

Standard Procedures vs. Real-World Practice: Exploring Variations in Clinical Prescription Checks in English Community Pharmacies—A Multi-Method Investigation

Hiroshi Tanaka¹, Keiko Yamamoto², Masaru Saito^{1*}

¹Department of Clinical Pharmacy, Graduate School of Medicine, Kyoto University, Kyoto, Japan.

²Department of Pharmacy Practice, School of Pharmacy, Osaka University, Osaka, Japan.

*E-mail  m.saito_ku@gmail.com

Received: 28 September 2023; Revised: 07 December 2023; Accepted: 08 December 2023

ABSTRACT

Standardisation is a well-established approach to managing risks, involving the creation and application of detailed instructions for specific activities. Within community pharmacy settings, the use of Standardised Operating Procedures (SOPs) is compulsory and viewed as vital for maintaining patient safety and service quality. The objective of this research was to explore the extent to which community pharmacists (CPs) follow SOPs during the process of reviewing prescriptions clinically, as well as to identify underlying causes for any discrepancies between formal guidelines and actual behaviours. A collection of eight SOP documents was subjected to hierarchical task analysis (HTA) to develop a benchmark model of how clinical checks should be performed according to the guidelines. Next, twelve CPs participated in a simulated prescription review activity, articulating their reasoning aloud as they evaluated fictitious prescriptions. The recorded transcripts were analysed through content analysis, compared against the benchmark model to identify patterns of engagement and differences between the SOPs and real-world actions of the pharmacists. A focus group session was then conducted to provide further context for the identified discrepancies. The HTA process facilitated the development of a framework for clinical checking consisting of six main components and 28 subordinate elements. Pharmacists frequently skipped certain elements during their reviews, departing from the outlined guidelines. Such departures, noted even in a distraction-free setting, indicate a deeply embedded element in pharmacists' professional norms, potentially reflecting a general inclination to adapt rather than rigidly follow guidelines, irrespective of workplace variability. Key influences on this norm encompass the application of clinical discretion, dependence on colleagues or external aids, and emphasis on accommodating patient needs. Findings from this research underscore persistent departures from SOPs in the clinical review of prescriptions within community pharmacies, pointing to an underlying normative pattern. Subsequent investigations ought to examine approaches to managing risks arising from these departures and to navigate the nuanced interplay between adaptability and rigorous adherence.

Keywords: Adherence to protocols, Clinical checking, Community pharmacy, Standards operating procedures (SOPs)

How to Cite This Article: Tanaka H, Yamamoto K, Saito M. Standard Procedures vs. Real-World Practice: Exploring Variations in Clinical Prescription Checks in English Community Pharmacies—A Multi-Method Investigation. *Ann Pharm Pract Pharmacother*. 2023;3:243-52. <https://doi.org/10.51847/l1k67gyV9S>

Introduction

Standardisation represents a longstanding and frequently recommended strategy for mitigating risks in medical environments [1]. This is accomplished by formulating and enforcing guidelines that specify the execution of individual activities [1, 2]. In medical fields, the move toward uniform task execution has aimed to reduce mistakes via structured frameworks and directives [1]. From 2005 onward, community pharmacies in the UK have been required to implement Standardised Operating Procedures (SOPs), necessitating that every pharmacy keeps updated SOPs detailing standard operations, accompanied by regulatory and ethical duties to comply with them

[3]. These requirements were enacted to guarantee baseline safety levels and to encourage uniform application of optimal approaches [2, 4].

The adoption of SOPs aims to provide confidence and set a baseline for protection, shielding individuals receiving care from possible injury [2]. Nevertheless, the effectiveness of such guidelines hinges on personnel's unwavering compliance. Discussions have arisen concerning the feasibility and advantages of mandating absolute conformity. Certain views hold that, although intended to protect patient well-being, these guidelines may at times prove impractical or excessively constraining, potentially affecting the independence and adaptability of medical practitioners [5, 6].

In pharmacy contexts, SOPs comprise an array of directives that personnel must observe to ensure steady levels of uniformity and care delivery; these encompass legal requirements, regulatory standards, or recognised methods [3]. Nonetheless, growing data from diverse medical contexts [7, 8], encompassing community pharmacies [9], indicate that workers regularly stray from SOPs in routine operations. Literature has linked such straying [10, 11] to elements including the deployment of clinical reasoning (occasionally at odds with guidelines); pursuits of greater speed; efforts to navigate operational obstacles; and limitations in assets that impede full conformity.

