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Response to the first wave of the COVID-19 pandemic in the community pharmacy of a University Center for Primary Care and Public Health

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ABSTRACT

Background: Pharmacists played a key role during the coronavirus disease 2019 (COVID-19) pandemic: they contributed to preventing transmission and to maintaining continuity of primary care.

Objectives: To present the contributions of a Swiss pharmacy of an academic outpatient care department (Unisanté) to the prevention of COVID-19 transmission and the precautionary measures plan implemented as well as to evaluate the impact of Swiss semicontainment on its pharmacy services.

Methods: Contributions to COVID-19 transmission prevention and the precautionary measures plan are described. The impact on pharmacy services was measured by quantitative comparison before, during and after semicontainment.

Results: The pharmacy supplied protective equipment to the population and to liberal healthcare professionals and provided COVID-19 recommendations to patients and community pharmacies. The precautionary measures plan implemented required a reorganization of the premises, facilities, staff operation and pharmacy services. Semicontainment had a strong impact on pharmacy services; however, clinical bonds with patients and other healthcare professionals were maintained. Unseen negative impacts may exist and need to be investigated.

Conclusions: Although innovative solutions remain to be developed to guarantee continuous and secure remote communication with patients, this pandemic was an opportunity to demonstrate the versatility, benefit and importance of community pharmacy services.

Introduction

The spread of coronavirus disease 2019 (COVID-19) was characterized by the World Health Organization (WHO) as a pandemic on March 11, 2020.¹ COVID-19 has rapidly become a major international issue and has put health systems under pressure.

In Switzerland, in response to the first wave of the COVID-19 pandemic, the health authorities introduced “semicontainment” on March 16, 2020.² Containment has not been strictly mandated, but strong recommendations were given to remain at home whenever possible, especially for vulnerable people.³ This semicontainment lasted six weeks, from March 16 to April 26, 2020. Since April 26, the authorities have progressively lifted the measures, leaving some stringent measures in place, and have continued to implement the hygiene measures.

During the semicontainment, Swiss community pharmacies were

considered essential shops and remained open but had to implement a precautionary measures plan to guarantee patient and staff safety.⁴

This paper aims to describe the contributions of a Swiss pharmacy of an academic outpatient care department to the prevention of COVID-19 transmission and the precautionary measures plan implemented to sustain continuity of primary care and to evaluate the impact of semicontainment on its pharmacy services.⁵

Methods

The pharmacy of Unisanté is a public community pharmacy with academic activities affiliated with the University of Geneva and the University of Lausanne (Switzerland). It is part of the University Center for Primary Care and Public Health (Unisanté)⁶ in Lausanne, which includes an outpatient care department and is located next to a major inpatient hospital. It has 41.4 full-time equivalent (FTE) employees:

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14.4 FTE pharmacists and 15.7 FTE pharmacy technicians, both involved in pharmacy services, and 3.7 FTE research positions. It includes a community pharmacy, drug information center and research unit.

In addition to offering usual pharmacy services, the community pharmacy provides a specialty pharmacy service under the interprofessional medication adherence program (IMAP).^{7,8} This aims to support medication adherence through patient-pharmacist interviews conducted in consultation rooms and medication adherence monitoring with an electronic monitor. Every working day, one pharmacist and one technician are fully dedicated to this program. In March 2020, 319 patients, most of whom had HIV, multiple sclerosis or cancer, participated in this program.

The main tasks of the drug information center are to provide pharmaceutical guidance for healthcare professionals and hotline assistance for healthcare professionals (especially those working in the Travel Clinic of Unisanté⁹) and patients. Every working day, one pharmacist is fully dedicated to providing hotline assistance.

Contributions to preventing the transmission of COVID-19 and the precautionary measures plan implemented are described. This plan was based on the specific recommendations tailored to community pharmacies, edited by Swiss health authorities (cantonal/federal levels) by the Federal Office of Public Health (FOPH)¹⁰ and by professional pharmacist associations^{11,12} to be in line with the recommendations of the Federal Council¹³ and the International Pharmaceutical Federation (FIP).¹⁴

The pharmacy services of the community pharmacy and the drug information center were compared before, during and after semicontainment. As it lasted six weeks (from March 16 to April 26), the pre- and postsemicontainment were defined as six weeks before (from February 03 to March 15) and after (from April 27 to Jun 07) semicontainment. Data were collected through the usual documentation of routine activities.

