Communication between community pharmacies and prescribers in New Zealand (pre-print)

Nastassja Trausch, James A. Green

School of Pharmacy, University of Otago, P O Box 56, Dunedin 9054, New Zealand

James.Green@ul.ie | ntrausch@protonmail.com

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Abstract

Background: Phone calls between pharmacists and prescribers play an important role in resolving potential errors and other issues. Despite their importance in patient care, and sometimes causing frustration for pharmacists, there is little research on these calls.

Objective: To quantify how long calls between pharmacists and prescribers are, how often phone calls occur, why calls are made, and who is called.

Method: An observational study was conducted with 130.5 hours observed in 11 community pharmacies over 8 weeks in XX, New Zealand, recording information about all incoming and outgoing calls. Data captured included information on length, date, time, reason for call, pharmacy staff involved, health professionals involved, and the place being called. We also surveyed pharmacists' perceptions of this communication.

Results: Data on 95 phone calls was captured. The mean length was 110 seconds (95% CI 88-133), at an average of 0.7 calls per hour. The most frequent reasons for calling were clarifications and dose inquiries.

Conclusion: Calling prescribers is perceived as a frustrating; however the frequency of calls we observed was low, but some were long. The amount of time spent for pharmacist interventions may be reduced using alternative communication methods but these need further study.

Keywords: interprofessional communication; telephone call; pharmacist intervention; prescriber

Impact on Practice

- Telephone calls were still the most frequently observed mode of communication between community pharmacies and prescribers, so interventions to reduce time burden on pharmacists need to involve reception staff, or encourage the use of new technologies
- New technologies may make it easier to access prescribers, bypassing gatekeepers such as reception staff

Background

Pharmacists need to telephone prescribers (usually physicians/doctors) where there are potential errors or other problems identified with a prescription. Prescribers sometimes call pharmacies, to enquire about the availability of medicines, for example. Self-report data suggests that most physicians receive less than four calls a day ¹, and that the advent of computer-generated prescriptions has reduced the number of interventions required by pharmacists ². Telephone calls remain the most preferred method of communication for pharmacists and prescribers, though pharmacists report wanting to explore electronic communication ³. Barriers to high quality collaborative communication have been identified in focus groups with pharmacists and prescribers ⁴.

Despite their importance in both the pharmacy workflow and to patient outcomes, there is little research on pharmacy-prescriber communication. With the exception of one small qualitative study ⁵, research has looked into only hypothetical written interactions involving either pharmacists ⁶ or pharmacy students ^{7,8}. Real interactions are more complex, as the pharmacist often needs to speak to the receptionist or other health professionals first.

Objective

To describe the frequency, reasons and modes of communication between pharmacists and prescribers, and the pharmacists' perceptions of pharmacy-prescriber communication.

Material and methods

Sampling

Community pharmacies in Dunedin, New Zealand (population 127000), were purposively sampled to capture a diverse cross-section. Data were collected in stratified

timeslots across weekdays (most medical centres close on the weekend). The University of Otago Human Ethics Committee approved this project (D17/040).

Telephone calls

The first author documented all telephone calls by direct observation in the pharmacy dispensary. Staff were encouraged to forewarn the observer, to ensure accurate timing of the communication's start. Timing started when the staff member pressed the call button after dialling a number (or when an incoming call was answered) and ended with the staff member finishing the call. If the pharmacy staff member started speaking to a different person, was put on hold or similar, the 'lap' function was used to divide the call length.

Calls were documented using a standardized recording sheet (based on an unpublished project): date, time, length, pharmacy staff involved, health professionals involved, other staff involved (e.g., receptionists), the place being called (e.g., medical centre, rest-home, hospital), and the purpose of the call. Where necessary, details were clarified with pharmacy staff afterwards.

Other communication modalities

Faxes were documented by staff members self-reporting or the researcher inquiring after observing a fax arriving. Notes were made about other observed communication methods.

Questionnaires

A seven-item questionnaire about pharmacy-prescriber communication was also given to one senior staff member at each pharmacy, usually to the charge pharmacist or dispensary manager (questions/responses in Supplementary Table 1).

Analysis

Data (available at <http://osf.io/7ppbn>) were analysed with *Microsoft Excel* and *R/RStudio*, using descriptive statistics (counts, means, and 95% confidence intervals).