Community pharmacy operates as a distinctive and intricate hybrid system, functioning simultaneously as a retail enterprise and a deliverer of state-supported medical services [12]. Ashour *et al.* [11] and Thomas *et al.* [6] have documented multiple cases of pharmacy personnel operating beyond formal directives. Consequently, SOPs have faced scrutiny for excessively streamlining activities and for inadequately accommodating situational variables such as personnel availability, operational demands, and disruptions, all of which are thought to shape real-life task performance [6]. Although straying from directives might enhance operational speed [11], it also prompts concerns about safety in reconciling adaptability with conformity. Furthermore, departures from SOPs question whether these guidelines are truly achieving their goals of promoting uniformity, excellence, and protection [3]. In the present investigation, we assess the degree of adherence by CPs to SOPs in the context of clinical reviews, focusing on those operating in England [13]. This is regarded as an especially demanding and expert component of the supply chain; indeed, in contrast to other supply activities, it is reserved exclusively for pharmacists and involves substantial clinical reasoning [14], a factor previously associated with departures from SOPs [6]. Thus, evaluating how closely CPs align with SOPs in prescription reviews is crucial, especially given recent evidence of considerable differences in how CPs conceptualise and perform clinical reviews [15].

Aim

The goal of this research was to assess the level of adherence by CPs to SOPs in clinical reviews and to elucidate potential causes for any observed departures.

Ethics approval

Ethical clearance for the simulation interviews in this research was obtained from the University of Manchester Ethics Committee (Reference 2021–13400), while an exemption from full review was provided for the focus group.

Materials and Methods

Overview

The research commenced by developing a benchmark model of clinical prescription review through the examination of existing SOPs. This benchmark served as a reference standard for evaluating performance. Subsequently, the actual review behaviours exhibited by community pharmacists (CPs) during a simulated review task were contrasted with this benchmark to detect instances of non-conformance. Furthermore, a focus group involving experienced CPs was held to offer deeper insight into the reasons behind the noted differences. Data organisation and management were handled via NVIVO software [16], while Bing AI was employed solely for linguistic assistance in preparing the preliminary manuscript draft, which subsequently underwent multiple revisions by the research team.

SOPs, materials, and analysis

A Hierarchical Task Analysis (HTA) approach [17] was applied to scrutinise a set of SOP documents sourced from various community pharmacies and relevant professional bodies. HTA has previously demonstrated

effectiveness in healthcare contexts [11, 18], particularly for dissecting complex activities, making it suitable for constructing a comprehensive framework of the clinical review process in this investigation. In total, eight SOP documents were assembled, encompassing representations from almost all types of community pharmacy operations. The SOPs for clinical reviews showed considerable consistency across sources. In particular, documents from independent pharmacies were indistinguishable and matched those issued by the Pharmacy Defence Association [19]. The analysis followed an iterative procedure of SOP evaluation, adhering closely to the established HTA methodology outlined by Stanton [17]. The resulting framework (**Figure 1**) included six primary-level components, twenty-eight subordinate components, and eight procedural plans.