Results

The pharmacy contributed to preventing the transmission of COVID-19 by supplying masks and alcohol-based hand sanitizers to the population, and it collaborated with local health authorities to ration and distribute medical masks to liberal healthcare professionals (e.g., physicians, nurses, midwives, physiotherapists, paramedics, and staff of other community pharmacies). The pharmacy implemented this task overnight by restructuring its internal organization: a specific queue for customers was created, and staff were assigned to it. It delivered 3037 boxes of masks to 1327 healthcare professionals (individuals/organizations) over three weeks. Afterward, civil defense centers undertook this task. Moreover, the pharmacy promoted COVID-19 recommendations to patients. The staff received training and regular updates to counsel, inform and educate patients about COVID-19. Official posters on current recommendations for the population were displayed on the front door and walls of the pharmacy.¹⁵

To help maintain continuity of primary care by sustaining pharmacy services while protecting patients and staff regarding COVID-19, the pharmacy implemented a precautionary measures plan (Table 1). This required the reorganization of the premises, facilities, staff operation and services themselves.

Over the three periods, none of the staff tested positive for COVID-19 and/or had to be quarantined.

The first section of Table 2 presents the drug dispensing service with the number of patient pharmacy visits and home deliveries. The second section reports the activity of IMAP with the number of patient inclusions, of patient-pharmacist interviews (with total and median durations) and of drug refills.

Internal and external phone calls (incoming/outgoing), corresponding to interactions with healthcare professionals at Unisanté and/or the nearby hospital and with patients, respectively, were observed

Table 1

Precautionary measures plan implemented in the pharmacy during the semi- and part of the postsemicontainment periods to guarantee patient and staff safety regarding COVID-19.

Reorganization types	Measures implemented
Premise and facility reorganization	<p>In the sales area/waiting room:</p> <ul style="list-style-type: none"> • Set up a rope between the counter and the patients to ensure interpersonal distancing between patients and staff. • Ground marking and limiting and distancing seats to ensure interpersonal distancing between patients. • Providing patients with alcohol-based hand sanitizers and medical masks and removing magazines. • Disinfection of pharmacy surfaces twice daily: counters, cash registers, keyboards, card readers. • Favor card payments (ideally contactless). <p>In the back office:</p> <ul style="list-style-type: none"> • Cleaning of frequently touched objects (e.g., telephones, workstations, coffee machine) twice a day. • Ensuring good ventilation of the premises. <p>Beyond the pharmacy:</p> <ul style="list-style-type: none"> • Virtual private network implementation for each staff member to enable home office work for compatible activities.
Staff operation reorganization	<ul style="list-style-type: none"> • Half-shift work implementation in the community pharmacy team to limit the risk of staff cross-contamination: one shift worked at the pharmacy in the morning and at home in the afternoon, and the other shift worked at home in the morning and at the pharmacy in the afternoon. • Support equivalent to 2 FTE (7 staff members reassigned from other units of the pharmacy/departments of Unisanté) plus 1 FTE (2 civilians) to help with daily tasks in the community pharmacy unit and 0.5 FTE (2 other staff members reassigned from other departments of Unisanté) to ensure daily home deliveries to patients. • Pregnant women (n=3) only performed tasks not requiring direct contact with patients. • Pharmacists from the research and educational team worked at home and were enlisted if necessary. • Cancellation of planned vacations/recovery of overtime hours. • Invitation to limit the use of public transport to commute to the pharmacy, as local authorities increased the capacity of nearby free parking spaces to encourage individual work commuting among health professionals. • Masking upon entering the premises; hand disinfection upon entering the premises, after each contact with a patient and at regular intervals.
Pharmacy service reorganization	<ul style="list-style-type: none"> • All activities not requiring the employee's presence at the pharmacy were carried out at home (e.g., pharmacy technicians: invoicing, online training; pharmacists: drug information center tasks, preparation/updating of standard operating procedure). • Favor phone contact with patients. • Extension of the home delivery service for patients to limit patient commuting. • Weekly pill boxes prepared for longer durations. • Interprofessional medication adherence program: <ul style="list-style-type: none"> – suspension of patient inclusions; – cessation of patient-pharmacist interviews in consultation rooms: these were conducted by phone or at the counter for patients with major problems with medication adherence, and all others were cancelled; – drugs repacked in the electronic monitors were preferentially delivered at home.

over the three periods. While internal calls remained similar (approximately 1500 ± 300 calls per period), external calls were 1.4 times more frequent during semicontainment, reaching over 2200 calls. Regarding calls specifically related to IMAP, internal calls slightly decreased during

Table 2

Activity of the drug dispensing service and of the interprofessional medication adherence program (IMAP) over the presemicontainment, semicontainment, and postsemicontainment periods.