Results and Discussion

Eleven pharmacies were visited between one and five times (range 4.5 to 18.5 hours observed; 130.5 hours total; details in Supplementary Table 2). Ninety-five prescription/prescriber calls were observed (Table 1). Fourteen were related to a previous call, 17 did not have an accurate start time (so the measured time underestimates total length), and six were unanswered. Calls were most frequently made in the morning, after lunch, and before closing (Supplementary Table 3).

Mean call length was 110 seconds (95% CI 88-133; range 10-731). As Figure 1 shows, the call length increased with more people involved in the call. Incoming phone calls were shorter than outgoing ones — incoming calls mostly involved a single outside caller and one pharmacy staff member. In contrast, when pharmacy staff make a call they are more likely to speak to multiple people before reaching resolution. Hospital calls were the longest and involved the most speakers on the other end. Medical centre calls were shorter and rest home calls were the shortest. Residents in rest homes stay over longer periods of time, so facility staff may know more about their residents, requiring less explanation time.

To speak to a doctor, pharmacy staff first spoke to a receptionist in a medical centre or several receptionists or nurses in a hospital, increasing the number of participants and the length of the call. Nurses in rest homes could be talked to directly decreasing call length. For outbound calls to medical centres, it took 81 seconds (range 39-283s) to reach the doctor, with pharmacy staff on average speaking to the doctor for 56 seconds (range 16-163 seconds). For outbound calls to hospitals, it took on average 71 seconds (range 37-106 seconds) to reach the doctor, with a longer time spent talking to the doctor (mean 101 seconds; range 25-212 seconds).

Most calls were made by pharmacists, and only a single outgoing call was made by a technician (to clarify a prescription). Calls most frequently involved medical centres (see Table 1), followed by hospitals and rest homes. Seventy-four percent of hospital calls were observed in two pharmacies closest to the hospital, one which supplied the private surgical hospital with medications. Eighty percent of calls to rest home calls were observed in one pharmacy, which also used electronic charting software to contact doctors.

The most frequent purposes for calling were clarifications and dose related inquiries (Table 1). Most dose related inquiries were made with hospitals because discharged patients frequently have dosage and medicine changes. Other frequent reasons for calls were patient medication information, communication confirmation, patient information, or cost to patient/funding-related issues. The last category is mostly New Zealand health system-related. So for example, these calls might be enquiring about which brand/formulation dose is currently publicly funded. However, other national health systems may generate similar system-related calls.

Collection of faxes was limited due to miscommunication, being unable to tell the difference between faxes and printing (devices usually served both functions), and some being unusable due to printing issues. However, 62 incoming fax prescriptions from hospitals and medical centres were documented, with one outgoing inquiry to a medical centre.

Nine completed questionnaires were received (Supplementary Table 1). In contrast to our observed calls (mostly made by pharmacists), pharmacies reported that a variety of

staff were 'usually' involved in making calls to prescribers. The self-reported frequency of incoming calls was mostly in the one to five calls a week range, but we observed medical centres making calls at approximately twice that rate. These calls may be less memorable, because there is no preparation for pharmacy staff or waiting time.

According to the questionnaire responses, pharmacies prepared differently for calls, but typical preparation included researching medicine information, patient information and potential solutions. Conversations went more smoothly if the calling person: prepared for the call, was friendly and succinct, or used alternative communication methods like faxes. Communication was more difficult due to: lack of preparation, prescriber unavailability, or policy to take faxed queries instead of calls.

In addition to calls and faxes, pharmacies reported emailing prescribers and talking to them in person. Two out of three pharmacies with supply rest homes used an electronic charting software to contact prescribers.

Discussion

Pharmacies communicated with prescribers less than once per hour, with calls averaging just under two minutes – but pharmacists spent much of that time waiting or talking to someone else other than the prescriber. This fits with prior research that a key issue is getting hold of the prescriber ⁴, and also the role that receptionists play as a gatekeeper, controlling how calls are forwarded within medical centres ⁹.

Despite recent technology-based solutions, such as secure electronic chat, shared patient records and electronic prescriptions, these were not frequently observed in the current sample. However, a reported advantage of telephone calls is that they lead to fast resolution ⁴. We did not observe insecure messaging apps, though anecdotal evidence suggests they may be used. In the UK, many hospital doctors use messaging apps for clinical communication ¹⁰, and in India some oncologists communicate with oncology pharmacists via Whatsapp ¹¹.