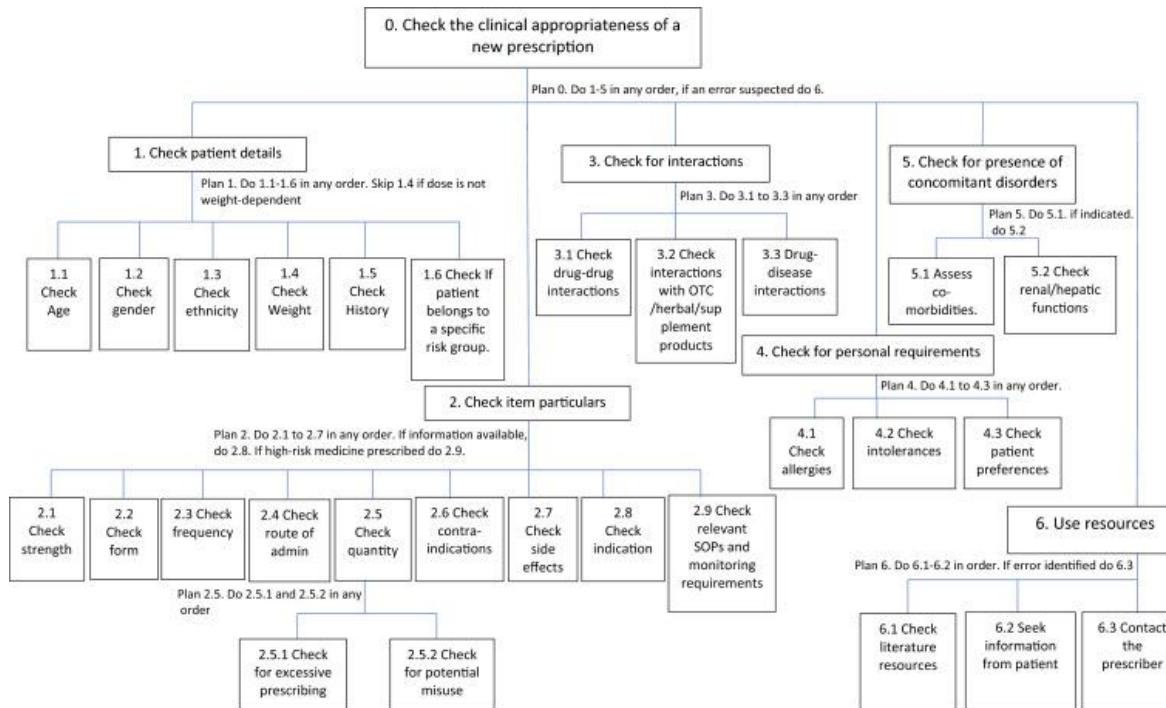


Figure 1. Hierarchical Task Analysis of the Standard Operating Procedures

The framework was first drafted by AE, a practising community pharmacist and researcher, before being evaluated by DP, a specialist in ergonomics and human factors, and JH, an academic pharmacist. Further refinement took place during a panel session held at university facilities with five experienced community pharmacists, who held roles such as managers, superintendents, and owners. These experts were drawn from an established community pharmacy research collaboration linked to the authors' institution. In the course of a one-hour discussion, the panel examined the preliminary framework for consistency with existing SOPs and reached consensus on a definitive version that accurately depicted task performance in full accordance with SOP requirements. Because of their familiarity with the study materials, these panel members were excluded from taking part in the subsequent simulation activity.

Clinical checking simulation exercise

Twelve community pharmacists (**Table 1**) were selected through purposive sampling [20] from a pool of pharmacists practising in England. Recruitment involved invitations disseminated via social media announcements and professional contacts. Eligibility criteria required participants to be actively registered with the General Pharmaceutical Council and to have substantial experience in performing clinical checks.

Table 1. Characteristics of the community pharmacists participating in the study

Participant ID	Years of experience in community pharmacy	Gender	Pharmacy type	Employment status
1	1	Male	Large multiple	Employed
2	2	Male	Independent single outlet	Employed

3	2	Male	Independent chain	Employed
4	6	Female	Independent chain	Employed (chain lead pharmacist)
5	7	Female	Not applicable	Locum
6	5	Female	Not applicable	Locum
7	1	Female	Independent chain	Employed
8	2	Male	Small multiple	Employed
9	1	Male	Large multiple	Employed
10	20	Male	Independent single outlet	Owner/manager
11	4	Male	Independent chain	Employed (branch manager)
12	2	Female	Not applicable	Locum

Interviews with participants were conducted remotely between April and August 2022. Each pharmacist was asked to perform a clinical review of three purposely designed simulated prescriptions. These prescriptions were developed to include medicines associated with varying degrees of risk. The selection was informed by a review of literature on medication risk profiles, focusing on drugs linked to higher or lower rates of adverse events and hospital admissions. Consequently, three distinct prescription cases were created, each incorporating medications of different risk and severity levels. The scenarios also featured diverse patient groups—including paediatric, elderly, and pregnant patients—and included relevant medical histories tailored to each case. The simulated prescriptions were reviewed and validated by a clinical pharmacist and a panel of community pharmacists, confirming their suitability for eliciting detailed insights into the clinical checking process.

Data collection employed a concurrent think-aloud protocol [21]. Participants were instructed to verbalise their reasoning continuously while reviewing the prescriptions. Sessions were audio-recorded and transcribed verbatim by a professional transcriber approved by the university. The primary focus of the current paper is on pharmacists' adherence to SOPs and the specific sub-tasks performed during clinical checks. A fuller examination of participants' clinical decision-making and the appropriateness of their decisions is presented in a companion publication.

Comparison of pharmacists' clinical checking performance with SOPs

Transcripts from the simulation exercise were subjected to deductive content analysis, using the established clinical checking framework (**Figure 1**) as the guiding structure. This involved a structured comparison between each participant's described actions and the sub-tasks and procedural plans specified in the framework. The framework itself functioned as the coding framework, allowing systematic categorisation of the data and the assignment of codes to qualitative content. This approach converted qualitative observations into quantifiable metrics. Analysis was performed in NVIVO software, which supported the organisation of coded data and the calculation of completion frequencies for each sub-task (**Table 2**).