	Presemicontainment	Semicontainment	Postsemicontainment
Drug dispensing service			
Patient pharmacy visits	4608	2413	2764
Patient home deliveries	12	369	89
Interprofessional medication adherence program			
Patient inclusions	19	0	5
Patient-pharmacist interviews	127	9	94
Total time (minutes)	2115	107	1275
Median time [Q1-Q3] (minutes)	12 [7–20]	10 [7–15]	12 [7–20]
Drug refills ^a	66	189	67

Q1: 1st quartile; Q3: 3rd quartile.

^a Drugs repacked in electronic monitors and delivered with shorter patient-pharmacist contacts instead of formal interviews.

semicontainment, whereas external calls were 2.4 times more frequent, reaching 870 calls.

In March 2020, the community pharmacy regularly prepared drug pill boxes for 88 patients. During the first COVID-19 wave, the frequency of drug pill box delivery was decreased for 69 of them (Table 3).

The drug information center created seven guidance documents summarizing the latest COVID-19-specific recommendations from cantonal health authorities and federal and local pharmacist associations to assist community pharmacy teams. These documents were posted on the Unisanté website¹⁶ and disseminated at a national level through the Swiss professional pharmacists association website.¹¹ From their creation (April 2020) to the end of postsemicontainment, the Unisanté webpage received 2053 visits. Over this period, one pharmacist created and continuously updated these documents, and two others validated them for over 80 h of total workload.

Table 4 presents the hotline assistance activity based on the number of questions received. Questions decreased during and after semicontainment, particularly clinical questions.

Discussion

To contribute to preventing COVID-19 transmission, the pharmacy was forced to take on new roles and responsibilities. As with other Swiss pharmacies, it participates in the collective effort to maintain the healthcare system during a crisis.

The implemented precautionary measures plan followed most of the FIP recommendations.¹⁴ Similar measures (limiting the personnel onsite, hygiene measures, interpersonal distancing and contact minimization) to protect staff and patients have also been described.^{17–20} This shows that even semicontainment required a full reorganization of

the pharmacy, with protective measures similar to those implemented in pharmacies in countries with stricter containment. Those measures seem to have been effective in safeguarding staff, as no one tested positive for COVID-19 and/or had to be quarantined. Their efficacy for patient safety cannot be assessed in the absence of measurement data.

Semicontainment strongly impacted pharmacy services at the organizational level, replacing patient pharmacy visits with home deliveries. Home deliveries had previously been an anecdotal practice, therefore it required the revision of processes and hiring delivery staff. To ensure continuity of the drug supply and pharmacy services, the staff kept in touch with patients by phone, and patient-pharmacist phone contact preceded each home delivery. This explains the external call increase during semicontainment. Therefore, the expansion of home deliveries seems to effectively reduce patient pharmacy visits and possible exposure to COVID-19 during the commute, while phone contacts maintained the clinical bonds.

The pharmacy also had to adapt its drug pill box service through an interprofessional approach: the pharmacist weighed the benefit/risk balance for each patient to find the best option to lower the delivery frequency and discussed every change with the physician. Among the 19 patients for whom the delivery frequency was unchanged, 17 already had a low frequency of every 3 or 4 weeks. The delivery frequency for the two other patients remained high due to the risk of overuse of neuroleptics, antiepileptics, antidepressants and/or anxiolytics. Indeed, this risk increases with larger supplies,²¹ and sudden changes for patients with psychotic disorders could lead to decompensation and relapse.²²

Regarding the impact on IMAP, the ratio of interviews to drug refills was completely reversed, and most drug refills were home delivered. The pharmacists still conducted nine interviews with patients known to have major adherence issues, either at the counter or by phone instead of the usual consulting rooms. Despite changing the process, the time spent with patients remained similar, suggesting no impact on interview content. As interviews at the counter can affect patient privacy,¹⁹ innovative solutions, such as secured video communication, should be explored in the future.²³ This option was not implemented during semicontainment due to the lack of time, technical equipment and available staff members. A similar attitude was observed with regard to reorganization in Dutch community pharmacies.¹⁹ Such digital communication would enable, in a crisis context, the maintenance of remote face-to-face patient-pharmacist interviews with closer contact than the phone while guaranteeing the same level of confidentiality. However, the use of such communication may be complicated for some patients, requiring prior in-person demonstration. As our pharmacy serves a mixed population, interpreters are sometimes required, and the increase in stakeholders could complicate the use of digital communication.