This study had several limitations. For practical reasons, we were only able to collect data in a small number of pharmacies in one city. Because days of the week and time of day were spread over different pharmacies, with some variation in total observation time in each pharmacy, we are unable to estimate between pharmacy variability. Miscommunication and not always reminding pharmacy staff led to staff not highlighting relevant phone calls and faxes, meaning the number of calls is likely an underestimate. Faxes were not distinct like phone calls so we were more reliant on staff reporting them.

Conclusion

Phone calls relating to prescriptions and medicines are a common and potentially frustrating task for pharmacy staff. However, we found that the overall number was quite low and only a small subset of calls were long. These longer calls were often a function of multiple waits and talking with other staff before reaching the prescriber, rather than long discussions with the prescriber, though there were a few calls where the interaction with the prescriber was long. Despite prior research with hypothetical communication suggesting that communicating with prescribers may be difficult ^{6,7}, this study suggests that one of the most challenging parts of communicating with a prescriber is getting through to the prescriber.

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Table 1. Pharmacy characteristics

Characteristics	n =11
Pharmacy properties	
Pharmacy size	
Big dispensary	1
Big dispensary and big retail	4
Big retail	3
Medium to small size	4
Individual or chain pharmacy	
Individually owned	5
Chain store	6
Staff using the phone/fax in the dispensary	
Pharmacist	2
Pharmacist and Technician	4
Pharmacist and Intern	4
Pharmacist, Technician and Intern	1
Supplying at least one rest home	3
Location	
Location of the pharmacy	
City Centre	10
Rural	1
Surrounding facilities	
Close to the hospital	4
Adjacent medical center	3
In a retail complex	5
Mall	3
Other	2
No surrounding facilities	2

Table 2. Frequencies of telephone calls by call characteristics

	Total		Hospital		General Practice		Rest Home		other	
	n=89	%	n=23	%	n=29	%	n=20	%	n=17	%
Direction										
Incoming	40	45	9	39	12	41	8	40	11	65
Outgoing	49	55	14	61	17	59	12	60	6	35
Professions involved										
Doctor [physician]	28	31	7	30	18	62	-	-	3	18
Nurse	37	42	13	57	2	7	19	95	3	18
Receptionist	44	49	13	57	18	62	9	45	4	24
Case Manager	5	6	-	-	-	-	-	-	5	29
Other	3	3	-	-	-	-	-	-	3	18
Highest profession										
Doctor [physician]	28	31	7	30	18	62	-	-	3	18
Nurse	36	40	12	52	2	7	19	95	3	18
Receptionist	17	19	4	17	9	31	1	5	3	18
Case Manager	5	6	-	-	-	-	-	-	5	29
Other	3	3	-	-	-	-	-	-	3	18
Number of speakers										
1 to 1	53	60	11	48	17	59	11	55	14	82
Incoming	33	37	8	35	9	31	7	35	9	53
Outgoing	20	22	3	13	8	28	4	20	5	29
1 to 2	21	24	6	26	8	28	6	30	1	6
1 to many	8	9	5	22	1	3	2	10	-	-
2 to 1	7	8	1	4	3	10	1	5	2	12
Reasons										
Clarification	29	33	6	26	13	45	10	50	-	-
Drug-Drug-Interaction	5	6	-	-	3	10	1	5	-	-
Dose related	18	20	7	30	3	10	3	15	2	12
Early/additional dose	4	4	1	4	1	3	-	-	2	12
Medicine substitution	2	2	1	4	-	-	-	-	1	6
Telephone script	3	3	1	4	-	-	-	-	2	12
Cost to patient/ Funding related	6	7	1	4	2	7	1	5	1	6
Stock inquiry	4	4	2	9	1	3	-	-	1	6
Patient information	6	7	1	4	-	-	1	5	2	12
Patient medicine info.	8	9	3	13	1	2	2	10	1	6
Communication confirmation	7	8	3	13	3	10	-	-	1	6
other	15	17	4	17	4	14	3	15	4	24

Note: This table contains only information on phone calls that got through to the other speaker.
(n=89)

Figure 1. Length of call by type. Diamonds represent means and 95% confidence intervals [www.diamondplots.com]. Circles represent individual data points with vertical scattering to avoid overplotting.