Table 2. Number of times each sub-task was checked by the participant (N = 12)

First-level sub-tasks	Associated lower-level sub-tasks	Prescription 1		
		No. of times checked	No. of times checked	No. of times checked
Patient details	Risk group	6	12	11
	Weight	0	0	5
	Ethnicity	0	0	0
	History	11	10	9
	Gender	7	12	12
	Age	11	12	12
Personal requirements	Indication*	3	10	9
	Allergies	0	0	9
	Preferences	0	0	11
	Intolerances	0	0	0

Concomitant disorders	Renal/hepatic function	2	N/A	N/A
	Assess co-morbidities	6	3	8
Each prescribed item				
		Naproxen	Paracetamol	Labetalol
				Aspirin
				Amoxicillin
				Prednisolone
				Spacer device
Items particulars	Strength	9	3	10
	Form	9	3	9
	Frequency	10	6	10
	Side effects	3	0	3
	Quantity	6	0	0
Interactions	Contraindications	11	1	4
	Drug-drug interaction	9	2	7
	Drug-disease interaction	2	0	0
	Interaction with OTC-herbal/supplements	1	1	0

Notes: *Although the prescriptions did not state an indication, participants commonly took the likely indication into account during clinical checking; indications were intentionally omitted from the simulated prescriptions to mirror routine practice, as most real-world prescriptions lack this information, and while all SOPs reviewed advise pharmacists to verify the indication when available, pharmacists in this simulation still routinely inferred and considered the probable indication even when it was not explicitly provided. **Here, the term “form” refers to the evaluators’ judgment of the appropriateness of the inhaler device, with only three participants identifying that the inhaler prescribed was unsuitable because it was designed for adults rather than for pediatric use.

Focus group

To explore the reasons behind any discrepancies observed between the clinical checking procedures outlined in standard operating procedures (SOPs) and the actual practices of community pharmacists (CPs), a focus group was conducted with seasoned CPs (each having over 10 years of practice). These participants were well-versed in addressing safety issues within community pharmacy environments. They were selected from a research collaboration group in community pharmacy linked to the researchers' university. The session took place at a university venue in March 2023.

Before the discussion, attendees received materials including the descriptive task model (**Figure 1**), a summary of the deviations from SOPs noted by CPs (**Table 2**), and the example prescriptions used in simulations. In the meeting, participants shared their views and explanations on the reasons for the differences seen between prescribed SOPs and real-world checking behaviours. The conversation was audio-recorded, fully transcribed, and analysed using inductive thematic analysis, based on the approach described by Braun *et al.* [22]. The entire research team participated in reviewing the SOP documents, the simulation exercise, and the focus group data; AE led the initial analysis, followed by discussions with DP and JH.

Results and Discussion

Hierarchical task analysis

The hierarchical task analysis (HTA) of clinical checking, derived from the SOPs, is presented in **Figure 1**.

Deviations observed in CPs' practices compared to SOPs

Table 2 demonstrates that CPs frequently departed from SOP requirements in multiple cases, with adherence levels differing across prescription types and even within comparable scenarios. This pattern indicates not just general non-compliance but selective emphasis on certain medications or checking steps, even though SOPs mandate equal attention to all. To evaluate the importance of these inconsistencies, a chi-square test was performed (at a 5% significance level with 40 degrees of freedom), resulting in a statistic of 61.44 (above the critical value of 55.76) and a p-value of 0.0162 ($\chi^2(40) = 61.44$, $p = 0.0162$), confirming statistical significance.

Thematic insights from focus group

Patient-related influences

Participants suggested that the aim of delivering positive results for patients often led to departures from strict protocol adherence. This points to a tension between maintaining high safety standards and improving service speed, where CPs might skip certain steps to align with patient preferences. Such tensions were seen as influencing how thoroughly prescriptions were reviewed per SOP guidelines.

“Adhering rigidly to procedures each time would enhance safety, yet it would likely reduce efficiency.” [Participant 2, manager (medium-sized chain)]

It was further noted that patients generally value quick service more than rigorous safety checks.

“For patients, the key result is seldom about safety; it's more about how fast and convenient the process is. If pharmacists took longer to check, leading to delays in dispensing, the main thing patients would notice and complain about is the wait time for their medication.” [Participant 3, manager (large chain pharmacy)]

Additionally, SOP adherence tended to differ depending on whether the prescription was for a known regular patient or a new one. Checks for ongoing patients often involved more steps due to access to patient medication records (PMR) and knowledge of their medical history. For one-off acute scripts from unfamiliar patients, limited information might lead to less comprehensive reviews.

