necessarily see if they actually did follow-up. Once in a while."

Emotional Support

Many PCPs spoke about being unable to provide patients with adequate emotional support when patients learn about their new diagnoses or treatment plan. Although PCPs emphasized that patients often looked to the provider for such support, PCPs reported they were often unable to provide emotional support or it was perceived as a low-priority patient need. The patient's physical health needs were prioritized at the expense of their emotional needs, which were left unattended. One PCP explained how addressing the urgent care needs leads to omitting other

Table 3. Summary of the Emergent Themes from the Interviews of Primary Care Providers

Theme	Categories and Examples of Corresponding Codes
Typology of errors of omission	Patient teaching
	Health maintenance
	Medication education
	Review of tests and diagnostics with patient
	Diet education
	Healthy lifestyle education
	Physical activity recommendations
	Weight management
	Preprocedural education
	Patient Followup
	Followup about test results
	Followup about referrals
	Followup on provider recommendations
	Emotional support
	Family and caregiver support
	Review of patient coping mechanisms
	Social wellbeing
	Mental health needs
	Depression screening
	"Mental health not part of primary care"
Factors leading to omissions	Time Constraints
	Overbooking of appointments
	Time spent on documentation
	Increased complexity of patient visits
	Time spent on phone with insurance companies to gain approvals for diagnostic testing
	Unplanned patient visits and emergencies
	Urgent change in patient medical status
	Unstable patient
	Patient volume
	Unexpected patient emergencies
	Open scheduling
	Administrative burden
	Lack of support staff
	Influx of telephone messages to answer
Omission safeguards	Organizational support and infrastructure
	Designated time allotted for administrative work (eg, answering patient phone calls; paperwork)
	Enough patient care resources (eg, exam rooms; support staff)
	Adequate staffing
	Effective teamwork and communication
	Effective team communication
	Respect for team members
	Preparation for the patient encounter
	Easy access to patient history and plan of care
	Review of patient care documentation

aspects of care such as comforting the patient. "I am prioritizing more active issues . . . sometimes I do not have the time to sit there and listen to all their family conflicts. . . . But, it does give a better insight into where the patient's coming from."

Mental Health Needs

Most PCPs spoke about their inability to conduct a thorough psychosocial assessment and address patients' mental health needs. PCPs reported about missing depression or other mental disor-

der screenings. A few PCPs even spoke about mental health being absent entirely from primary care and/or did not view mental health as a priority or part of the PCP care. One PCP said, "I think that it is been decided that it is [addressing mental health needs] not really a good use of our time." As such, opportunities to address the mental health needs of patients were often missed.

Factors Leading to Errors of Omission

Participants described 3 factors as leading to these gaps in care: time constraints, unplanned patient visits and emergencies, and administrative burdens.

Time Constraints

Because of time constraints, most PCPs reported prioritizing patient care needs during the visit despite patients reporting multiple concerns. PCPs were concerned that during the short encounter they were unable to deliver all necessary care to address a patient's needs. Frequently, urgent care needs were prioritized over preventive care, and physical health over psychosocial and mental health needs. One PCP said, "when I have a limited amount of time, I focus on what might be most important. Like, why are you here today?" Similarly, another PCP stated: "If somebody came in and they wanted a physical and a couple of different problems addressed, I might take 1 or 2 or 3 of the most crucial concerns." One PCP provided an example how adequate time could help: "I might not be able to do a whole health maintenance . . . but will pick something . . . maybe they are a little overweight and we need to talk about diet and exercise."

Unplanned Patient Visits and Emergencies

Omissions of care also often occur because of unplanned patient visits or emergencies. PCPs, especially from practices using open scheduling, which allows patients to make appointments within 24 hours, reported that in addition to their full schedule they see walk-ins and additional patients. To accommodate these patients, the needs of other patients were often left unmet. One PCP said, "If you have patients that are coming in at a certain time, and then you have an influx of emergencies that are coming in as well, that kind of takes away from your time." Another PCP explained that such situations lead to PCPs missing a thorough review of patient history or clinical information.

Administrative Burden

PCPs spoke about administrative duties (eg, pharmacy denials, prior authorizations, insurance, or documentation) as being burdensome and leading to missed clinical care opportunities. A PCP working in a private practice reported: "administrative burdens like . . . looking at 30 people's labs for the day, dealing with prior authorization, pharmacy denials . . . forms . . . just everything's on me . . . there's nobody to delegate to." Similarly, another PCP said, "I, unfortunately, find that I document while I am seeing the patient, which can be a little distracting . . . because you are typing and talking at the same time," leading to missing clinical care.

Omission Safeguards

Organizational support and infrastructure, effective teamwork and communication, and preparation for the patient encounter were safeguards to gaps in care.

Organizational Support and Infrastructure

PCPs emphasized the importance of support from other PCPs and ancillary staff. Delivering all necessary care is only possible if practices had an adequate number of PCPs to share the patient load and support staff to delegate patient care tasks. Many PCPs practiced in short-staffed settings. One PCP stated their practice was "short staffed for 2 months." PCPs spoke about delegating patient care tasks to other team members such as registered nurses (RNs) or medical assistants to assure all aspects of care are delivered and offered suggestions regarding what should be delegated. One PCP said, "You cannot get that patient an immunization . . . you as a provider cannot do it all. So, I think that is another piece where RN′s can come into that conversation, to do a lot of the wellness screening." Another PCP suggested that RNs can help provide psychosocial assessments. Other PCPs emphasized the importance of clerical staff support. One PCP said, "If there was more clerical support and even like a medical assistant who could draw labs or get the vital signs or . . . just someone to back you up would help to alleviate any extra . . . stuff going on."