The activity of the drug information center was impacted by the new responsibility of publishing online updated guidance documents addressed to the community pharmacies in the canton. The significant number of visits to the webpage illustrates the real need among community pharmacists for centralized, updated and specific recommendations to their activities and to their local and legal contexts. The availability of such information is recognized as a facilitator of COVID-19 patient management.²⁰ The decreased questions received on the

Table 3

Decreases in the delivery frequency of the drug pill boxes.

	to 1x/4 weeks	to 1x/3 weeks	to 1x/2 weeks	to 1x/week	to 2x/week
From 1x/4 weeks (n = 16)	16 (unchanged)	n.a.	n.a.	n.a.	n.a.
From 1x/3 weeks (n = 5)	4	1 (unchanged)			
From 1x/2 weeks (n = 39)	38	1	0		
From 1x/week (n = 24)	16	2	5	1 (unchanged)	
From >1x/week (n = 4)	0	0	1	2	1 (unchanged)

n.a.: not applicable.

Table 4

Number of questions received on the assistance hotline by type and origin over the presemicontainment, semicontainment, and postsemicontainment periods.

	Presemicontainment	Semicontainment	Postsemicontainment
Number of questions by type			
Clinical questions	137	32	40
Drug interactions	67	3	8
Drug equivalences and alternatives	30	14	16
Drug use ^a	15	12	9
Drug composition	8	0	6
Contraindications	9	2	0
Adverse effects	6	1	1
Pregnancy and breast-feeding	2	0	0
Logistical questions	64	39	21
Drug purchasing	29	17	14
Temperature excursions	23	18	4
Drug storage	12	4	3
Other	3	0	1
Number of questions by origin			
Other healthcare professionals	75	32	30
Travel clinic	70	2	4
Community pharmacy sector	44	35	24
Patients	15	2	4
Total	204	71	62

^a Questions related to “drug use” could be related, for example, to dose adjustments or drug crushing.

hotline, especially those related to drug interactions, are mostly due to the closure of the Travel Clinic of Unisanté since the beginning of semicontainment. More globally, the decrease in clinical questions compared with logistical questions reflects the reduction in clinical activity associated with the suspension of nonurgent medical consultations, whereas logistical activity was less impacted. The need of community pharmacists for specific COVID-19 information and of healthcare professionals to obtain information related to drugs underlines the importance of such a local center in a pandemic.

Whereas adaptations from the precautionary measures plan could maintain most of the pharmacy services, their impact on patients and staff is unknown. Indeed, the decrease in patient pharmacy visits, face-to-face patient-pharmacist contacts, and delivery frequency of the pill boxes, as well as suspension of patient inclusions and of most interviews in IMAP, may affect patient clinical outcomes and/or satisfaction. The sudden changes in organization/work practice and in shift work, the decrease in staff continuity, staff members' reassignments, and cancellation of vacations/overtime hours and the anxiety and stress from the pandemic, probably affected the psychological health of staff.²¹ In addition, human resource reallocation may possibly impact the education and research activities of the pharmacy, but this was outside the scope of this paper.

Conclusions

This article presented the first wave of the COVID-19 response of a community pharmacy located in an academic outpatient care department providing specialty pharmacy services in Switzerland that implemented semicontainment. The pharmacy contributed to preventing COVID-19 transmission and sustained continuity of primary care through a precautionary measures plan, which was shown to be effective in protecting staff and sustaining essential pharmacy services. While the organization of pharmacy services was strongly impacted, clinical bonds with patients and other healthcare professionals were maintained. Unseen negative impacts on patients and staff may exist but need to be investigated. The pharmacy had to take over new roles and responsibilities to relieve a strained health system. Indeed, COVID-19 challenged health systems worldwide, and as healthcare professionals, pharmacists were on the front line and played a key role, forcing them to find solutions to ensure the continuity and quality of primary care. Pharmacists had to quickly adapt their processes to ensure drug access and pharmacy services while protecting patients and staff. Although innovative solutions remain to be developed to guarantee continuous

and secure remote communication with patients, this pandemic was an opportunity to demonstrate the versatility, benefit and importance of community pharmacy services.

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CRedit authorship contribution statement

Aline Bourdin: Conceptualization, Methodology, Investigation, Project administration, Data curation, Formal analysis, Writing – original draft. **Jennifer Dotta-Celio:** Conceptualization, Methodology, Data curation, Writing – original draft. **Anne Niquille:** Conceptualization, Methodology, Writing – review & editing. **Jérôme Berger:** Conceptualization, Methodology, Writing – review & editing, Supervision.

Declaration of competing interest

None.

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