“When patients aren't regulars, you lack their PMR history, so you'd need to access the Summary Care Record (SCR), which requires patient consent—and that extra step can discourage some pharmacists from pursuing it fully.” [Participant 4, manager (large chain pharmacy)]

Role of professional judgement

Expert pharmacists' discretion was highlighted as a key element in assessing the relevance of different checking steps, thereby affecting overall SOP compliance. CPs often began with a quick overview of the prescription details to guide decisions on which elements required deeper attention.

“I'd describe it as... starting with a rapid overview, then diving deeper: what am I looking at here? [...] Scanning the items, you might spot something like labetalol alongside aspirin... and a dosage of two tablets daily, which I associate mainly with pregnancy cases.” [Participant 1, Superintendent (independent pharmacy)]

Prior experience was identified as shaping this preliminary assessment, helping decide priority checks. Repeated exposure to typical cases allowed CPs to identify critical SOP elements efficiently, balancing safety with practicality.

“With clinical discretion and accumulated experience, you learn that the priority is often just these four or five key checks, or however many stand out—so usually, this doesn't compromise patient safety, though there's always the chance of overlooking something important.” [Participant 4, manager (large chain pharmacy)]

Workplace conditions and pressures

As expected, participants highlighted that real-world job pressures—including limited time, heavy workloads, frequent multitasking, and incomplete information—significantly influenced adherence to protocols. Although the simulated checking task occurred in a quiet, controlled setting (which excluded these environmental influences), the experts stressed that in everyday practice, high demands often led pharmacists to skip certain checking steps.

“If you stepped out of the consultation room to find five baskets piled up, a crowded shop, and phones constantly ringing—and the top basket was just two boxes of naproxen plus paracetamol—it would be dispensed immediately with a quick ‘take with food’ instruction before moving on.” [Participant 2, manager (medium chain)]

Incomplete information was seen as a major obstacle not just to following SOPs but also to performing thorough checks overall. When key details (such as indications, renal function, or liver function) were unavailable, pharmacists often used the SOPs' built-in exemptions rather than bypassing rules entirely, meaning those aspects simply could not be verified. Nevertheless, as evidenced in **Table 2**, CPs sometimes still considered these factors even without explicit prescription details. Experts viewed phrases like “check if available” in SOPs as primarily defensive—designed for ideal situations and organisational protection—rather than realistic expectations for routine practice.

“Usually, you wouldn't look up renal or liver function because that information isn't accessible. At most, you might ask the patient directly if they have any issues.” [Participant 1, Superintendent (independent pharmacy)]

“Including those checks is mainly to protect the company—so if something goes wrong, the superintendent can show every effort was made to enable pharmacists to do their job properly.” [Participant 3, manager (large multiple chain)]

Dependence on others

In actual practice, pharmacists often took a responsive rather than initiative-driven approach to several sub-tasks, addressing them only when prompted by patients. Checks for allergies, intolerances, side effects, or interactions with over-the-counter medicines, for example, typically depended on patient input.

“I wouldn’t proactively ask. I wouldn’t go out to a patient and inquire about OTC products they’re using [...] For something like citalopram, I wouldn’t routinely ask if they’re taking St John’s Wort [...] Often, it’s the patient who raises a question when collecting the prescription that triggers further discussion.” [Participant 3, manager (large multiple chain)]

Pharmacists also frequently depended on alerts from dispensing software to highlight and prioritise critical checks. “With this prescription, I’d probably rely on the ProScript system flagging it—because I expect it would highlight the combination of naproxen and citalopram.” [Participant 1, Superintendent (independent pharmacy)]

Beyond software, they counted on dispensing staff to mark prescriptions with any relevant warnings. However, the group acknowledged that communication breakdowns and missed flags were commonplace, resulting in overlooked alerts.

“You’d expect staff to note it on the prescription if something stood out, especially for new items.” [Participant 3, manager (large multiple chain)]

Furthermore, pharmacists sometimes assumed that other healthcare professionals had already completed certain verifications, which reduced their own diligence. This was particularly common with hospital-issued (green) prescriptions for unfamiliar patients, where the pharmacy lacked full medical records but was still required to clinically endorse the script.