Most PCPs spoke about having systems in place, such as electronic health records (EHRs), to track the care they deliver or give proper reminders. One PCP working in a private practice explained how EHRs can help address the omitted care: "[If] I am

not here, then in the notes we can show . . . whoever assists that patient the next time will be able to address the situation."

Effective Teamwork and Communication

Most PCPs also said that effective teamwork and communication within their practices allowed the PCP to deliver thorough care and reduced errors of omission. PCPs emphasized various aspects of teamwork such as respect and trust as important in care delivery. As 1 PCP said: "You need really great communication and mutual respect." Furthermore, PCPs stressed the significance of optimal communication within the team to assure that each team member delivers the aspects of needed care to patients. Such teamwork will assure complete care delivery, reducing missed care.

Preparation for the Patient Encounter

Most PCPs stated that preparing for the patient visit, including reviewing patient history before the encounter will help assure that most aspects of needed care are delivered. One PCP said, "I should be doing that [reviewing patient chart] with every single visit." Another PCP said that even looking at "perhaps the basics, reviewing anything that is updated from the patient's status, whether it is a new allergy, or if there is a change in the medication" is important to assure complete care delivery. Lack of ability to become familiar with the patients' needs increased the likelihood of missing important aspects of care. One PCP said, "My personal approach is to previsit plan for every single patient. I would say I've been successful at previsit planning 90% of the time."

Discussion

We sought to develop a typology of errors of omission and understand factors leading to or preventing these gaps in care. Study findings highlight significant omissions of important aspects of care threatening patient safety and have implications for administrators, clinicians, and researchers. Four types of omissions—patient teaching, patient followup, emotional support, and mental health needs—comprise the typology. Having a clear typology that is meaningful for PCPs can help them recognize gaps in care as errors and increases awareness about these errors. In addition, it can prompt organizations to take action to prevent errors.

PCPs also identified specific factors that lead to omissions such as time constraints, unplanned patient visits and emergencies, and the administrative burden and provided concrete strategies to prevent errors of omission by promoting organizational support, streamlining care delivery infrastructures and health information technology, and leveraging effective teamwork while allocating adequate time for preparation before the patient encounter.

PCPs practice in environments characterized by high workload, poor infrastructures, and lack of staffing, and they experience increased pressure to manage complex conditions in settings which are not equipped with appropriate technology or resources. Subsequently, PCPs prioritize patients' urgent care and physical health over patient education, emotional support, mental health and/or patient followup, representing major gaps in patient-centered care. Our findings are consistent with quantitative investigations showing that 86% of errors in primary care are attributable to care delivery failures as opposed to approximately 14% attributable to PCP knowledge deficits.[39] Thus, actions to reduce omissions should involve improvements in the care delivery system. Currently, many primary care practices are adopting patient-centered medical home (PCMH) models[40–42], which aim to improve primary care delivery through practice transformations such as investing in improving the structural capabilities of primary care practices, delivering care in teams, and implementing health information technology. Thus, PCMHs hold promise for preventing care omissions as implementation of an EHR system or delivering care in teams and improving communication are widely used strategies to promote patient safety in primary care.[43,44]

PCPs deal with omissions by scheduling additional visits or calls to address the areas of care that were neglected in the initial visit. This, however, adds a burden to the system and may reduce patient satisfaction. Instead, our findings provide more practical suggestions that can be implemented by practice managers to minimize omissions. Managers can provide PCPs with adequate staff support, invest in the infrastructure, and specify a manageable workload for PCPs. Our recommendations are consistent with PCMH transformations.

We also found that while open scheduling is important for providing patients with quick access to health care services, it seems to disrupt the PCP schedule and does not provide PCPs with adequate opportunity to review patient information before the encounter, leading to errors of omission. As more practices are implementing such open scheduling, practice managers can develop systems to better manage emergencies and unplanned patient visits.

Omissions could also be reduced through maximizing the roles of other care team members and encouraging optimal teamwork and communication. PCPs particularly suggest maximizing the role of RNs by delegating them specific care tasks such as preventive care, immunizations, or psychosocial assessments. This suggestion is supported by evidence that standing orders for RNs and other primary care team members help to reduce omission of preventative care, such as vaccinations and screenings.[45–47] These suggestions are important for policy makers seeking ways to better use RNs in primary care.[48] Furthermore, 1 key element of an effective PCMH is the construction of high-functioning teams; thus, practice managers should promote effective teamwork and optimal communication. When teamwork fails, the likelihood of missing important aspects of care may increase.

The study has limitations. We utilized a sample of PCPs primarily from an urban setting; urban PCPs may differ from PCPs who practice in nonurban settings. Similarly, participating providers may differ systematically from those who did not participate in our study. The study relied on PCP self reports, which are subject to informant bias—PCPs may have consciously or unconsciously been untruthful in reporting care that they omitted. In addition, PCPs might not have realized they were making errors because they fail to interpret certain aspects of care omission as errors. As such, there may be additional errors not identified in this study. Qualitative studies of this nature are not intended to be generalizable but rather to generate hypotheses and further research questions. Thus, large-scale investigations are needed to understand the occurrence of gaps in care and their impact on patient outcomes. Researchers could expand our typology to include other omissions occurring in primary care. Future empirical work could test whether practice attributes, such as the availability of reminder systems or decision making tools, indeed reduce the occurrence of errors of omission. In addition, researchers can test interventions to help practices better manage emergencies and unplanned patient visits.

In summary, the study findings suggest that errors of omission occur in primary care practices and organizational attributes of practices may lead to these errors. Initiatives for improvement such as advocacy to reduce administrative burden and promoting interprofessional team care could reduce errors of omission and benefit patients.

We would like to thanks the physicians and nurse practitioners participating in the interviews.

To see this article online, please go to: http://jabfm.org/content/30/6/733.full.

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