“If a patient hands in a hospital prescription without their repeat list, there’s always the temptation to think, ‘It’s from the hospital—they’ll have got it right,’ and just dispense.” [Participant 2, manager (medium chain)]

“It might be that the GP assumes the pharmacist will verify it, while the pharmacist assumes the GP already has—and that’s how the holes in the Swiss cheese model align. Ideally, both should be checking.” [Participant 3, manager (large multiple chain)]

Our results indicated that community pharmacists (CPs) deviate from standard operating procedures (SOPs) during the clinical checking of prescriptions. CPs appeared to display behaviour akin to that seen in doctors [23], in which the use of discretion, judgment, and dependence on unwritten rules influenced their decisions, frequently resulting in reduced adherence to protocols. These results align with the varieties in human work theory [24], where SOPs embody the prescribed work, known as work-as-prescribed (WAP), while pharmacists' checking reflects actual work, termed work-as-done (WAD). WAP is generally developed by remote senior figures or experts and is viewed as the safe and optimal method for task performance. In contrast, WAD encompasses the practical activities performed to meet specific objectives in a given context, rendering it difficult to capture fully in fixed protocols. These discrepancies between the two dimensions of work were apparent in our data, with clear differences noted between the mandated SOPs and the actual practices of CPs.

Nevertheless, it should be recognised that this study collected work-as-done data via a simulation exercise, which represents a limitation compared to real-world observations, owing to the artificial setting that excludes usual workplace disruptions [25, 26]. Yet, the simulated setting allowed for an examination of pharmacists' deviations from SOPs beyond standard workplace constraints. This contests the common view that deviations mainly arise from environmental pressures imposed by work conditions [6, 11].

Most importantly, our research demonstrates the occurrence of deviations from SOPs even in controlled settings. This result emphasises the persistent impact of the mentioned factors on pharmacists' routine practices, implying that, irrespective of differing work conditions, deviating from SOPs may be a regular feature of their work. Panel members partly linked such deviations to unrealistic expectations in SOPs that impede compliance, sometimes acting as organisational safeguards but proving impractical. Additionally, they observed that pharmacists frequently adjust their methods, concentrating only on sub-tasks deemed pertinent, similar to consultant anaesthetists who refer to emergency sections of protocols rather than adhering to full checklists, as reported by Phipps *et al.* [27].

Proposed reasons for deviating from SOPs

A key reason proposed for deviating from SOPs was pharmacists' inclination to prioritise professional judgement, in line with the findings of Thomas *et al.* [6]. Professional judgement is believed to provide flexibility in adhering to SOPs in healthcare, given the ever-changing nature of the field, where protocols may not invariably match individual patient requirements [8, 28, 29]. For instance, in the study by Jones *et al.* [10] on CPs, interviewees believed that professional judgement occasionally prompted deviations from SOPs to implement actions more appropriate for patients. However, the application of professional judgement in community pharmacy is still not fully understood, highlighting the need for further research into how CPs employ professional judgement. This is particularly relevant in community pharmacy settings, where professional judgment is influenced by professional, commercial, and personal elements. Conflicts emerge in these environments due to the retail context, intricate remuneration systems, and heavy workloads, which may not always support prioritising patient care [30].

Our results highlight pharmacists' dependence on assumptions that certain sub-tasks have been completed by other healthcare professionals (HCPs) during prescription creation. This dependence also includes relying on staff to flag alerts from dispensing software. This issue is worsened by reported cases of inadequate communication in community settings [31], thereby reducing the effectiveness of dispensing software intended to help pharmacists identify unsuitable prescribing. Focus group discussions showed that pharmacists sometimes presume problems have been resolved by the prescribing HCP or highlighted by dispensers, leading to occasional oversights in reviewing those sub-tasks. This aspect of reliance on others/systems adds further complexity to the checking process, especially considering earlier studies [14, 32] that indicate CPs already engage in some degree of guess-work in their practice. Panel members remarked that such reliance is widespread in practice, especially with new or one-off patients and/or those treated in secondary care, where information sharing is often poor [33].

Furthermore, CPs' perceptions of patients' desired outcomes, with a focus on efficiency as a patient priority, were identified as a possible factor in deviations. This observation corresponds with prior research [11, 15] indicating that pharmacists often make compromises to fulfil patient expectations. However, patients' preference for efficiency in pharmacies is largely assumed, given the absence of direct evidence from patients themselves. Here, we identify an interaction between safety concerns and presumed patient demands for operational efficiency that affects pharmacists' decisions. As a result, pharmacists might choose less thorough checks to enhance efficiency; one illustration is with walk-in patients, where lacking patient history can prevent fulfilling minimum SOP requirements. Additionally, consistent with earlier studies [11, 31], work conditions were recognised as barriers to SOP adherence. One participant suggested that CPs' extended exposure to high-pressure settings has progressively moulded their practices, fostering a habit of performing fewer checks. This explains the deviations seen in our study, where pharmacists had sufficient time and no distractions yet still selected checks based on perceived relevance.

Strengths and limitations

The strengths of this study encompass its diverse sample, which closely reflects the actual pharmacist population, and the controlled environment that reduces external influences such as interruptions and time constraints. However, the comparatively small sample size (12 CPs), although diverse, may limit the broader applicability of the results to the wider pharmacist community, particularly due to the under-representation of highly experienced pharmacists. Moreover, the controlled research context, while beneficial for limiting external variables and lowering confounding risks, may not completely mirror the variable and demanding conditions faced in real practice.

The application of think-aloud yielded important insights into pharmacists' decision-making processes. Nonetheless, it must be noted that tacit knowledge could have affected CPs' checking, potentially remaining unvoiced during the think-aloud method—a known drawback of this approach [34]. To address this, participants were prompted as necessary to articulate every element they checked. Additionally, nearly all deviations have the potential for harm, varying from minor to serious. However, we recognise that this potential may not always materialise in practice. In this study, we assigned equal importance to all sub-tasks. It should also be mentioned that the study's scope may be restricted to CPs working in England.

Implications

This study revealed a pattern among CPs of skipping elements of SOPs, necessitating a re-evaluation of the importance and consequences of these protocols. By exposing this pattern, our study stresses the requirement for

a more sophisticated strategy to manage protocol adherence in the pharmacy field, recognising that such deviations may stem from entrenched habits. The intricacies of clinical checking [13, 15], which rely heavily on clinical reasoning, provide some explanation for the observed deviations. However, further exploration of how pharmacists develop their clinical judgment is needed. Additionally, we recommend revisions to SOPs to achieve a balance between adherence and flexibility, particularly in tasks involving clinical judgment.

Conclusion

This study indicates that deviations from established protocols occur during the clinical checking of prescriptions in community pharmacies. These deviations were noted in uninterrupted, controlled conditions, differing from usual workplace settings. This suggests a tendency among pharmacists where full compliance with SOPs may not be routine, independent of environmental influences. The factors contributing to this practice include the application of professional judgment, reliance on others, and prioritising patient preferences, especially regarding efficiency.

Future research should examine how risks linked to deviations from clinical checking SOPs can be mitigated and investigate approaches to balance efficiency with protocol adherence. This equilibrium seeks to preserve efficiency while reducing potential harms from noncompliance with established procedures.

Acknowledgments: None

Conflict of Interest: None

Financial Support: None

Ethics Statement: None

References

1. Harrison S, Smith C. Trust and moral motivation: redundant resources in health and social care? *Policy Polit.* 2014;32(3):371–86. doi:10.1332/0305573041223726
2. Smith K. Standardization as a key to quality. *HCPap.* 2009;9(3):56–8. doi:10.12927/hcpap.2009.20928
3. Clinical governance guidance. [Online]. 2013. https://cpe.org.uk/wp-content/uploads/2013/07/Clinical_Governance_guidance_updated_final.pdf. Accessed 01 Feb 2024.
4. Berwick DM. Controlling variation in health care: a consultation from walter shewhart'. *Med Care.* 1991;29(12):1212–25. doi:10.1097/00005650-199112000-00004
5. Dekker S, Bergström J, Amer-Wåhlin I, et al. Complicated, complex, and compliant: best practice in obstetrics'. *Cogn Tech Work.* 2013;15(2):189–95. doi:10.1007/s10111-011-0211-6
6. Thomas CEL, Phipps DL, Ashcroft DM. When procedures meet practice in community pharmacies: qualitative insights from pharmacists and pharmacy support staff. *BMJ Open.* 2016;6(6):e010851. doi:10.1136/bmjopen-2015-010851
7. Carter EJ, Wyer P, Giglio J, et al. Environmental factors and their association with emergency department hand hygiene compliance: an observational study. *BMJ Qual Saf.* 2016;25(5):372–8
8. Smith AF, Goodwin D, Mort M, et al. Adverse events in anaesthetic practice: qualitative study of definition, discussion and reporting'. *BJA.* 2006;96(6):715–21. doi:10.1093/bja/ael099
9. Watson MC. Using human error theory to explore the supply of non-prescription medicines from community pharmacies. *Qual and Saf in Health Care.* 2006;15(4):244–50. doi:10.1136/qshc.2005.014035
10. Jones CEL, Phipps DL, Ashcroft DM. Understanding procedural violations using Safety-I and Safety-II: the case of community pharmacies. *Saf Sci.* 2018;105:114–20. doi:10.1016/j.ssci.2018.02.002
11. Ashour A, Ashcroft DM, Phipps DL. Mind the gap: Examining work-as-imagined and work-as-done when dispensing medication in the community pharmacy setting. *Appl Ergon.* 2021;93: 103372. doi:10.1016/j.apergo.2021.103372
12. Phipps DL, Noyce PR, Parker D, et al. Medication safety in community pharmacy: a qualitative study of the sociotechnical context. *BMC Health Serv Res.* 2009;9(1):158. doi:10.1186/1472-6963-9-158

13. Clinical checks. [Online]. <https://www.rpharms.com/resources/quick-reference-guides/clinical-checks>. Accessed 01 Feb 2024.
14. Nusair MB, Guirguis LM. How pharmacists check the appropriateness of drug therapy? Observations in community pharmacy. *Res Social Adm Pharm*. 2017;13(2):349–57. doi:10.1016/j.sapharm.2016.03.004
15. Elgebli A, Hall J, Phipps DL. Clinical checking in practice: qualitative perspectives from community pharmacists. *IJPP*. 2023. doi:10.1093/ijpp/riad056
16. NVivo, Lumivero. [Online] Accessed 01 Feb 2024. <https://lumivero.com/products/nvivo/>.
17. Stanton NA. Hierarchical task analysis: developments, applications, and extensions. *Appl Ergon*. 2006;37(1):55–79. doi:10.1016/j.apergo.2005.06.003
18. Phipps D, Meakin GH, Beatty PCW, et al. Human factors in anaesthetic practice: insights from a task analysis. *BJA*. 2008;100(3):333–4. doi:10.1093/bja/aem392
19. Guidance. 2023 The pharmacists' defence association. [Online]. Accessed 01 Feb 2024. <https://www.the-pda.org/coronavirus/guidance/>.
20. Robson C, McCartan K. Real world research: a resource for users of social research methods in applied settings. 4th ed. Hoboken: Wiley; 2016.
21. Ericsson KA and HA Simon. Protocol Analysis: Verbal Reports as Data, Revised Edition. Cambridge, MA, USA: A Bradford Book, 1993.
22. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res in Psychol*. 2006;3(2):77–101. doi:10.1191/1478088706qp063oa
23. McDonald R. Rules and guidelines in clinical practice: a qualitative study in operating theatres of doctors' and nurses' views. *Qual and Saf Health Care*. 2005;14(4):290–4. doi:10.1136/qshc.2005.013912
24. Shorrock S. 2023 The varieties of human work, humanistic systems. [Online]. Accessed 01 Feb 2024. <https://humanisticsystems.com/2016/12/05/the-varieties-of-human-work/>.
25. Shorrock S. 2023 Proxies for work-as-done: 6. Work-as-simulated – humanistic systems. [Online]. Accessed 01 Feb 2024. Available: <https://humanisticsystems.com/2022/01/13/proxies-for-work-as-done-6-work-as-simulated/>.
26. Orasanu J, Connolly T. The reinvention of decision making', in Decision making in action: Models and methods. Westport, CT, US: Ablex Publishing; 1993. p. 3–20.
27. Phipps DL, Parker D. A naturalistic decision-making perspective on anaesthetists' rule-related behaviour. *Cogn Tech Work*. 2014;16(4):519–29. doi:10.1007/s10111-014-0282-2
28. Daker-White G, Hays R, McSharry J, et al. Blame the patient, blame the doctor or blame the system? A meta-synthesis of qualitative studies of patient safety in primary care. *PLoS ONE*. 2015;10(8):e0128329. doi:10.1371/journal.pone.0128329
29. Tang W. 2010 Exploring professional judgement. *Pharm J*. Accessed 01 Feb 2024. doi:10.1211/PJ.2022.1.151954
30. Roche C, Kelliher F. Giving "best advice": proposing a framework of community pharmacist professional judgement formation. *Pharmacy*. 2014;2(1):74–85. doi:10.3390/pharmacy2010074
31. Harvey J, Avery AJ, Ashcroft D, et al. Exploring safety systems for dispensing in community pharmacies: focusing on how staff relate to organizational components. *Res Social Adm Pharm*. 2015;11(2):216–27. doi:10.1016/j.sapharm.2014.06.005
32. Whaley C, Bancsi A, Burns C, et al. Pharmacists' perspectives on the value of reason for use information. *Can Pharm J*. 2020;153(5):294–300. doi:10.1177/1715163520946052
33. Jeffries M, Keers RN, Belither H, et al. Understanding the implementation, impact and sustainable use of an electronic pharmacy referral service at hospital discharge: a qualitative evaluation from a sociotechnical perspective. *PLoS ONE*. 2021;16(12): e0261153. doi:10.1371/journal.pone.0261153
34. Jääskeläinen R. Think-aloud protocol. In: Gambier Y, van Doorslaer L, editors. *Handbook of translation studies: volume 1*. Amsterdam: John Benjamins Publishing Company; 2010. p. 371–3. doi:10.1075/hts.1.thi1